DEPARTMENT OF ECOLOGY
State of Washington

Sediment Cleanup Advisory Committee

Department of Ecology, Toxics Cleanup Program

Advance Materials for Committee Review

Fall 2011

Advance Materials for Committee Review

This packet of advance materials is being provided for Review by the Sediment Cleanup Advisory Committee members before committee meetings start in late October 2011.

The following materials are included:

1. Proposed Committee Meeting Agendas
2. Sediment Cleanup Advisory Committee Background—ListServe Text from 9/30
3. Anticipated Rule-Making Processes—Diagram
4. Fish Consumption Report Focus Sheet
5. SMS Framework Proposal—Narrative and Diagrams
6. Revised SMS Rule Language—Partial Preliminary Draft

Washington State Department of Ecology
Sediment Cleanup Advisory Committee

October 28, 2011
9:30am–3:30pm
Ecology Headquarters, Lacey, Washington

Agenda

9:30–10:00	1. Introductions, Process Guidance, and Welcome—Jim Pendowski
10:00–10:30	2. Context Ecology's Rule Revisions

i. Broad Ecology Direction on Human Health
ii. Multi-program effort, TCP, WQ and EAP - ongoing nonpoint source reduction effort
iii. Fish Consumption Rates process
iv. Parallel rule revision process

10:30–10:45	Break—15 minutes
10:45–11:45	Q&A—Advisory Committee Members
11:45–12:00	Audience Comment Period
12:00–12:15	Lunch Break
12:15–1:00	3. SMS Framework Overview and Objectives
1:00–3:00	Input Framework Overview—Advisory Committee Members

i. Do you have any clarifying questions about the framework?
ii. Do you have any suggestions on how to improve the framework to meet concerns you may have?
iii. Does the rule language support the framework objectives?
iv. If not, what changes need to be made?

3:00–3:15	Audience Comment Period
3:15–3:30	4. Follow-up Needed and Next Meeting Discussion Topics

Washington State Department of Ecology
Sediment Cleanup Advisory Committee

November 18, 2011
9:30am–3:30pm
Ecology Office, Bellevue, Washington

Agenda

9:30–9:45 1. Introductions

9:45–10:30 2. Cleanup Process and how the SMS rule revisions apply:

i. Liability principles (SMS rule section -500)
ii. Site investigation and evaluation (SMS rule section -560, -580))
iii. Establishing site units (SMS rule section -500)
iv. Establishing site units (SMS rule section -500)
v. Establishing background concentrations (SMS rule section -570).

10:30–11:45 Input and Feedback—Advisory Committee Members

i. We want to know if it is an implementable, protective, and legally defensible solution. Does the rule language capture the necessary specificity and clarity? If not, what suggestions would you provide for either question?

11:45–12:00 Audience Comment Period

12:00–12:30 Lunch Break

12:30–1:00 3. Settling liability for Site Unit Cleanup, Source Control

i. Relevant SMS rule provisions for selection of cleanup actions (Section 580)
ii. PLP Source Control for Site Unit
iii. PLP Liability Settlement for Site Unit (SMS rule section -500)

1:00–2:00 Input and Feedback—Advisory Committee Members

i. Is an implementable, protective, and legally defensible solution? Does the rule language capture the specificity, clarity? If not, what suggestions would you provide for either question?

2:00–2:15 Break

2:15–3:00 Discussion, Input, and Feedback—Advisory Committee Members

i. Additional input on all Site Unit focused discussion from today. Think about your own sites and how this could work, would this concept and rule language work? Are there areas that you view as problems? What are your ideas about how to address problems you have identified?

3:00–3:15 Audience Comment Period

3:15–3:30 4. Follow-up Needed and Next Meeting Discussion Topics

Washington State Department of Ecology
Sediment Cleanup Advisory Committee

December 9, 2011
9:30am–3:30pm
Ecology Office, Bellevue, Washington

Agenda

9:30–9:45	1. Introductions
9:45–10:15	2. PLP Liability and Involvement for Larger Site
	i. PLPs can settle for smaller Site Units, but still retain liability for larger sediment Site
	ii. Settle liability for larger site through contribution to Cleanup Settlement Account if contribution to larger site is minimal
	iii. Or PLP maintains liability and involvement for larger site cleanup and source control
	iv. Cleanup Settlement Account—fund baywide actions by Ecology
	v. Long term commitment to meet Sediment Cleanup Objective
	vi. Additional reductions in regional concentrations through agency wide efforts – WQP, EAP
10:15–10:45	Input and Feedback—Advisory Committee Members
10:45–11:00	Break
11:00–11:45	Input and Feedback—Advisory Committee Members
11:45–12:00	Audience Comment Period
12:00–12:30	Lunch Break
12:30–12:45	3. Freshwater Sediment Standards—frame policy decisions and rule language structure
12:45-1:45	Advisory Group Feedback
1:45–2:00	Audience Comment Period
2:00–2:30	4. Moving Forward
	i. Proposed follow-up on key issues
	ii. Formal Process
	a. TCP and WQ Processes
	b. Fish Consumption Rate Process
	c. Rule and Associated Guidance
	d. Opportunities for Additional Input
2:30–3:00	Input and Feedback—Advisory Committee Members
3:00–3:15	Audience Comment Period
3:15–3:30	Wrap-up and Thank You

THIS OVERVIEW OF THE SEDIMENT CLEANUP ADVISORY COMMITTEE WAS SENT OUT TO ECOLOGY'S LISTSERVE ON 9/30/11

The Washington State Department of Ecology is starting a process to take public input on Sediment Management Standards (SMS) rule revisions. The process includes:

Meetings of a Sediment Cleanup Advisory Committee: October - December 2011

Public comments submitted by email and on Ecology's website: October - December 2011

Background

In 2009, Ecology started a rule making process that included the Model Toxics Control Act (MTCA) and the cleanup portions of the Sediment Management Standards (SMS) rule. Ecology asked for input from two groups on the policy and technical issues identified for rule revisions:

- A MTCA/SMS Advisory Group provided input on the general approach, technical issues, and feasibility of various rule-related issues.
- A Sediment Workgroup, made up of sediment specialists, provided scientific and technical advice. They worked on issues related to (1) establishing a decision framework for cleanup of contaminated sediments and (2) development of freshwater sediment standards.

These work sessions helped Ecology to develop a decision framework that addresses cleanup of bioaccumulative chemicals in sediment that pose a risk to human and environmental health. Ecology is using this framework to develop draft SMS rule language.

In November 2010, Ecology stopped work on updating the MTCA rule after Gov. Gregoire issued Executive Order 10-06, which temporarily suspended non-critical rulemaking. However, Ecology determined that updating the SMS rule is necessary to protect public health, so work on this rule continues.

Following the 2009-2010 advisory process, Ecology continued technical analyses related to the SMS decision framework. Now the agency is ready to ask for more public input.

Sediment Cleanup Advisory Committee

Starting in October 2011, Ecology will convene a Sediment Cleanup Advisory Committee. Ecology will ask committee members to provide feedback on the draft rule language for the updated SMS decision framework. Ecology will consider this input when developing draft rule language.

The meetings will present and ask for feedback on:

- Key policy, technical and implementation features of the decision framework for sediment cleanup and source control.
- Associated liability principles.
- Implementation case studies.
- The relationship to agency-wide regional source reduction initiatives.
- Freshwater sediment standards.

Committee members have been selected to provide balanced and representative viewpoints. Many members participated in the 2010 MTCA SMS Advisory Group or Sediment Workgroup.

Three meetings are scheduled between late October and December.
October 28, Ecology Office in Lacey
November 18, Ecology Office in Bellevue
December 9, Ecology Office in Bellevue

All meetings are open to the public. Directions, agenda and materials will be posted on the Ecology website two weeks before the scheduled meeting date.

Ecology is asking for informal public input

- In parallel with the advisory committee process, the proposed decision framework will be available for informal public comment. A description of the framework and preliminary draft rule language will be posted on the Ecology website.
- For more information about Advisory Committee meetings, web updates, and related items go to: http://www.ecy.wa.gov/programs/tcp/regs/2011-SMS/2011-SMS-hp.html.

A formal public input process is planned for 2012
After receiving informal feedback and input, and engaging in dialogue with tribes, Ecology will move forward with draft rule language. As required by the Administrative Procedures Act, Ecology will provide opportunity for formal public comments on the draft rule language.

- Ecology anticipates that draft rule language will be ready for formal public comment in spring 2012.
- Once the draft rule is ready, Ecology will complete the regulatory and economic analyses required by the APA, and will accept comments on these analyses.
- A final rule is scheduled for late fall 2012.

Related Ecology Efforts
Fish Consumption Rates: There is evolving understanding about bioaccumulation of toxic chemicals and the potential risk to people who eat fish and shellfish.

Ecology is updating the default fish and shellfish consumption rates used in certain regulatory decisions. This effort is a collaboration between Ecology's Toxics Cleanup and Water Quality programs, and will include significant dialogue with tribal communities.

Additional information related to Ecology's work on fish consumption, including information on how to get involved, is being prepared and will be available through the website.

What is the relationship between work on sediment management standards, fish consumption rates, and water quality standards?

Ecology's work related to updating fish consumption rates, work on updating the SMS rule, and future work on updates to water quality standards are separate but coordinated processes. Although updates to the sediment management standards and water quality standards will occur at different paces, Ecology is coordinating efforts on key issues where integration is required.

The proposed SMS decision framework addresses bioaccumulative chemicals and will reflect updated fish consumption rates. The decision framework is focused in the near term on maximizing implementation of critical sediment cleanups and source control to reduce regional

concentrations, and then further reducing regional concentrations to levels protective of Washington fish and shellfish consumers.

Ecology encourages and welcomes public input. Please continue to visit www.ecy.wa.gov for information on these and related issues.

If you have questions about this announcement please contact:
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Sept – Dec 2011	Jan – April 2012	May – Dec 2012	2013 – Early 2014

Draft Fish Consumption Rate Report
Informal Public Comment
Tribal Meetings
Cross-Program Deliberations

Joint Process Between TCP & WQP

FCR Public Conference

FCR Rate/ Range Conclusions

TCP & WQP

SMS Frmwk Matls and Cross-Program Msgs

Sediment Cleanup Advisory Committee Meetings

TCP

Refine SMS Draft Rule Language Based on Advisory Input

TCP

Prep SMS Rule Revisions for Formal Public Comment – CR-102

SMS Rule Revisions

Formal Public Comment Promulgation

TCP

Rule Revision Process #1—TCP

Cross – Program Integration on Key Issues

WQP and TCP

Prep WQ Implementn Tools Proposal

WQP

Informal Public Input Water Quality Implementation Tools

WQP

Refine Water Quality Implementation Tools

WQP

Prep WQ Implmtn Tools for Formal Public Comment – CR-102

WQP Rule Revisions re: Water Quality Implementation Tools

Formal Public Comment

Adoption – CR-103 - Submit to EPA for CWA Approval

WQP

Rule Revision Process #2—WQP

Begin Process to Develop New WA-Only Human-Health Based Water Quality Criteria

File CR-101

WQP

Process for WQP Rule Revisions re: New H-H Based WQC, Includes Informal Input and Formal Public Comment

Adoption – CR-103 - Submit to EPA for CWA Approval

WQP

EPA Removes from NTR after CWA Approval

Rule Revision Process #3—WQP

DEPARTMENT OF ECOLOGY
State of Washington

Anticipated TCP and WQP Rule Making Processes

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Fish Consumption Rates

Since toxic chemicals are found in fish and shellfish, our state is continuing to work on this problem by developing a more accurate view of how much fish and shellfish Washington residents eat.

How are fish consumption rates used?

Washington uses fish consumption rates as a basis for environmental cleanup and pollution control. Currently two rates – 6.5 grams per day (in water quality standards) and 54 grams per day (in the Model Toxics Control Act regulation) – provide default values used in setting regulatory standards. These rates date from the 1980s and 1990s and do not reflect what we now know about how much fish people in Washington eat.

Ecology is reviewing these default rates. Currently the risks associated with eating contaminated fish and shellfish are based on outdated information about the general population and recreational anglers.

Recent dietary intake surveys indicate that Washington residents likely consume fish and shellfish at rates higher than the rates currently used in these two regulations.

Why is Ecology revising default fish consumption rates?

Eating contaminated food is a primary exposure pathway to toxics in the environment. New scientific and regulatory developments over the past 20 years mean updates are needed.

Ecology evaluated survey information about Pacific Northwest fish and shellfish consumption. The goal of this work is to update the default fish consumption rates to better reflect the habits and patterns of Washington fish consumers.

What exactly is Ecology doing?

Ecology is reviewing two rules affected by fish consumption rates.

- The Toxics Cleanup Program is updating the Sediment Management Standards to address bioaccumulative chemicals that are a risk to human health.
- The Water Quality Program will look at the Surface Water Quality Standards in two phases: addressing implementation tools first and updating human health criteria at a later date.

Updates are being developed to better reflect what we know about fish and shellfish consumption in Washington.

WHY IT MATTERS

Ecology is addressing toxic pollution by focusing on five areas:

- Cleanup and restoration of toxic waste sites
- Preventing toxic chemicals from getting into the environment
- Monitoring and understanding toxic loading in waters of the state
- Urging reform of the national toxics policy by updating the Toxic Substances Control Act
- Updating the state's default fish consumption rates used in our Sediment Management Standards and Water Quality Standards.

www.ecy.wa.gov/toxics

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For more about fish consumption rates please visit our web site
www.ecy.wa.gov/toxics/fish.html

Please send comments on fish consumption rates to:
fishconsumption@ecy.wa.gov

Special accommodations

If you need this document in a format for the visually impaired, please call the Toxics Cleanup Program at (360) 407-7170. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

How is Ecology going about developing updated default fish consumption rates?

In a preliminary analysis Ecology reviewed and considered:

- Recent data on fish and shellfish consumption rates for different population groups.
- Approaches used by Oregon, EPA, and other Washington state agencies.
- Uncertainty and variability in fish and shellfish consumption rates for different population groups and individuals within those groups.
- Current and potential future exposures resulting from fish and shellfish consumption.
- State laws and policies, including MTCA and the Water Pollution Control Act.
- Widespread tribal and recreational fishing in virtually all of Washington waters.

This analysis is available in an Ecology publication titled *Fish Consumption Rates Technical Support Document, A Review of Data and Information about Fish Consumption in Washington, Version 1.0*.

Has Ecology reached any conclusions?

Not yet. The preliminary analysis shows that data about fish consumption in the Pacific Northwest supports the use of default fish consumption rates between approximately 150 and 275 grams per day.

Establishing this range as appropriate for setting regulatory default fish consumption rates is a risk management decision. In developing this range Ecology considered both state and federal guidelines, policies, and procedures. The range reflects the 80th to 95th percentiles of a combined exposure distribution based on:

1. *A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin* (Columbia River Inter-Tribal Fish Commission, 1994).
2. *A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region* (Toy et al., 1996).
3. *Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservations, Puget Sound Region* (Suquamish Tribe, 2000).
4. *Asian and Pacific Islander Seafood Consumption Study* (Sechena et al., 1999).

In addition, Ecology reviewed national data on fish consumption in the general population. Ecology believes that a default fish consumption rate (or rates) should be protective of all people in Washington who eat fish, including those who eat a lot of fish, such as Native Americans, Asian and Pacific Islanders, and recreational fishers.

What about fish that spend much of their lives outside of Washington waters?

There are a number of questions that Ecology continues to struggle with, especially:

- How should the default rates take into account the consumption of fish species like salmon that spend much of their life outside of Washington waters?
- How should the complex life cycle and biology of the different salmon species be considered when making regulatory decisions?

What is the focus of the technical support document?

Ecology evaluated information about Pacific Northwest fish and shellfish resources and consumers. The *Fish Consumption Rates Technical Support Document* includes information on:

- Resources and fish-consuming populations in Washington
- Methods used in assessing fish consumption rate information and survey data applicable to Washington fish consumers
- The regulatory context for using fish consumption rates
- Salmon life cycles and survival strategies
- Information about developing site-specific fish consumption rates
- Statistical evaluations used to derive the proposed fish consumption rate range

This publication and other information is available at www.ecy.wa.gov/toxics/fish.html

How can I get involved?

Ecology considers this conversation as one contribution to the public and tribal dialogue on toxics reduction. We are accepting comments on the *Fish Consumption Rates Technical Support Document* until December 30, 2011. Send comments to fishconsumption@ecy.wa.gov

Framework for Sediment Cleanup Decisions
Department of Ecology, Toxics Cleanup Program
Sediment Cleanup Advisory Committee Meetings – Fall 2011

INTRODUCTION

This written description of the draft Framework for Sediment Cleanup Decisions is being distributed for use in Sediment Cleanup Advisory Committee meetings to be held between October and December 2011. Committee members have been asked by Ecology to provide feedback on the draft rule language for the updated SMS decision framework.

This document describes key policy, technical and implementation features of the draft updated SMS decision framework for cleanup and source control. The draft framework is also illustrated graphically on Figure 1.

The draft framework was developed based on significant policy and technical input received from MTCA and SMS advisory groups in 2009 and 2010. The draft framework as described here would be implemented through revisions to the SMS rule. Draft SMS rule language is being distributed concurrently for review.

SMS PROBLEM STATEMENT

Several bioaccumulative chemicals are ubiquitously present throughout Puget Sound and other Washington water bodies at levels above human health risk based concentrations[1] and MTCA natural background (as defined in WAC 173-340-200). In embayments with urban or industrial shorelines, concentrations are frequently much higher due to a mix of permitted and unpermitted stormwater, atmospheric deposition, and historical releases from site-related activities.

Since sediments are a sink for typically hundreds of contamination sources, in theory, an entire embayment could be considered a cleanup site with numerous sources and numerous potentially liable persons (PLPs). A workable and practical mechanism for sediment cleanup must take into account the reality of widespread, ubiquitous, anthropogenic contamination.

The questions that the draft SMS decision framework grapples with include:

- How do we integrate human health risks, background concentrations, and the current SMS rule two tier framework to conduct cleanups that allow for meaningful progress in reducing risks to human health and the environment and are protective, technically feasible, and cost effective?
- How do we efficiently clean up contaminated sediments and provide the flexibility for PLPs to settle their liability for discrete sediment cleanup units within a larger bay-wide or area-wide site, while also contributing to cleanup and source control for the larger bay-wide or area-wide site?

[1] Under the MTCA rule, risk-based cleanup levels are generally based on a target cancer risk level of one-in-one-million. This requirement is currently applicable to sediment cleanup actions conducted under the MTCA law.

- How do we work with PLPs and other Ecology programs to implement watershed-wide cleanup and source control actions that will bring regional concentrations down as close as possible to MTCA natural background and protective human health risk based criteria?

ECOLOGY MULTI-PROGRAM CONTEXT

Ecology acknowledges the human health risk-based concerns associated with bioaccumulation of chemicals and effects on Washington fish and shellfish consumers. Across the agency, Ecology's goal is to define one or more default fish consumption rates to calculate protective risk-based concentrations, for use within all of our different regulatory programs. This effort is a collaboration between the Toxics Cleanup Program (TCP) and the Water Quality Program (WQP). Draft materials regarding updated fish consumption rates have recently been posted for informal public comment. This information can be found at the following link: http://www.ecy.wa.gov/toxics/fish.html

Both TCP and WQP will be updating rules and guidance to incorporate the updated fish consumption rate information into their requirements for protection of human health. The agency is working to determine ways to address the fact that, for people that eat fish and shellfish at high consumption rates, protective concentrations in fish and shellfish (and therefore water and sediment) must be extremely low. These protective concentrations are frequently lower than MTCA natural background and laboratory analytical capabilities.

The fish consumption rate work, TCP rule revisions, and WQP rule revisions are three separate but coordinated processes and will occur at different paces. The programs are working together to collaborate on key issues where integration is required.

Ecology's overall philosophy on these revisions, shared between both TCP and WQP programs, is to:

- Develop updated implementation requirements and guidance for sediment cleanups, source control, and water quality permitting that achieve meaningful improvements in sediment and water quality in the near term; and
- Implement longer-term comprehensive reductions through multiple Ecology programs that reduce regional concentrations towards levels protective of Washington fish and shellfish consumers.

Implementing criteria protective of human health for fish and shellfish consumers is a significant challenge nationwide. Washington is focused on developing implementation requirements that achieve comprehensive environmental improvements while providing more predictability for potentially liable persons (PLPs) conducting cleanup and discharge permittees. The SMS decision framework described in this document has been developed by TCP to incorporate the fish consumption rate work.

SMS FRAMEWORK ELEMENTS AND OVERALL STRATEGY

The draft SMS framework described in this document includes the following key elements:

- Implementation of a multi-phase approach for sediment recovery that considers the reality of widespread, ubiquitous, anthropogenic contamination above risk based concentrations. This approach differentiates between MTCA natural background and bay-wide concentrations that are above MTCA natural background (a new term "Regional Background"). This approach has two goals:
    - Near-term goal = Significantly reduce risk to human health and the environment by cleaning up high risk/highly contaminated sites or areas within bay-wide or area-wide sites. These highly contaminated areas are typically in nearshore/critical habit environments where fish, shellfish, and humans are frequently exposed. This will also reduce contaminant loading to the environment by redistribution of nearshore contamination to the bay-wide/area-wide site. Provide workable approaches and incentives for PLPs to clean up these highly contaminated areas (identified as sediment cleanup units or individual sites) within larger bay-wide or area-wide sites.
    - Longer-term goal = Further reduce overall bay-wide or area-wide concentrations towards human health risk-based or MTCA natural background-based concentrations (Sediment Cleanup Objectives), with both PLP and agency multi-program efforts.
- Definition and incorporation of regional background, technical feasibility, cost and net environmental effects into determination of cleanup standards.
- Adoption of an updated default fish consumption rate and guidance for assessing human health risk at sediment sites. This is needed in order to set the Sediment Cleanup Objective and will also be used in combination with regional background to identify the Maximum Allowable Levels and set site-specific cleanup standards.
- Identification of discrete sediment cleanup units or individual sites within larger bay-wide or area-wide sites. This is where targeted, active cleanup can occur with associated partial or full liability release principles, respectively, to facilitate sediment cleanups.
- Requirements for PLPs to prevent recontamination of their cleaned up unit or site and reduce contaminant loading to the bay-wide or area-wide site by controlling PLP sources as an essential component of settlement for the sediment cleanup unit or individual site.
- Consideration of global cash out settlements for PLPs to resolve their remaining bay-wide or area-wide liabilities. These will fund well-defined agency-wide measures, including source control, designed to achieve further reduction in bay-wide or area-wide concentrations in order to ultimately meet Sediment Cleanup Objectives.
- Implementation of well-defined agency-wide measures for further reduction in regional concentrations to ultimately achieve Cleanup Objectives:
    - Cleanup Program efforts (bay-wide or area-wide monitored natural recovery, bay-wide or area-wide scaled cleanup actions, cleanups for orphaned sites).

- Coordination with Ecology's WQP, and the Environmental Assessment Program to implement a Comprehensive Source Control Strategy (non-point source reduction, LID, prevention and product reduction, discharge permitting).

DEFINING SEDIMENT CLEANUP UNITS OR INDIVIDUAL SITES WITHIN A LARGER BAY-WIDE OR AREA-WIDE SITE

The draft SMS revisions include a mechanism that addresses bay-wide or area-wide contamination from numerous PLPs. The goal is to provide an incentive for cleanup of the most contaminated portions of the bay-wide or area-wide sites. The strategy is to focus on higher risk discrete sediment cleanup units, or define individual sites, [2] within the larger sediment site while requiring contribution to cleanup for the larger bay-wide or area-wide contamination as well as an emphasis on source control to reduce concentrations to MTCA natural background or human health risk based concentrations (Sediment Cleanup Objective).

The draft SMS revisions enable targeting highly contaminated areas (sediment cleanup units) within a bay-wide or area-wide site where there are identifiable and viable PLPs. Figure 2 shows the decision process for determining if sediment cleanup units should be established, what the process would be for establishing site-specific cleanup standards, and how liability could be settled for the unit or the bay-wide/area-wide site.

Requirements for active cleanup at sediment cleanup units would be established using the revised two tier SMS framework to determine site-specific cleanup standards (see Figure 3). Settlement of liability may include a consent decree with a covenant not to sue and contribution protection if cleanup and source control requirements are met. Under the draft approach, there are three potential settlement scenarios: 1) partial settlements for individual sediment cleanup units; 2) full settlements for a sediment cleanup unit and the larger site if the PLP contribution to the larger site is insignificant in amount and toxicity; or 3) full settlements for individual sites identified within a larger bay-wide or area-wide site.

Cleanup of sediment cleanup units or individual sites within larger bay-wide or area-wide sites will produce environmental benefits because the smaller highly contaminated areas can be remediated more rapidly than larger areas with more diffuse sediment contamination. This approach also provides flexibility. In some cases, it will not be possible to identify separate sites, nor will it be necessary to break sites into discrete units. In other cases, Defining sediment cleanup units may not provide sufficient environmental benefits to justify the level of effort required to oversee and reach a partial settlement agreement.

This approach is consistent with current agency discretion and practice for both defining sites and settling liability. Ecology and/or EPA have reached settlement agreements on portions of larger sediment cleanup projects (Commencement Bay, Bellingham Bay, etc.). It is also consistent with the comprehensive strategy developed for San Francisco Bay.

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[2] Individual site(s) can be identified when the footprint of any particular release(s) of contaminants is clear, and those contaminants are not found in, or can be readily determined not to have contributed to, the larger footprint of bay-wide or area-wide contamination. For an upland example, an identifiable release of petroleum to soil at a gas station within the Tacoma Smelter Plume.

ESTABLISHING CLEANUP STANDARDS

Determining Sediment Cleanup Standards

Please note that harmonizing SMS and MTCA terminology is a work in progress. The term "cleanup standard" is different for both rules. For purposes of this discussion, the use of the term "cleanup standard" is a traditional SMS term – which is somewhat similar to the MTCA "remediation level" term. The use of the term "sediment cleanup objective" is a traditional SMS term and is similar to the MTCA "cleanup level" term. We would like your input on how to harmonize terminology, with the understanding that the "Sediment Cleanup Objective" is the legal standard applicable to the larger bay-wide site.

The draft SMS revisions use a modified version of the two-tiered framework that currently exists in the SMS rule. Under the revised framework, the Sediment Cleanup Objective defines the lower bound and the Maximum Allowable Level defines the upper bound. Site-specific cleanup standards are established as close as practicable to the Sediment Cleanup Objective taking into account net environmental effects, costs and technical feasibility. This framework can be used for sites or sediment cleanup units.

The draft two-tiered framework is shown in Figure 3. Key features include:

- Maximum Allowable Level (Upper Bound): The SMS rule would be modified to state that the Maximum Allowable Level could not exceed "Regional Background" levels. "Regional Background" is defined below. The Maximum Allowable Level is proposed to be established using the highest of a total site risk for human health of one-in-one hundred thousand (1×10^{-5}) and a hazard quotient of one, Regional Background,, or the practical quantitation limit. In the revised rule, the incremental cancer risk would be determined using the revised default fish consumption rates or a site-specific fish consumption rate. The SMS Cleanup Screening Level is used in the determination of effects-based concentrations for benthic toxicity in both fresh and marine waters (see Figure 3).

- Sediment Cleanup Objective (Lower Bound): Under the revised SMS rule, the Sediment Cleanup Objective would be established using the general MTCA risk policies. MTCA cleanup standards are established using the highest of an incremental cancer risk of one-in-one million (1×10^{-6}) and a hazard index of one, MTCA natural background, or the practical quantitation limit. In the revised rule, the incremental cancer risk would be determined using the revised default fish consumption rates or a site-specific fish consumption rate. The SMS Sediment Quality Standard is used in the determination of effects based concentrations for benthic toxicity in both fresh and marine waters (see Figure 3).

  The Sediment Cleanup Objective is the ultimate goal for sediment cleanup, and is the numeric standard for bay-wide sediment sites – to be achieved over the long-term through a combination of unit cleanups and related source control, regional bay-wide cleanup actions, and regional source control actions.

- Site-Specific Cleanup Standard for sediment cleanup units: A site-specific cleanup standard set for a sediment cleanup unit in a Remedial Investigation/Feasibility Study process. It will be set between the Maximum Allowable Level and the Sediment Cleanup Objective, as close as practicable to the Sediment Cleanup Objective, taking

into account net environmental effects, costs and technical feasibility (additional discussion below). The process for selecting sediment cleanup standards (Section 570 of the SMS rule) is designed to identify concentrations that must be achieved within 10 years of completing active cleanup measures.

As part of the SMS rule revisions, freshwater chemical and biological criteria are being established for benthic toxicity. Ecology will have the final technical report available on the website soon. We plan to discuss freshwater standards at the December advisory committee meeting.

Regional Background Draft Definition

Determination of the site-specific cleanup standard for a sediment cleanup unit within any broader cleanup site will take into consideration "Regional Background" – this is a new term and concept for the SMS rule. Regional Background means: Within a department defined geographic area – the widespread concentrations of any natural or anthropogenic hazardous substances or toxic, radioactive, biological or deleterious substances in sediment, not primarily attributable to identifiable contaminants from specific sources or releases (e.g., "hot spots"). Attributes of Regional Background include:

- Regional background is intended to include low level ubiquitous concentrations of hazardous substances.
- Regional background concentrations are generally expected to be greater than or equal to Natural Background and less than Area Background as defined in WAC 173-340-200.
- Calculation of Regional Background must exclude areas with an elevated level of contamination due to the direct influence of known or suspected contaminant sources including, but not limited to, areas within a sediment cleanup unit.
- Examples of a geographic area to determine Regional Background could include, but are not limited to, an embayment or watershed outside areas with contamination attributable to one or more specific sources.
- If a waterbody is not beyond the direct influence of a significant source, the department may approve alternative geographic approaches to determine Regional Background. Several factors must be evaluated when determining an alternate geographic approach including:
    - Proximity to site;
    - Similar geologic origins;
    - Similar fate and transport and biological activities; and,
    - Chemical similarity.

TCP is continuing to evaluate how Regional Background concentrations would be developed and limitations on applying this concept. For example, the Regional Background approach would not be applicable to defining final cleanup requirements for a scenario where a single or a few identifiable sources contributed to widespread contamination. That would be defined as MTCA Area Background (WAC 173-340-200).

Use of the Default Fish Consumption Rates

TCP and WQP have been working together to establish a set of default fish consumption rates for Washington State that recognizes high-level consumers. As mentioned earlier, draft materials regarding updated fish consumption rates can be found at the following link: http://www.ecy.wa.gov/toxics/fish.html.

The fish consumption rate is a key parameter in human health risk calculations. Under the revised SMS rule, both the Sediment Cleanup Objective and Maximum Allowable Level have a human health risk level. Calculation of this human health risk includes risk to high-level seafood consumers using the revised default fish consumption rates or a site-specific fish consumption rate.

In addition to the fish consumption rate work and technical report, TCP is drafting guidance on the process for assessing human health risk at sediment sites that will include risk calculations and default parameters. It is our expectation this guidance will be published concurrent with SMS rule promulgation

Considering Cost, Technical Feasibility and Net Environmental Effects

The current SMS framework allows consideration of cost, technical feasibility and net environmental effects both when setting cleanup standards within a range between the upper and lower bounds and during remedy selection. This has been successful because the system provides needed flexibility. It allows decisions to take into account site-specific factors inherent to aquatic environments, including sediment transport, hydrology, numerous unknown contaminant sources, multiple co-mingled plumes, habitat, and land use issues due to state ownership.

In the revised rule, this paradigm will remain. That is, the site-specific cleanup standard will be set between the Maximum Allowable Level (upper bound) and the Sediment Cleanup Objective (lower bound) based on technical feasibility, cost and net environmental effects. Our rationale for this is that:

- Maintaining the current SMS framework promotes integration with the SMS source control provisions.
- This approach is somewhat similar to the concept of MTCA remediation levels which provide the flexibility to use a combination of remediation technologies.
- This approach encourages liable persons to complete active cleanup of the higher risk contaminated areas (sediment cleanup units) in ways that are consistent with attaining a long-term cleanup objective similar to the very protective MTCA cleanup levels for the larger bay-wide orarea-wide site.
- The aquatic environment has unique characteristics. The MTCA approach of using institutional controls when meeting risk-based cleanup levels is not feasible or effective for most sediment cleanups. For example, fences and land use restrictions are largely ineffective for controlling exposure. In addition, Ecology does not rely on fish advisories as an institutional control to reduce human health risk for a final cleanup.

- Flexibility to establish sediment cleanup levels at concentrations equal to Regional Background is consistent with MTCA Method C as "technical impossibility" to include the inability for an individual PLP to control the discharges from other people.

SEDIMENT CLEANUP UNIT SPECIFIC SOURCE CONTROL AND RECONTAMINATION

To achieve cleanup of a sediment cleanup unit, in addition to active sediment cleanup measures, the revised rule clarifies that a PLP must implement facility specific source control to ensure the facility property and operations do not contribute to sediment contamination above the cleanup standard. This addresses facility discharges as well as upland soil and groundwater contaminant sources.

As described further below under Liability Principles, if the PLP implements cleanup of the sediment cleanup unit and maintains source control that prevents recontamination above the site-specific cleanup standard, a full settlement for the sediment cleanup unit could be acquired. If the PLP's efforts at source control to prevent recontamination above the site-specific cleanup standard are ineffective, the cleanup would be considered an interim action. It would be the PLPs burden to prove their sources have been adequately controlled and maintained.

Closure can be reached for sediment cleanup and source control on a sediment cleanup unit basis. This does not, however, release the PLP from responsibility in larger bay-wide or area-wide site sediment cleanup and source control actions, discussed further below.

PLPs would not be held responsible for recontamination of a unit cleanup that is caused by contaminants coming from elsewhere, not under the control or authority of the PLP. This provision provides incentive for PLPs to move forward with unit cleanups. With the current rule, PLPs are often reluctant to conduct cleanup because the site(s) will likely be contaminated from other (possibly unidentifiable) sources. For sediments, recontamination of a cleaned up unit is highly likely due to the ubiquitous nature of contaminants in stormwater, atmospheric deposition, redistribution of nearby contaminated sites that are not yet cleaned up, and other unknown sources. This fact, however, should not stymie the cleanup process.

LARGER BAY-WIDE SITE – REGIONAL CLEANUP AND SOURCE CONTROL

The Sediment Cleanup Objective is the ultimate goal for sediment cleanup, and is the numeric cleanup standard for bay-wide or area-wide sediment sites – to be achieved over the long-term through a combination of unit cleanups and individual site cleanups and related source control, regional bay-wide/area-wide cleanup actions, and greater emphasis on regional source control actions.

Ecology's overall philosophy guiding this approach is that chemical concentrations in sediments and the water column can be reduced to approach human-health and natural background based objectives if: 1) nearshore contaminated sediment sites and primary sources are cleaned up in the near-term to aggressive but achievable levels; and 2) all Ecology programs work together with PLP funding and participation to implement a full range of actions at a bay-wide/watershed-scale

to further reduce concentrations to levels as protective of human health and the environment as possible. This overall philosophy is illustrated in Figure 4.

Under the draft rule, PLPs will be able to reach closure for sediment cleanup units as described, but will maintain responsibility for participation in larger long-term bay-wide or area-wide cleanup efforts. Liability principles are described further below, but there are a few likely modes of participation in cleanup of the larger bay-wide/area-wide site including a mix of partial settlements and/or interim actions for unit cleanups, settlement of larger site liability through "cash outs", individual site cleanups within the larger site, and a strong emphasis on PLP source control and larger bay-wide/area-wide source control.

At the bay-wide/area-wide and watershed or regional scale, Ecology is committed to implementation of well-defined agency-wide measures to create further reduction in regional concentrations towards human-health and natural background based Sediment Cleanup Objectives. These efforts include work by the TCP, the WQP and the Environmental Assessment Program, including:

- Use of settlement cash out funds to emphasize source control
- Bay-wide/area-wide monitoring
- Bay-wide/area-wide scale cleanup actions
- Residual cleanups lacking viable PLPs
- Discharge regulation
- Non-point source reduction
- Low Impact Development
- Toxics prevention and product reduction.

LIABILITY PRINCIPLES

General Principles

1. Allow partial settlements (under a consent decree) that includes contribution protection/ covenant not to sue provisions specific to the discrete sediment cleanup units within a larger sediment site conditioned on all cleanup and source control requirements being met.
2. Allow for full settlement for individual sites within the larger site.
3. Allow release of PLP liability for recontamination of a sediment cleanup unit if the source of recontamination is not from the PLP and the PLP had no authority over the source.
4. Provide a process for all PLPs to settle liability for the larger site:
5. a. Individual PLPs could settle liability for the larger site through a global cash out settlement, if the individual PLP's contributions to the larger site are insignificant in amount and toxicity.

6. b. If the individual PLP's contribution to the larger site is NOT minimal, the agency may decide it would be inappropriate to accept a cash out settlement. In these situations, PLPs would be required to maintain their involvement in the larger bay-wide or area-wide site cleanup and source control efforts.
7. Monetary payment via settlements would provide funds that would be dedicated to further source control actions and bay-wide or area-wide cleanup and/or monitoring in order to reduce the larger site concentrations to the Sediment Cleanup Objective over time.
8. If any PLP chooses not to settle liability for the larger bay-wide or area-wide site, they will retain liability and will be subject to contribution suits from settling PLPs. The agency may in its discretion also consider taking enforcement actions.

The goal is to provide an incentive for cleanup of the most contaminated portions of a bay-wide or area-wide site. The strategy is to focus on higher risk discrete "units" within the larger sediment site while requiring contribution to cleanup for the larger (bay-wide or area-wide) contamination.

Rationale

The ability to resolve liability for legacy contamination serves as a powerful incentive for cleanup actions. RCW 70.105D.040(4) authorizes the attorney general to agree to a settlement if Ecology finds that the proposed settlement would lead to a more expeditious cleanup of hazardous substances in compliance with cleanup standards and consent decrees. Any covenant not to sue must be commensurate with the scope of the proposed settlement.

Sediment Cleanup Unit Liability Settlement Process

Enable definition of discrete sediment cleanup units where there are identifiable and viable PLPs. Sediment cleanup units are discrete areas within a larger site defined on a unit-specific basis by Ecology. They are smaller, more manageable defined areas for cleanup and liability resolution within a larger bay-wide/area-wide sediment site. Typically sediment cleanup units are the most contaminated areas within bay-wide/area-wide sites. Most often they are located in critical habitat nearshore areas.

Requirements for active cleanup at a sediment cleanup unit would be established using the two tier SMS structure for site-specific cleanup standard determination. A partial settlement of liability may include a consent decree of a scope commensurate with the work being done, including a covenant not to sue and contribution protection specific to the site unit area, if cleanup and source control requirements are met for that area.

Source Control Required for Sediment Cleanup Unit Liability Settlement, Protection Against Recontamination by Others

All settling PLP sources (stormwater, wastewater, upland contamination) must be controlled to prevent recontamination of sediments within the sediment cleanup unit above site-specific cleanup standards at the time of the cleanup action. PLP's would need to continually improve source control to prevent recontamination from their sources or sources under their control above

the Sediment Cleanup Objective over an extended period of time as bay-wide concentrations decline and/or source control technologies improve.

PLPs should not be liable for recontamination caused by someone else over whom the PLP does not have authority. In order to move forward with sediment cleanup, we need a mechanism that provides incentive for the liable persons when recontamination (coming from sources beyond their control) is highly likely. That is, liable persons are reluctant to clean up because the sediment site(s) will likely be contaminated from other (possibly unidentifiable) sources. This is a particularly pressing problem in urban areas due to both point and nonpoint source stormwater/runoff, atmospheric deposition, and redistribution of nearby contaminated sites elevating bay-wide concentration above MTCA natural background.

PLP Liability Settlement for the Larger Site

Ecology would provide a process for a PLP to settle liability for the larger site through contribution to the Cleanup Settlement Account (or other mechanisms determined by Ecology) if their contributions to the larger site are insignificant in amount & toxicity. In order for a PLP to settle their liability for the larger site by a cash out they would have to:

- Settle liability for the sediment cleanup unit as described above
- Show their liability for the larger site is insignificant in amount and toxicity relative to:
    - Bay-wide or area-wide site concentrations above the Sediment Cleanup Objective.
    - Loading from past and existing non PLP sources.
    - Degree of contamination in their unit.
    - This list is not comprehensive and needs further discussion with the advisory group.

The amount of the PLP settlement contribution, and the scope of the covenant not to sue, must be commensurate with remedial and source control actions to reach the Sediment Cleanup Objective across the larger site over the long term (decades). These funds would be used to conduct further remedial and source control actions by Ecology, including:

- Long term natural recovery monitoring of the bay-wide or area-wide site.
- Further active cleanup of discrete bay-wide or area-wide areas.
- Source control to prevent loading to the bay-wide or area-wide site.

DECISION STEPS AND LINKAGES TO RULE LANGUAGE

In the Sediment Cleanup Advisory Committee meetings, we hope to discuss the decision steps that would be used to implement this overall SMS Framework, and define the linkages between these framework elements and the draft revised rule language.

Decision steps and rule language linkages are illustrated in Figure 5. This figure helps to provide a roadmap for the process and rule review.

LIST OF FIGURES:

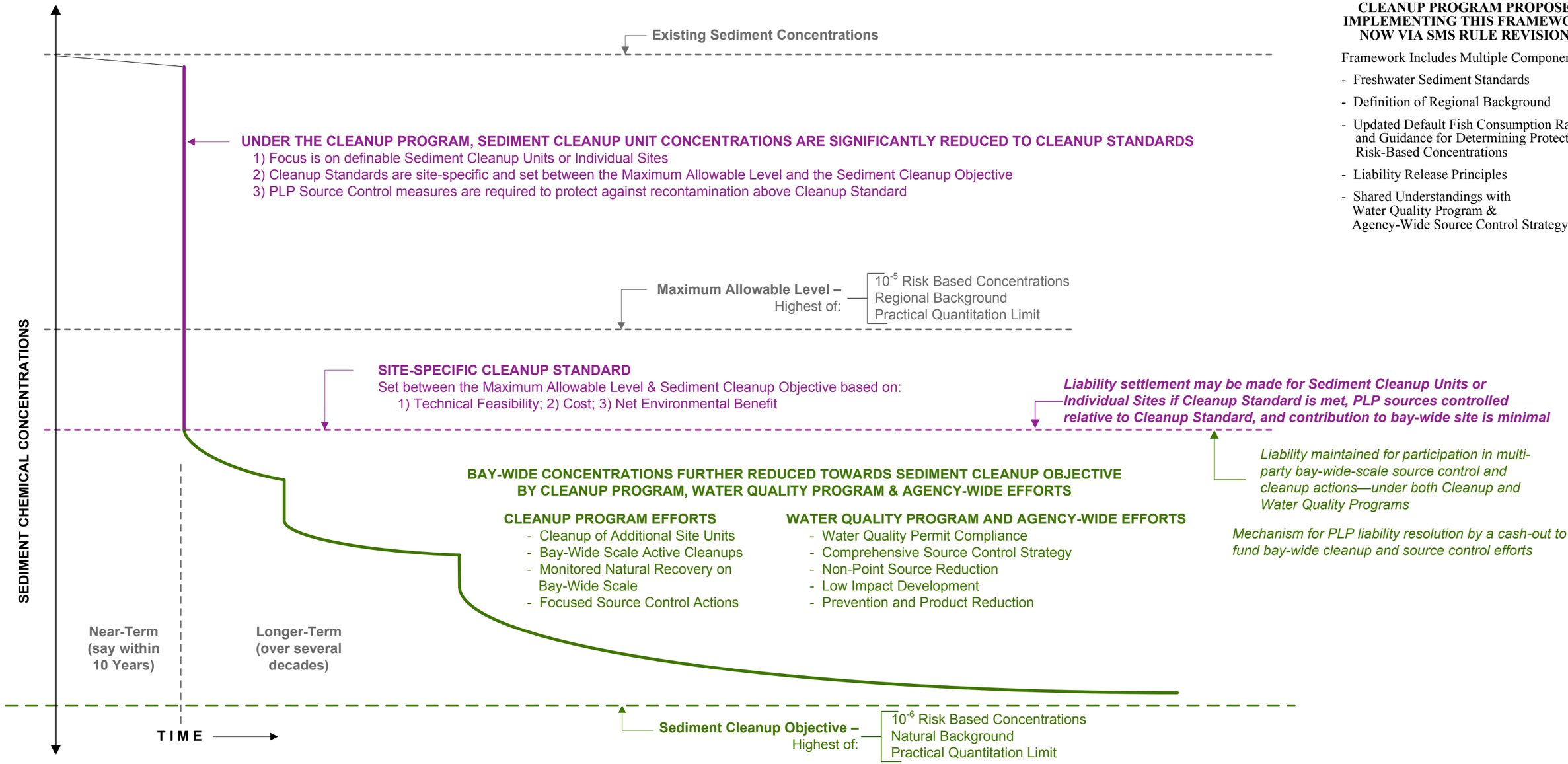
ACRONYM LIST

CWA	Clean Water Act
EPA	Environmental Protection Agency
FCR	Fish Consumption Rate
H-H	Human-Health
LID	Low-impact development
MTCA	Model Toxics Control Act
NTR	National Toxics Rule
OTRBDS	Other Toxic, Radioactive, Biological, and Deleterious Substances
PLP	Potentially liable person
PQL	Practical Quantitation Limit
RCW	Revised Code of Washington
SMS	Sediment Management Standards
TCP	Toxics Cleanup Program
WAC	Washington Administrative Code
WQ	Water Quality
WQC	Water Quality Criteria
WQP	Water Quality Program

CLEANUP PROGRAM PROPOSES IMPLEMENTING THIS FRAMEWORK NOW VIA SMS RULE REVISIONS

Framework Includes Multiple Components:

- Freshwater Sediment Standards
- Definition of Regional Background
- Updated Default Fish Consumption Rates and Guidance for Determining Protective Risk-Based Concentrations
- Liability Release Principles
- Shared Understandings with Water Quality Program & Agency-Wide Source Control Strategy



FRAMEWORK OBJECTIVES

- **Achieve significant environmental improvement immediately, with cleanup of highly contaminated nearshore sites and associated source control that is achievable given current conditions**
- **Implement multi-program initiatives to achieve baywide scale high quality improvements over time, based on broad participation and systemic change**

Regional Background Definition: Within a department defined geographic area, concentrations of any hazardous substances or toxic, radioactive, biological or deleterious substances in sediment, not attributable to significant identifiable sources or releases. Regional background is intended to include low level, ubiquitous concentrations and are generally expected to be greater than or equal to natural background and less than area background as defined in WAC 173-340-200. Calculation of regional background must exclude areas under the direct influence of known or suspected contaminant sources including, but not limited to, areas within a cleanup site. Examples of a geographic area to determine regional background could include, but are not limited to that portion of an embayment or watershed outside the direct influence of a significant source. If a waterbody is not beyond the direct influence of a significant source, alternative geographic approaches to determine regional background may be used upon approval by the department.

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Figure 1
Ecology Cleanup Program Proposal

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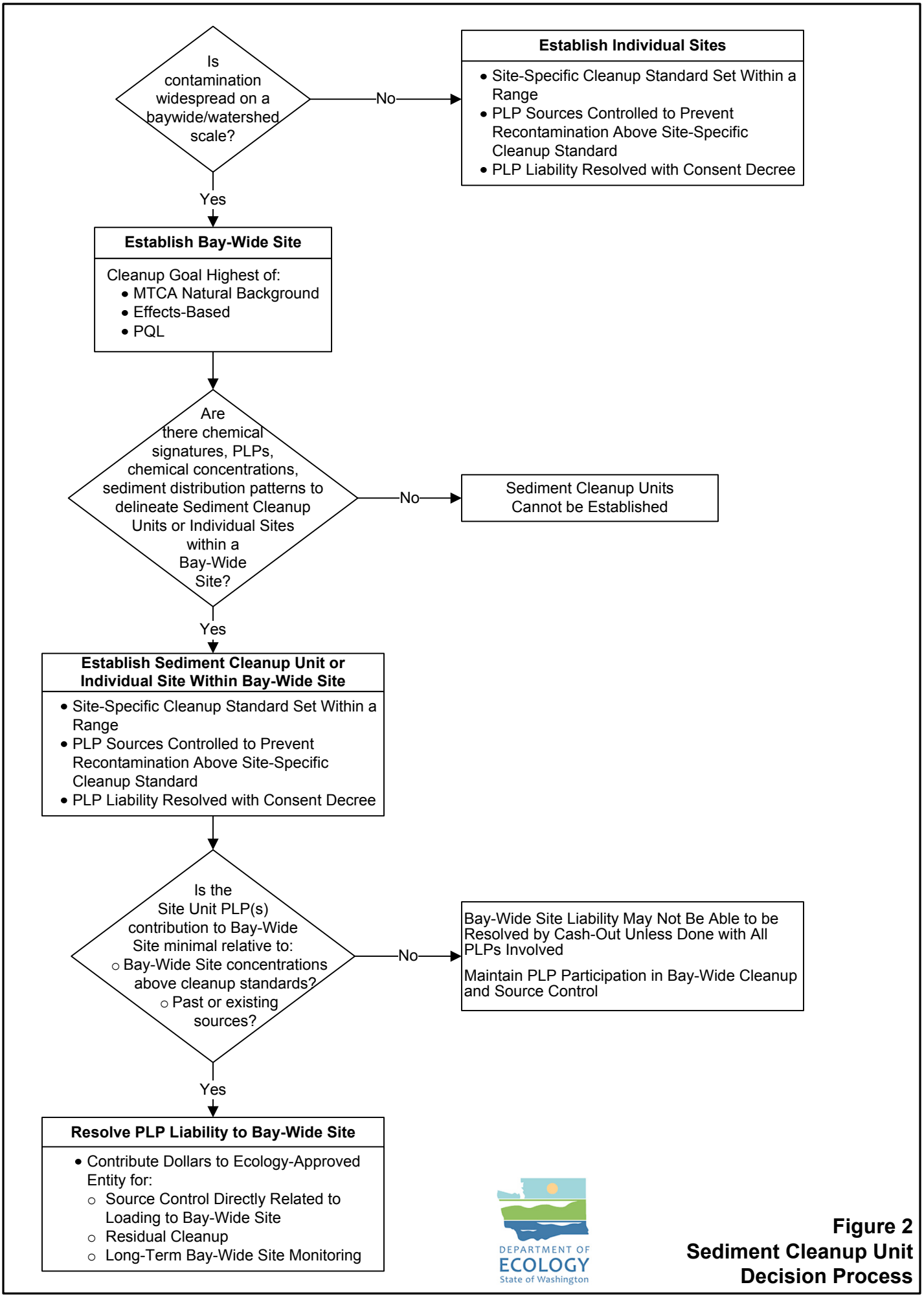

Figure 2
Sediment Cleanup Unit Decision Process

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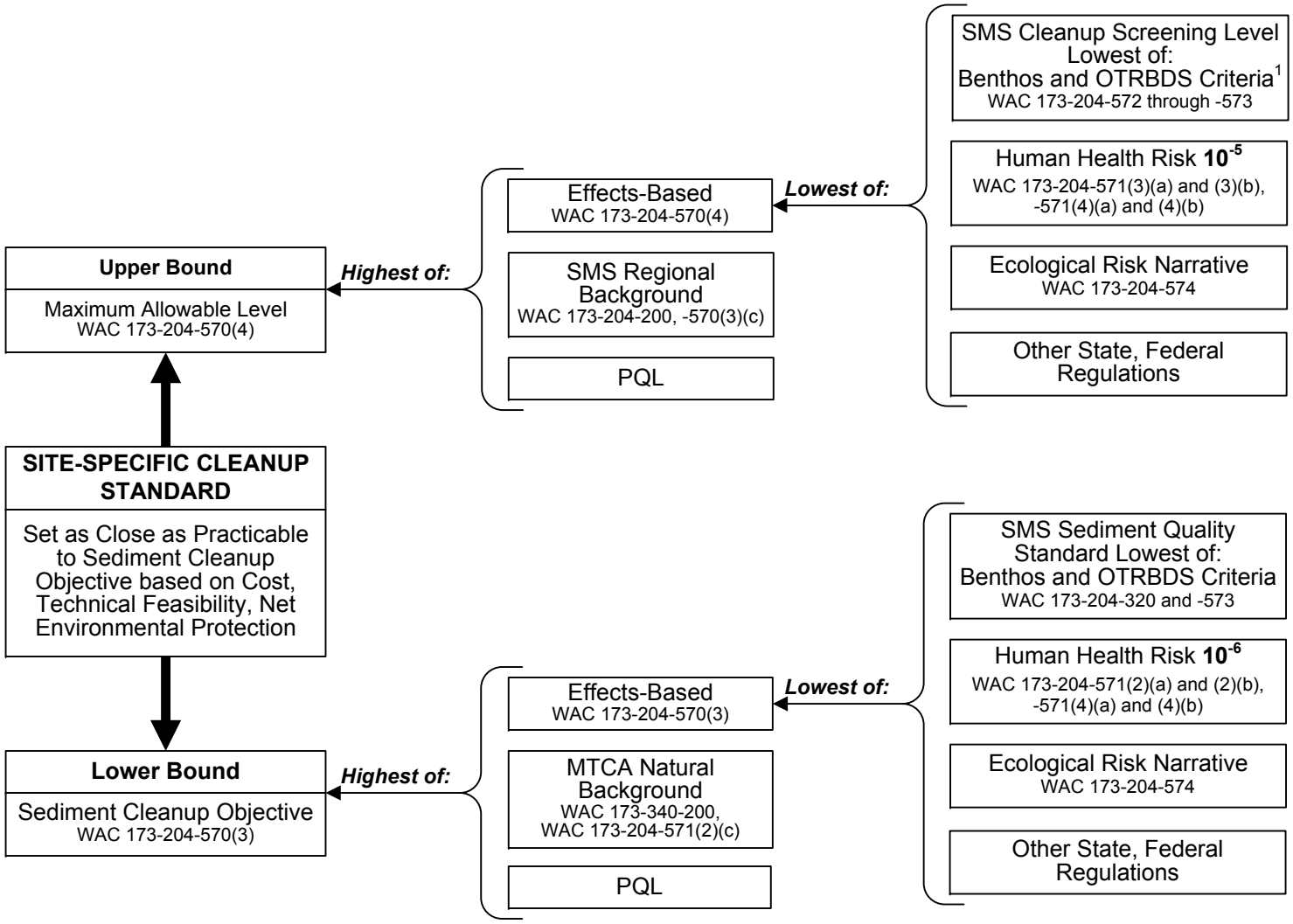

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Notes:

1 Applies to the current benthic marine chemical and biological criteria as well as the proposed freshwater benthic chemical and biological criteria.

OTRBDS = Other Toxic, Radioactive, Biological, and Deleterious Substances

PQL = Practical Quantitation Limit

Figure 3
Two-Tier Structure for Site-Specific Cleanup Standard Determination

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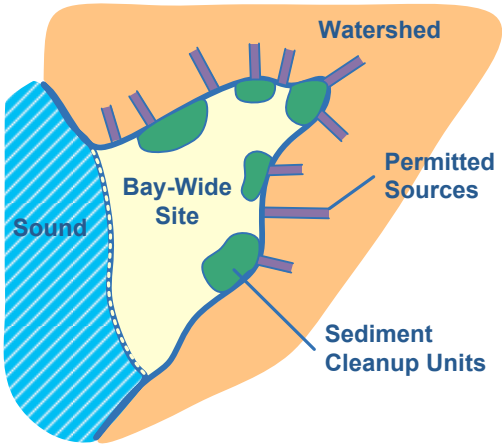
OBJECTIVES
- Achieve significant environmental improvement immediately
- Achieve regional scale high quality improvements over time, with broad participation



EXISTING CONCENTRATIONS

AGENCY-WIDE NON-POINT SOURCE REDUCTION EFFORTS FOR BAY-WIDE SITE AND WATERSHED
- Comprehensive Source Control Strategy
  - Non-Point Source Reduction
    - Low Impact Development
      - Prevention and Product Reduction

SEDIMENT UNIT CLEANUPS

PERMITTED SOURCES

NEAR-TERM REDUCTIONS TO COMPLIANCE LEVEL BASED ON FEASIBILITY/ IMPLEMENTABILITY BY PLP/PERMITTEE
- Technology based
- Performance based

Site-specific cleanup standards (SMS)

Site-specific permit interim limits (WQP)

PLP AND PERMITTEE FINANCIAL PARTICIPATION & ACTIONS
Contribute to Broader Action Plan for Bay-Wide Site and Watershed

BROADER ACTION PLAN WITH PLP/PERMITTEE CONTRIBUTION FOR FURTHER REDUCTIONS THROUGHOUT BAY-WIDE SITE AND WATERSHED
- Upstream source evaluations
  - Non-point actions/improvements
    - Bay-Wide actions
      - Effectiveness monitoring to inform adaptive management

HUMAN HEALTH OR NATURAL BACKGROUND BASED TARGET CONCENTRATIONS

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Figure 4
Contaminant Reduction Philosophy

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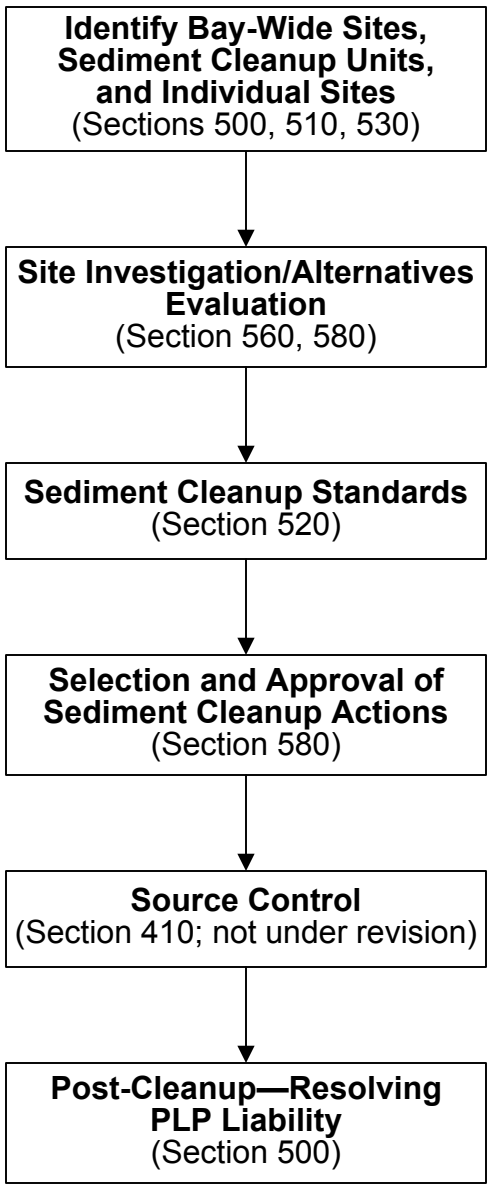
10/12/2011



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Note:
(Section 500) = Draft Rule Language Reference

Figure 5
SMS Decision Steps

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Draft Revisions

Sediment Management Standards (SMS)

(Part V and Definitions)

Discussion Materials

Prepared for the Sediment Cleanup Advisory Committee

October 2011

Prepared by
Toxics Cleanup Program

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Summary

This document is designed to support discussions on revisions to the Part II Definitions and Part V of the Sediment Management Standards (SMS) rule. The document includes the following draft revisions:

Section 200 Definitions: Definitions have been added to reflect changes in the rule to clarify existing terms or existing definitions in the rule and define new terms added to the rule. The following definitions have been added or revised:

Definitions added to clarify existing terms:
Active cleanup action
Anthropogenic
Applicable state and federal laws
Biologically active zone
Chronic bioassays
Cleanup action
Cleanup screening level
Contaminated sediment
Department
Enhanced natural recovery
Include
Natural recovery
Non-anthropogenically affected
Sediment
Sediment cleanup standard
Sediment quality standard
Site

Existing definitions clarified:
Acute
Best management practices
Chronic
Sediment cleanup units

New definitions to define new terms:
Maximum allowable level
Regional background

Section 500 - Sediment Cleanup Decision Process and Policies:

- This section has been revised to clarify the cleanup decision process and the department's thinking on how to conduct cleanup under the paradigm of widespread contamination of ubiquitous, bioaccumulative chemicals from numerous sources. This includes:
- Clarification on establishing site units and approving partial settlements.
- Process for settling cleanup liability and options for addressing recontamination of a cleaned up site.
- Clarification on cleanup timeframes.
- Emphasis on source control measures.

Section 520 - Cleanup screening levels criteria:

- Re-titled: "Sediment cleanup standards based on benthic toxicity in marine sediment".
- Moved to new Section -572 to be incorporated into the Maximum allowable level/Sediment cleanup objective two tier framework.

- Limited application of the "cleanup screening level" term to marine benthic toxicity and other toxic, deleterious, radioactive substances narrative.
- Removed the human health narrative and added human health criteria to new section -571.

Section -550 Types of cleanup authority:

- "Voluntary cleanup" changed to "Other party initiated cleanup" to reflect the reality that sediment cleanups cannot be done without an agency permit (and thus oversight) and thus by definition under MTCA, are not independent or voluntary cleanups.
- "Partial cleanup" sub section removed and replaced with text in -500(2)(b) "Partial settlements".

Section -560 Cleanup Study:

- Re-titled "Remedial Investigation and Feasibility Study"
- This section was revised to focus on the content required to develop a remedial investigation and feasibility.
- The requirements for remedy selection were moved to section -580.
- The requirements for sediment impact zones moved to Section -590.
- Terminology was revised to harmonize with MTCA.
- Added MTCA requirements to the SMS requirements to develop a remedial investigation/feasibility study work plan and report.

Section -570 Sediment Cleanup Standards:

- The existing two tier framework of an upper and lower tier of allowable concentrations used to determine a cleanup standard was maintained but revised to include new a term "maximum allowable level" that replaces the previous terms "cleanup screening level" and "minimum cleanup level".
- This change was necessary to incorporate the process to determine cleanup standards based on risks to human and ecological health from bioaccumulative chemicals, risks to the benthic community for freshwater and marine sediment, and how to incorporate background chemical concentrations.

New sections added to -570:

- **-571: "Sediment cleanup standards based on risks to human health"**.
  - This replaces the narrative standard for protection of human health.
  - Additions include:
    - Risk levels.

        - How to incorporate background concentrations.
        - Some specifics on determining risk.
- **-572: "Sediment cleanup standards based on benthic toxicity in marine sediment".**
    - This language is from section -520.
    - It has been moved into this section for clarity.
    - The "cleanup screening level" terminology has been clarified to apply only to benthic criteria.
    - The human health narrative standard has been removed.
    - The numeric and chemical benthic criteria have not been changed.

- **-573: "Sediment cleanup standards based on benthic toxicity in freshwater sediment"**.
    - This section replaces the freshwater narrative standard.
    - Language has not yet been added but the intention is to add numeric biological and/or chemical cleanup criteria consistent with the current marine benthic criteria framework in new section -572.

- **-574: "Sediment cleanup standards based on ecological risks from bioaccumulative chemicals".** This language is new to address ecological risks from bioaccumulative chemicals.

Section -580 Selection of cleanup action:

- Re-titled "Selection of cleanup actions".
- This section was revised to focus on the requirements that must be met to evaluate alternatives and select a preferred remedy.
- Cleanup action decisions language was moved to new section -585.
- Remedial investigation/feasibility study content language was moved to section -560.
- Terminology has been revised to harmonize with MTCA.
- MTCA remedy selection requirements were added to the current SMS requirements.
- The MTCA "disproportionate cost" and SMS "cost effectiveness" terms and concepts have been integrated.
- The SMS "cost, technical feasibility, and net environmental effects" provision for determining sediment cleanup standards and remedy selection were integrated with the MTCA remedy selection provisions.

Section -585 Cleanup action decision:

- New section added to separate the cleanup action decision from development of the remedial investigation and feasibility and the remedy selection process.
- Terminology was revised to harmonize with MTCA.

- Added MTCA requirements to the SMS requirements for cleanup action decisions.

Section -590 Sediment recovery zones:

- New language added to clarify requirements for establishing, approving, and maintaining a sediment recovery zone.
- Requirements were added to be more consistent with section -415, Sediment Impact Zones.

NOTE: The following rule language proposed to be deleted is shown in ~~blue with a strikeout~~**,** ***proposed new language is shown in*** underlined purple**,** ***and unrevised language is shown in*** black.

Chapter 173-204 WAC
SEDIMENT MANAGEMENT STANDARDS

[1] Highlighted sections in the table of contents have been revised or added.

PART II--DEFINITIONS

WAC 173-204-200 Definitions. In cases where a definition does not exist in this chapter, the definitions in WAC 173-340 will apply. For the purpose of this chapter, the following definitions shall apply:

(1) "Active cleanup action"[2] means those engineered controls as defined in WAC 173-340-200 requiring physical construction to meet the sediment cleanup standard. Active cleanup actions include dredging, capping, and enhanced natural recovery. Passive actions such as natural recovery and institutional controls are not active cleanup actions.

(2) "Acute" means measurements of biological effects using sediment bioassays conducted for time periods that are relatively short in comparison to the life cycle of the test organism. Acute effects may include mortality, larval abnormality, or other endpoints determined appropriate by the department.

(3) "Amphipod" means crustacean of the Class Amphipoda, e.g., Rhepoxynius abronius, Ampelisca abdita, or Eohaustorius estuarius.

(4) "Anthropogenic"[3] means created by humans or caused by human activity.

(5) "Applicable state and federal laws"[4] means all legally applicable requirements and those requirements that the department determines, based on the criteria in WAC 173-340-710(3), are relevant and appropriate requirements.

(6) "Appropriate biological tests" means only tests designed to measure directly, or through established predictive capability, biologically significant adverse effects to the established or potential benthic or aquatic resources at a given location, as determined by rule by the department.

(7) "Beneficial uses" means uses of waters of the state which include but are not limited to use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.

(8) "Best management practices" or "BMPs" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution in sediments of the state. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or water disposal, or drainage from raw material storage.

(9) "Bioassay" means a test procedure or biological assessment that measures the response of living plants, animals, or tissues to a sediment sample.

[2] Added to clarify existing SMS rule language.
[3] Added to clarify existing SMS rule language.
[4] Added to clarify existing SMS rule language.

(10) "Biologically active zone"[5] means the area within the sediment in which a majority of benthic macroinvertebrates are generally found. By default this is the uppermost 10 centimeters in marine sediment. Where the department determines the default criteria are not applicable, a site specific biologically active zone shall be determined. Information such as the vertical distribution of benthic macroinvertebrates can be gathered to delimit the site specific biologically active zone.

(11) "Chronic" means measurements of biological effects using sediment bioassays conducted for, or simulating, prolonged exposure periods of not less than one complete life cycle, evaluations of indigenous field organisms for long-term effects, assessment of biological effects resulting from bioaccumulation and biomagnification, and/or extrapolated values or methods for simulating effects from prolonged exposure periods. Chronic effects may include mortality, reduced growth, impaired reproduction, histopathological abnormalities, adverse effects to birds and mammals, or other endpoints determined appropriate by the department.

(12) “Cleanup action” means any actions taken at a sediment site or sediment cleanup unit to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove contaminated sediment to achieve the sediment cleanup standards throughout the site or sediment cleanup unit.

(13) "Cleanup Screening Level"[6] means chemical concentration criteria, biological effects criteria or other toxic, radioactive, biological, or deleterious substances criteria, and non-anthropogenically affected sediment quality criteria which are used to identify sediments that have minor adverse effects on biological resources per procedures in WAC 173-204-572 through 173-204-573.

(14) "Contaminated sediment"[7] means ~~surface~~ sediment ~~designated under the procedures of WAC 173-204-310 as exceeding the applicable sediment quality standards of WAC 173-204-320 through 173-204-340~~ exceeding natural background as defined in 173-340.[8]

(15) "Control sediment sample" means a sediment sample which is relatively free of contamination and is physically and chemically characteristic of the area from which bioassay test animals are collected. Control sediment sample bioassays provide information concerning a test animal's tolerance for stress due to transportation, laboratory handling, and bioassay procedures. Control sediment samples cannot exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(16) "Department" means the department of ecology.

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[5] Added to clarify existing SMS rule language and current policy for determining the biologically active zone.

[6] Added an existing SMS rule term from section -520 to the definitions section. Removed the reference to human health criteria as that is included in a new “Maximum allowable level” term and definition. This term now refers to benthic toxicity chemical and biological criteria only.

[7] Revised to be consistent with MTCA for the definition of contaminated media, clarify existing terminology, and incorporate the human health and background framework.

[8] This change was made to be consistent with MTCA WAC 173-340.

(17) "Enhanced natural recovery"[9] means, but may not be limited to, thin layer capping of a clean layer of sediment over an area of contaminated sediment to reduce the toxicity or concentration of contaminated sediment.

(18) "Freshwater sediments" means sediments in which the sediment pore water contains less than or equal to 0.5 parts per thousand salinity.

(19) "Include"[10] means included but not limited to.

(20) "Low salinity sediments" means sediments in which the sediment pore water contains greater than 0.5 parts per thousand salinity and less than 25 parts per thousand salinity.

(21) "Marine finfish rearing facilities" shall mean those private and public facilities located within state waters where finfish are fed, nurtured, held, maintained, or reared to reach the size of release or for market sale.

(22) "Marine sediments" means sediments in which the sediment pore water contains 25 parts per thousand salinity or greater.

(23) "Maximum Allowable Level"[11] means the maximum allowed concentration of any hazardous substance and level of biological effects permissible at the site per procedures in WAC 173-204-570(4) after completion of the cleanup action. This is the upper level of the range for establishing cleanup standards.

(24) "Minor adverse effects" means a level of effects that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following criteria:

(i) An acute or chronic adverse effect to biological resources as measured by a statistically and biologically significant response relative to reference in no more than one appropriate biological test as defined in WAC 173-204-200~~(3)~~(9); or

(ii) A statistically and biologically significant response that is significantly elevated relative to reference in any appropriate biological test as defined in WAC 173-204-200~~(3)~~(9); or

(iii) Biological effects per (b)(i) or (ii) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) and (ii) of this subsection; and

(c) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

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[9] Added to clarify existing concepts in SMS rule language and distinguish differences with "natural recovery".

[10] Clarification term, consistent with MTCA.

[11] New term added to reflect the framework that includes human health risk and background to determine cleanup standards.

(25) "Natural recovery" [12] means physical, chemical or biological processes that act, without human intervention, to reduce the toxicity or concentration of contaminated sediment. The most common form of natural recovery is the natural deposition of a layer of clean sediment over an area of contaminated sediment resulting in burial of contaminated sediment below the biologically active zone.

(26) "No adverse effects" means a level of effects that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following biological criteria:

(i) No acute or chronic adverse effects to biological resources as measured by a statistically and biologically significant response relative to reference in any appropriate biological test as defined in WAC 173-204-200~~(3)~~(9); and

(ii) No acute or chronic adverse biological effect per (b)(i) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) of this subsection; and

(iii) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

(27) "Non-anthropogenically affected" [13] means not created by humans or caused by human activities.

(28) "Other toxic, radioactive, biological, or deleterious substances" means contaminants which are not specifically identified in the sediment quality standards chemical criteria of WAC 173-204-320 through 173-204-340 (e.g., organic debris, tributyltin, DDT, etc.).

(29) "Person" means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, industry, private corporation, port district, special purpose district, irrigation district, unit of local government, state government agency, federal government agency, Indian tribe, or any other entity whatsoever.

(30) "Practicable" means able to be completed or achieved in consideration of net environmental effects, technical feasibility, and cost.

(31) "Puget Sound basin" or "Puget Sound" means:

(a) Puget Sound south of Admiralty Inlet, including Hood Canal and Saratoga Passage;

(b) The waters north to the Canadian border, including portions of the Strait of Georgia;

(c) The Strait of Juan de Fuca south of the Canadian border; and

(d) All the lands draining into these waters as mapped in water resources inventory areas

[12] Added to clarify an existing term in the SMS rule and distinguish from "enhanced natural recovery".
[13] Added to clarify an existing term in the SMS rule and distinguish from "anthropogenic".

numbers 1 through 19, set forth in water resources management program established pursuant to the Water Resources Act of 1971, chapter 173-500 WAC.

(32) "Puget Sound protocols" means *Puget Sound Estuary Program. 1986. As amended. Recommended Protocols for Measuring Selected Environmental Variables in Puget Sound, U.S. Environmental Protection Agency, Region 10, Seattle, WA* (loose leaf).

(33) "Regional Background"[14] means: Within a department defined geographic area, widespread concentrations of any hazardous substances or toxic, radioactive, biological or deleterious substances in sediment, not primarily attributable to identifiable contaminants from specific sources or releases.

Regional background is intended to include low level ubiquitous concentrations of hazardous substances;

Regional background concentrations are generally expected to be greater than or equal to natural background and less than area background as defined in WAC 173-340-200.

Calculation of regional background must exclude areas with an elevated level of contamination due to the direct influence of known or suspected contaminant sources including, but not limited to, areas within a sediment cleanup unit.

Examples of a geographic area to determine regional background could include, but are not limited to, that portion of an embayment or watershed outside the areas with contamination attributable to one or more specific sources;

If a waterbody is not beyond the direct influence of a significant source, the department shall approve alternative geographic approaches to determine regional background. Several factors must be evaluated when determining an alternate geographic approach including:

(a) Proximity to the site;

(b) Similar geologic origins;

(c) Similar fate and transport and biological activities; and

(d) Chemical similarity.

(34) "Reference sediment sample" means a sediment sample which serves as a laboratory indicator of a test animal's tolerance to important natural physical and chemical characteristics of the sediment, e.g., grain size, organic content. Reference sediment samples represent the nonanthropogenically affected background sediment quality of the sediment sample. Reference sediment samples cannot exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(35) "Sediment"[15] means particulate matter settled or present as particles on the bed or bottom of a body of water to which biota or humans may potentially be exposed and:

[14] Added to reflect the new framework that incorporates anthropogenic background concentrations.
[15] Added to clarify the existing term in the SMS rule. Definition was developed from definitions in ASTM standards and the WPCA 173-201A.

(a) The surface water is present in the water body for a minimum of six contiguous weeks on an annual basis; or

(b) The sediment is located at or below the ordinary high water mark.

(c) Sediment can include particulate matter located in the biologically active zone or exposed to the water column by human activity (e.g. dredging), pore water flux, or other hydrological or natural action.

(36) "Sediment cleanup objective"[16] means the concentration of any hazardous substance or other toxic, radioactive, biological or deleterious substance in sediment at or below adverse effects levels to biota or humans as per procedures in 173-204-570(3). This is the lower level of the range for establishing cleanup standards and evaluating remedial alternatives and the goal of reducing and ultimately eliminating adverse effects on biological resources and significant health threats to humans.

(36) "Sediment cleanup standard"[17] means a department approved concentration in sediment that must be met within a site or sediment cleanup unit. The standard shall be established within an allowable range of contamination. The lower end of the range is the sediment cleanup objective per WAC 173-204-570(3). The upper end of the range is the maximum allowable level per WAC 173-204-570(4). The cleanup standard is established considering technical feasibility, net environmental effects, and cost. The cleanup standard shall be applied within the biologically active zone as determined by the department.

(38) "Sediment impact zone" means an area where the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 are exceeded due to ongoing permitted or otherwise authorized wastewater, storm water, or nonpoint source discharges and authorized by the department within a federal or state wastewater or storm water discharge permit, or other formal department authorization.

(39) "Sediment quality standard"[18] means chemical concentration criteria, biological effects criteria or other toxic, radioactive, biological, or deleterious substances criteria, and non-anthropogenically affected sediment quality criteria which are used to identify sediments that have no adverse effects on biological resources per procedures in WAC 173-204-320[19] and 173-204-573.[20]

(40) "Sediment recovery zone" means an area where the applicable sediment ~~quality standards of WAC 173-204-320 through 173-204-340~~ cleanup objective identified in 173-204-570[21] are exceeded as a result of historical ~~discharge activities,~~ releases and ongoing releases,[22]

[16] Added to clarify an existing concept and term in the SMS rule. Incorporated when the term applies.
[17] Added to clarify an existing concept and term in the SMS rule. Incorporated how the term applies.
[18] Added an existing SMS rule term from section -520 to the definitions section. Removed the reference to human health criteria as that is included in the "Sediment cleanup objective" term and definition. This term now refers to benthic toxicity chemical and biological criteria only.
[19] References the marine benthic sediment quality standards.
[20] References the freshwater benthic sediment quality standards.
[21] Replaced with the proper term that incorporates human health and background criteria.

and authorized by the department as a result of a cleanup decision made pursuant to WAC 173-204-~~580~~585, Cleanup action decision.

(41) "~~Site~~ Sediment cleanup unit" means a discrete subdivision(s) of a~~n individual contaminated~~[23] sediment site designated by the department ~~that are being evaluated~~ for the purpose of establishing a sediment cleanup standard~~s~~. ~~Site units are based on consideration of~~ A sediment cleanup unit may be established based on unique chemical concentrations or parameters, ~~locational~~, environmental, spatial, contaminant source characteristics, or other ~~conditions~~ methods determined appropriate by the department, e.g., development related cleanups, cleanup under piers, cleanup in eelgrass beds, and cleanup in navigational lanes.

(42) "Site"[24] means the same as "facility" as defined in WAC 173-340-200.

(43) "Surface sediment" means sediment located in the biologically active zone or exposed to the water column. Surface sediment(s) can ~~also~~ include settled particulate matter exposed ~~by human activity (e.g., dredging)~~ to the biologically active aquatic zone or to the water column by human activity (e.g., dredging), pore water flux, or other hydrological or natural action.

(44) "Test sediment" means a sediment sample that is evaluated for compliance with the sediment quality standards of WAC 173-204-320 through 173-204-340 and/or the sediment impact zone maximum criteria of WAC 173-240-420 and/or the ~~cleanup screening levels~~ cleanup criteria of WAC 173-204-~~520~~ 570 through 173-204-574.

[22] Revised to reflect sources other than discharges.
[23] Redundant language.
[24] Added to be consistent with MTCA WAC 173-340 and harmonize terminology.

PART V--SEDIMENT CLEANUP STANDARDS

WAC 173-204-500[25] Overview of sediment cleanup decision process and policies.

(1) Purpose.

(2) Cleanup decision process.

(3) Coordination with other laws.

(4) Cleanup process expectations.

(5) Relationship between cleanup standards and cleanup actions.

(6) Applicability of new cleanup standards.

(1) Purpose. This section describes the cleanup decision process and associated policies and principles. If there are any inconsistencies between this section and a specifically referenced section, the specifically referenced section shall govern.

~~The standards of WAC 173-204-500 through 173-204-590 are procedures which specify a cleanup decision for managing contaminated sediments. These procedures include:~~

(2) Cleanup decision process. In general, the process for cleanup of contaminated sediments includes the following steps:

(a) ~~Screening~~ Identifying sediment station clusters of potential concern (WAC 173-204-510);

(b) ~~Conducting hazard assessments to~~ Identifying cleanup sites for potential further evaluation (WAC 173-204-530);

(c) ~~Ranking~~ Evaluating sites identified in (b) of this subsection (WAC 173-204-540);

(d) Determining the appropriate cleanup authority (WAC 173-204-550);

(e) Conducting a ~~site cleanup study~~ remedial investigation and feasibility study (WAC 173-204-560);

(f) Determining the site-specific sediment cleanup standard (WAC 173-204-570);

(g) Selecting a ~~site~~ cleanup action (WAC 173-204-580);

[25] This section has been added to communicate the process, policies, and expectations for conducting cleanup. It has been updated to reflect the new paradigm of cleaning up contamination of ubiquitous, bioaccumulative chemicals on a widespread scale, the threat of recontamination from ongoing point and nonpoint source pollution, and meeting cleanup standards that may be substantially lower than the current numeric criteria.

(h) Documenting the cleanup action decision and soliciting public review of that decision (WAC173-204-585); and

(i) Where necessary, authorizing a ~~cleanup site~~ sediment recovery zone (WAC 173-204-590).

~~**(2)** Under this chapter, the department may require or take those actions necessary to implement the standards of WAC 173-204-500 through 173-204-580 for all contaminated sediment stations on the inventory identified in WAC 173-204-350.~~

(3) Coordination with other laws. The cleanup process and procedures under this chapter and under other laws may be combined. ~~The department may initiate a cleanup action under this chapter and may upon further analysis determine that another law is more appropriate, or vice versa.~~[26] Sediment investigations and cleanups conducted in compliance with this chapter shall be presumed to also meet the substantive requirements in Chapter 173-340 WAC. For example, a remedy selected under WAC 173-204-580 meets the requirements in 173-340-360.

(4) Cleanup process expectations. The department has the following expectations regarding the cleanup process at sediment sites. These expectations are non-binding and there may be sites where cleanup actions conforming to these expectations are not appropriate:

(a) Scale of cleanups. Sediment contamination is often widespread, caused by multiple sources that have intermingled and dispersed over a wide area by natural currents and human activity. It is the department's intent to address this widespread contamination using multiple approaches that lead to cleanup as effectively and efficiently as possible. This may involve, for example:

(i) The use of partial cleanups or "sediment cleanup units" (see definition in WAC 173-204-200) that serve to provide more expeditious cleanup in portions of larger sites in a manner that is consistent with broader scale cleanup strategies;

(ii) Cleanup of multiple sources and wide-spread contamination coordinated on a bay-wide, area-wide, or watershed-wide scale; and

(iii) Use of aggressive source control measures to minimize future contamination.

(b) Recontamination. Recontamination of sediment at remediated sites or sediment cleanup units may occur from ongoing discharges or through the dispersal of contaminants from other contaminated sediments in the bay or watershed. It is the department's expectation that further cleanup of this recontamination will not be required by the person(s) conducting the initial cleanup when the recontamination is not under the authority or responsibility of the person(s) conducting the initial cleanup.

(c) Cleanup time frame. WAC 173-204-580(3)(e) establishes the timeframe requirements for the restoration of sediment sites. The department expects that sediment sites and cleanup units with limited contamination will be restored within a single construction season using active cleanup methods such as dredging or capping. The department recognizes other sediment

[26] Moved to section -550.

cleanups may have to occur over a longer time frame due to the nature and extent of contamination and the cleanup technology used. In these latter cases, it is the department's expectation that most of these sites will use active cleanup technologies, in combination with more passive technologies, to achieve restoration within a timeframe of 10 years from the start of a cleanup. The department recognizes that longer restoration time frames may be necessary in cases such as urban areas with widespread contamination and numerous point and nonpoint source discharges.

(d) Sediment recovery zones. WAC 173-204-590 establishes requirements for sediment recovery zones. The department expects that sediment recovery zones will be used where it is clear that a short restoration timeframe is not possible. At these sites the department expects that the sediment cleanup standards will be established as close as practicable to the sediment cleanup objective and the sediment recovery zone will be managed in accordance with WAC 173-204-590.

(e) Compliance monitoring. The department expects that post-cleanup monitoring will be conducted at cleanup sites and sediment cleanup units to verify compliance with approved cleanup standards. Monitoring will typically include sediment chemistry and bioassays at a minimum but may also include pore water and surface water testing, tissue analyses, and more intense discharge monitoring than would normally occur under a discharge permit where circumstances warrant.

(f) Scope of information. The scope of information needed to adequately characterize different sites will vary depending on site conditions and complexity. The department recognizes it may not always be financially feasible to completely characterize very complex sites. In these situations it is the department's expectation that sufficient information will be gathered to enable appropriate decisions and cleanups to proceed expeditiously. Steps in the cleanup process may be combined to facilitate faster cleanups where appropriate.

~~(5)~~ (g) Timely decisions. The department shall endeavor to make sediment cleanup decisions in an expeditious manner, as soon as all needed information is available, consistent with the availability of department resources and the priority of the cleanup site.

~~(4)~~ **(5) Relationship between the sediment cleanup objective, sediment cleanup standards, and cleanup actions.** It is the policy of the department to ~~manage~~ select sediment cleanup standards and cleanup actions ~~towards~~ that support the goal of reducing and ultimately eliminating adverse effects on biological resources and significant health threats to humans from sediment contamination.

(a) Sediment cleanup objective. The sediment cleanup objective defines the chemical concentrations or biological effect levels that protect human health and environment. WAC 173-204-570 establishes methods and policies for sediment cleanup objectives based on protecting human health and the environment. In some cases, the sediment cleanup objective calculated using the methods and policies in this chapter may be below natural background levels or levels that can be reliably measured. In these situations, the sediment cleanup objective is established at a concentration equal to the practical quantitation limit or natural background, whichever is

higher.

(b) Sediment cleanup standards. WAC 173-204-570 establishes requirements for sediment cleanup standards. Sediment cleanup standards define the chemical concentrations or biological effects levels that that must be achieved through active cleanup measures. Sediment cleanup standards shall be established as close as practicable to the sediment cleanup objective based on consideration of net environmental effects, technical feasibility, and cost.

(c) Cleanup actions. WAC 173-204-580 establishes requirements for cleanup actions. Most cleanup actions consist of a combination of technologies to achieve sediment cleanup standards within the biologically active zone. Cleanup technologies include:

(i) Active cleanup actions. Sediment contamination may be addressed by active cleanup actions such as removal, treatment, capping, or enhanced natural recovery. Active cleanup actions are preferred over more passive actions.

(ii) Source control. Sediment contamination may also be addressed by controlling ongoing sources including wastewater discharges or stormwater discharges. Source control measures are considered a necessary component of effective cleanup to reduce the risk of recontamination.

(iii) Passive cleanup actions. Cleanup actions such as natural recovery and long term monitoring may be used in combination with source control measures to supplement active cleanup actions for the site or sediment cleanup unit.

(6) Applicability of new cleanup standards.[27]

(a) The department shall determine the standards that apply to a site or sediment cleanup unit based on the rules in effect under this chapter at the time the department issues a final cleanup action plan or similar decision document as described in WAC 173-204-585.

(b) Cleanup standards determined in (a) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provisions in this chapter on cleanup standards, unless the department determines that the previous cleanup action is no longer sufficiently protective of human health and the environment.

[27] Added to reflect the concern Ecology has heard about imposing new standards upon cleanup that have been approved by Ecology and are awaiting cleanup or have been cleaned up.

WAC 173-204-510 Screening sediment stations clusters of potential concern

(1) Sediment quality standards inventory.

(2) Station clusters.

(3) Notification.

(4) No further cleanup action.

(5) Re-evaluation.

(1) Sediment quality standards inventory. Using the sediment quality standards inventory of WAC 173-204-350, the department shall analyze the sediment sampling data to identify station clusters of potential concern and station clusters of low concern. ~~per the standards of this section.~~ Station clusters of potential concern shall be further evaluated using the hazard assessment standards of WAC 173-204-530. Station clusters of low concern shall remain on the inventory and no further cleanup action determinations shall be taken by the department until the stations are reexamined per subsection (5) of this section.

(2) Station clusters. A station cluster is defined as any number of stations from the inventory of WAC 173-204-350 that are determined to be spatially and chemically similar. For the purpose of identifying a station cluster of potential concern ~~per the procedures of this subsection~~, three stations with the highest contaminant concentration for any particular contaminant or the highest degree of biological effects as identified in WAC 173-204-52~~0~~72 through 173-204-573[28] are selected from a station cluster. This procedure may be repeated for multiple chemicals ~~identified in WAC 173-204-520~~,[29] recognizing that the three stations with the highest concentration for each particular contaminant may be different and the respective areas for all chemicals may overlap. The department shall review the inventory of WAC 173-204-350 to identify station clusters of potential concern via the following process:

(a) Identify if available, the three stations within a station cluster with the highest concentration of each chemical contaminant identified in WAC 173-204-5~~20~~ 72 through 173-204-573, Cleanup screening levels criteria; and

~~(b)~~ (i) For each contaminant identified in (a) of this subsection, determine the average concentration for the contaminant at the three stations identified ~~in (a) of this subsection~~; and

~~(d)~~ (ii) If the average chemical contaminant concentration for any three stations identified in (a) of this subsection, exceeds the applicable cleanup screening level in WAC 173-204-5~~20~~ 572 through 173-204-573, then the station cluster is defined as a station cluster of potential concern; and

[28] Changed to reflect the move of section -520 to new section -572 and the future addition of proposed freshwater chemical and biological numeric criteria in section -573.
[29] Changed to reflect the move of section -520 to new section -572.

~~(c)~~ (b) Identify if available, three stations within the station cluster with the highest level of biological effects for the biological tests identified in WAC 173-204-315(1) and 173-204-573; and

~~(e)~~ (i) If the biological effects at each of the three stations from ~~(c)~~ (b) of this subsection exceeds the cleanup screening level in WAC 173-204-5~~20~~ 572 through 173-204-573, then the station cluster is defined as a station cluster of potential concern; and

~~(f)~~ (ii) If neither of the conditions of ~~(d)~~ (a)(ii) or ~~(e)~~ (b)(i) of this subsection apply, then the station cluster is defined as a station cluster of low concern; and

~~(g)~~ (c) If the department determines that any three stations within a station cluster exceed the sediment ~~cleanup screening levels~~ maximum allowable level human health criteria in WAC 173-204-571[30] or the other toxic, radioactive, biological, or deleterious substances criteria or the nonanthropogenically affected criteria of WAC 173-204-5~~20~~ 572 through 173-204-573, then the station cluster is defined as a station cluster of potential concern.

(3) Notification. When a station cluster of potential concern has been identified, the department shall issue notification to the landowners, lessees, onsite dischargers, adjacent dischargers, and other persons determined appropriate by the department prior to the department's conducting a hazard assessment as defined in WAC 173-204-530.

(4) No further cleanup action. No further cleanup action determinations shall be taken with station clusters of low concern until the inventory of WAC 173-204-350 is updated and the stations reexamined per subsection (5) of this section. Station clusters of low concern shall receive no further consideration for active cleanup, unless new information indicates an increase of chemical contamination at the stations in question. Station clusters of low concern shall be evaluated by the department for improved source control and/or monitoring requirements of this chapter.

(5) Re-evaluation. The department may at any time reexamine a station or group of stations to reevaluate and identify station clusters of potential concern following the procedures of subsection (2) of this section when new information demonstrates to the department's satisfaction that reexamination actions are necessary to fulfill the purposes of WAC 173-204-500 through 173-204-590.

[30] Changed to reflect the proposed human health cleanup criteria.

~~**WAC 173-204-520 Cleanup screening levels criteria**~~[31]

[31] Moved to new section WAC 173-204-572. Content has not been substantively changed for the numeric marine chemical and biological criteria.

WAC 173-204-530 Hazard assessment and site identification.

(1) Purpose.

(2) Hazard assessment requirements.

(3) Identification of cleanup sites for potential further investigation.[32]

(1) Purpose. A hazard assessment shall be performed to gather existing and available information to further characterize each station cluster of potential concern identified per WAC 173-204-510.

(2) Hazard assessment requirements. Onsite dischargers, lessees, landowners, and adjacent dischargers shall submit, upon the department's request, all existing and available information that would enable the department to:

(a) Determine the concentration and/or areal extent and depth of sediment contamination at the station cluster of potential concern by:

(i) Identifying the contaminants exceeding the applicable sediment quality standards of WAC 173-204-320 through ~~173-204-340 and~~ 173-204-573;[33]

(ii) Identifying individual stations within the station cluster of potential concern which exceed the sediment cleanup screening levels criteria of WAC 173-204-5~~20~~ 572 through 173-204-573;

(iii) Identifying the level of toxicity to the applicable biological test organisms of WAC 173-204-320 through 173-204-340 and 173-204-573;

(iv) Determining where the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 and 173-204-573, for any given contaminant, is met;

(v) Determining if concentrations of chemicals exist that potentially present a significant threat to human health;

(vi) Defining the location where the ~~minimum cleanup level~~ maximum allowable level[34] as defined in WAC 173-204-570 is met.

(b) Identify and characterize the present and historic source or sources of the contamination.

(c) Identify the location of sediment impact zones authorized under WAC 173-204-415.

[32] Added to mitigate the conflict with the MTCA definition of "site" - where hazardous substances have come to be located WAC 173-340-200.
[33] Added to accommodate future addition of proposed freshwater chemical and biological criteria for benthic toxicity.
[34] Changed to reflect terminology changes and the proposed human health, background, and ecological criteria.

(d) Identify sensitive resources in the vicinity of the station cluster of potential concern.

(e) Provide other information as determined necessary by the department for evaluating sites under WAC 173-204-540.

~~(3)~~ (f) ~~The department shall also~~ Compile existing and available information from other federal, state, and local governments.

(3) Identification of cleanup sites. To identify cleanup sites, the department shall use all available information of acceptable quality gathered from the hazard assessment to evaluate station clusters of potential concern identified pursuant to WAC 173-204-510(2). For the purpose of identifying a cleanup site per the procedures of this subsection, three stations with the highest contaminant concentration for any particular contaminant or the highest degree of biological effects as identified in WAC 173-204-~~520~~ 572 through 173-204-573 are selected from a station cluster of potential concern. This procedure may be repeated for multiple chemicals ~~identified in WAC 173-204-520~~, recognizing that the three stations with the highest concentration for each particular contaminant may be different and the respective areas for all chemicals may overlap. The department shall review the list of station clusters of potential concern to identify cleanup sites for potential further investigation via the following process:

~~(a) Identify if available, three stations within the station cluster of potential concern with the highest level of biological effects for the biological tests identified in WAC 173-204-315(1).~~

(b) Station clusters of potential concern ~~where the level of biological effects for any three stations within the station cluster of potential concern exceeds the cleanup screening levels of WAC 173-204-520(3)~~ [35] that meet the criteria in WAC 173-204-510(2) shall be defined as cleanup sites for potential further investigation.

(c) ~~Identify if available, the three stations within a station cluster of potential concern with the highest concentration of each chemical contaminant identified in WAC 173-204-520, Cleanup screening levels criteria.~~ For the purpose of identifying a cleanup site per the procedures of this subsection, stations that meet the biological standards of WAC 173-204-~~520(3)~~572(3) through 173-204-573(3) shall not be included in the evaluation of chemical contaminant concentrations for benthic toxicity.

~~(d) For each contaminant identified in (c) of this subsection, determine the average concentration for the contaminant at the three stations identified in (c) of this subsection.~~ [36]

~~(e)~~ (d) Station clusters of potential concern for which any average chemical concentration identified in WAC 173-204-510(2)(a)(i) ~~(d) of this subsection~~ exceeds the cleanup screening level chemical criteria of ~~Table III~~ WAC 173-204-572 through 173-204-573 ~~shall~~ may be defined as cleanup sites for potential further investigation.

(f) After completion of the hazard assessment, if neither of the conditions of (b) or (~~e~~ d) of this subsection apply, then the station cluster is defined as a station cluster of low concern.

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[35] This is a repeat of section 173-204-510(2)(e)

[36] Editorial change. Subsection (3)(e) establishes the need to average chemical concentrations.

(g) Station clusters of potential concern where the department determines that any three stations within the station cluster of potential concern exceed the ~~sediment cleanup screening~~ maximum allowable levels human health criteria of WAC 173-204-571 or the other toxic, radioactive, biological, or deleterious substances criteria or the nonanthropogenically affected criteria of WAC 173-204-5~~20~~ 572 through 173-204-573, shall be defined as cleanup sites for potential further investigation.

WAC 173-204-540 ~~Ranking~~ Evaluating[37] and list of sites.

(1) Purpose.
(2) Site evaluation.
(3) Considerations in site evaluation.
(4) Site re-evaluations.
(5) List of sites.
(6) Site delisting.
(7) Site re-listing ~~Relisting of sites~~.[38]
(8) Relationship to hazardous sites list.

(1) Purpose. The department shall prepare and maintain a list of contaminated sediment sites in the order of their relative ~~hazard ranking~~[39] risk to human health and the environment. From this list, the department shall select sites where action shall be taken.

(2) Site ~~ranking~~ evaluation. The department shall evaluate each cleanup site identified by the procedures in WAC 173-204-530 on a consistent basis using ~~the procedure described in *Sediment Ranking System ("SEDRANK"), January 1990, and all additions and revisions thereto or other*~~ procedures approved by the department. The purpose of ~~ranking~~ the evaluation is to estimate, based on technical information compiled during the hazard assessment procedures in WAC 173-204-530, the relative potential risk posed by the site to human health and the environment. Information obtained during the hazard assessment, ~~plus any additional data specified in "SEDRANK,"~~ shall be included in the site hazard ~~ranking~~ evaluation.

(3) Considerations in ~~ranking~~ site evaluation. In conducting sediment site ~~ranking~~ evaluations, the department shall assess both human health hazard and ecological hazard, and consider chemical toxicity, affected resources, and site characteristics for both types of hazards. The department shall also use best professional judgment and other information as necessary on a case-by-case basis to conduct site ~~ranking~~ evaluations.

(4) Site ~~reranking~~ re-evaluations. The department may, at its discretion, ~~rerank~~ re-evaluate a site. To ~~rerank~~ re-evaluate a site, the department shall use any additional information within the scope of the evaluation criteria and best professional judgment to establish that a significant change should result.

(5) List of ~~ranked~~ sites.

[37] Terminology change was made to be consistent with Ecology's current practice .
[38] Editorial change for consistency with subsection -540(6)
[39] Deleted due to the outdated term and to conform to Ecology policy of determining cleanup priority based on other factors.

(a) Contaminated sediment sites ~~that are ranked via "SEDRANK"~~ shall be placed on a list ~~in the order of their relative hazard ranking~~. The list shall describe the current status of cleanup action at each site ~~and be updated on an annual basis~~.[40] The department may change a site's status to reflect current conditions on a more frequent basis. The status for each site shall be identified as one or more of the following:

(i) Sites awaiting cleanup action;

(ii) Sites where ~~department or other party initiated, incidental, or partial~~ [41] cleanup actions~~, as defined in WAC 173-204-550,~~ are in progress;

(iii) Sites where a cleanup action has been completed and confirmational monitoring is underway;

(iv) Sites with sediment recovery zones authorized under WAC 173-204-590; and/or

(v) Other categories established by the department.

(b) The department shall routinely publish and make the list available to be used in conjunction with a review of ongoing and proposed regulatory actions to determine where and when a cleanup action should be taken. The department shall also make the list available to landowners and dischargers at or near listed sites, and to the public.

(6) Site delisting.

(a) The department may remove a site from the list only after it has determined that:

(i) All cleanup actions ~~except confirmational monitoring~~ (including confirmational monitoring if required)[42] have been completed and compliance with the ~~site~~ remedial investigation and feasibility study, cleanup action plan (or equivalent document under WAC 173-204-585)[43] and sediment cleanup standard(s) ~~has~~ have been achieved; or

(ii) The listing of the site was erroneous.

(b) A site owner or operator may request that a site be removed from the list by submitting a petition to the department. The petition shall state the reason for the site delisting request, and as determined appropriate by the department, shall include thorough documentation of all investigations performed, all cleanup actions taken, and all compliance monitoring data and results to demonstrate to the department's satisfaction that ~~the site sediment~~[44] cleanup standards have been achieved. The department may require payment of costs incurred~~, including an advance deposit,~~[45] for review and verification of the work performed. The department shall review such petitions, however the timing of the review shall be at its discretion and as resources

[40] Deleted to reflect the potential increase or decrease of Ecology staff workload.
[41] Editorial change.
[42] Added because Ecology cannot delist a site until confirmational monitoring has shown requirements have been met.
[43] Terminology changes made to harmonize with the MTCA rule.
[44] Edited to eliminate redundancy.
[45] Deleted to reflect that Ecology does not currently require advance deposits.

may allow.

(c) The department shall maintain a record of sites that have been removed from the list under (a) of this subsection. This record shall be made available to the public on request.

(d) The department shall provide public notice and an opportunity to comment when the department proposes to remove a site from the list.[46]

(7) Site re-listing. The department may relist a site which has previously been removed if it determines that the site requires further cleanup action.

(8) Relationship to hazardous sites list. The department may additionally evaluate sediment cleanup sites on the site list developed under subsection (5) of this section for possible inclusion on the hazardous sites list published under WAC 173-340-330.

[46] Moved from subsection -540(8).

WAC 173-204-550 Types of cleanup and authority.

(1) Purpose.

(2) Administrative authority.

(3) Types of cleanup.

(1) Purpose. The department acknowledges that cleanups of contaminated sediment sites can occur under the authority of chapter 90.48 or 70.105D RCW. Sediment cleanups may also be initiated by the federal government pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This section describes the department's role in department initiated and other cleanup actions.

(2) Administrative authority. The department shall use best professional judgment and other information as necessary on a case-by-case basis to determine the appropriate administrative authority for conducting, or requiring ~~contaminated sediment~~[47] cleanup actions. The department may initiate a cleanup action under this chapter and may upon further analysis determine that another law is more appropriate, or vice versa. When determining the appropriate administrative authority at a site, the decision shall[48] be based on, but not limited to, the following considerations:

(a) Source of contaminants requiring cleanup including spills, dredging actions, and wastewater and/or storm water discharges;

(b) Significance of contamination threat to human health and the environment including the degree of contamination and types and number of contaminants;

(c) Public perception concerning the contaminant threat to human health and the environment;

(d) Personal or corporate financial status of the landowner(s) and/or discharger(s);

(e) Enforcement compliance history of the landowner(s) and/or discharger(s);

(f) Status of existing or pending federal, state, or local legal orders or administrative actions; and

(g) Size of cleanup action proposed or determined necessary.

(3) Types of cleanups. The types of cleanup actions below establish scenarios recognized by the department which may occur to effect cleanup ~~of contaminated sediment sites~~. All of these types of cleanup actions shall be subject to administrative review and approval of the department under chapters 90.48 and/or 70.105D RCW:

[47] Editorial change to eliminate redundancy.
[48] Moved from section -500(3).

(a) Department initiated cleanup. Department initiated cleanup actions occur when the department uses its authority under chapter 90.48 and/or 70.105D RCW to conduct or require and/or otherwise effect cleanup to meet the requirements in this chapter;

(b) ~~Voluntary~~[49] Other party initiated cleanup. ~~Voluntary c~~Cleanup actions ~~are~~ may be initiated by parties other than the department. The department shall encourage ~~voluntary~~ these cleanup actions whenever possible, and as early as possible ~~to meet the intent of this chapter~~. These cleanup actions must be approved by the department and must meet the requirements in this chapter;

(c) Incidental cleanup. Incidental cleanup actions are conducted when other state or federally permitted activities are ongoing in and/or around the ~~contaminated sediment~~ site. Early coordination of incidental cleanup actions with the department is encouraged to meet the ~~intent~~ requirements in this chapter, chapter 70.105D RCW, and chapter 90.48 RCW, as appropriate; and

~~(d) Partial cleanup. Partial cleanup actions may be conducted when completion of cleanup requirements under WAC 173-204-560 has identified and proposed discrete site units and sediment cleanup standards, the department has approved the selection of the partial cleanup alternative per the standards of WAC 173-204-580, and the department has determined that awaiting action or decision on conducting a complete site cleanup would have a net detrimental effect on the environment or human health.~~[50]

~~(e)~~ (d) CERCLA cleanup. Pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act, the department may identify this chapter ~~173-204~~ as an applicable state requirement for cleanup actions conducted by the federal government.

[49] Changed to reflect Ecology's long standing policy to not approve voluntary cleanups as defined in WAC 173-340.

[50] References to partial cleanup have been moved to section -500(4)(a)(i) and integrated with the concept of sediment cleanup units.

WAC 173-204-560 ~~Cleanup Study~~ Remedial investigation and feasibility study.

(1) Purpose.

(2) Scope of remedial investigation and feasibility study work plan.

(3) Public participation plan requirements.

(4) Contents of remedial investigation report.

(5) Contents of feasibility study report.

(6) Sampling access.

(1) Purpose. This section ~~describes cleanup study plan and report standards which meet the intent of cleanup actions required under authority of chapter 90.48 and/or 70.105D RCW, or other authorities under this chapter. Cleanup actions required under authority of chapter 70.105D RCW shall also meet all standards of this chapter and chapter 173-340 WAC, the Model Toxics Control Act cleanup regulation.~~[51] ~~The cleanup study plan and report standards in this chapter include activities to collect, develop, and evaluate sufficient information to enable consideration of cleanup alternatives and selection of a site-specific sediment cleanup standard prior to making a cleanup decision. Each person performing a cleanup action to meet the intent of this chapter shall submit a cleanup study plan and cleanup study report to the department for review and written approval prior to implementation of the cleanup action.~~[52] ~~The department may approve the cleanup study plan as submitted, may approve the cleanup study plan with appropriate changes or additions, or may require preparation of a new cleanup study plan.~~ establishes the remedial investigation/feasibility study (RI/FS) work plan and report requirements for investigation of contaminated sediment sites to select a site specific cleanup standard and evaluate cleanup action alternatives to inform a cleanup action decision under WAC 173-204-580 through 173-204-585.

(2) Scope of ~~cleanup study plan~~ remedial investigation and feasibility study work plan.[53] The scope of a ~~cleanup study~~ RI/FS work plan shall depend on the specific site informational needs, the site hazard, the type of cleanup action proposed, and the authority cited by the department to require cleanup. To ~~In~~ establish~~ing~~ the necessary scope ~~cleanup study~~, the department may consider cost mitigation factors, such as the financial resources of the person(s) responsible for the cleanup action. In all cases sufficient information must be collected, developed, and evaluated to enable the appropriate selection of a sediment cleanup standard under WAC 173-204-570 and a cleanup action decision under WAC 173-204-580 through 173-204-585. The ~~cleanup study~~ RI/FS work plan shall ~~address~~ include:

(a) Public ~~information/education~~ participation plan;

[51] Moved to section -580, Selection of Cleanup Actions.
[52] Language reworded in following text.
[53] Terminology changed to harmonize with MTCA.

~~(b) Site investigation and cleanup alternatives evaluation;~~

(b) Sampling plan and recordkeeping in compliance with WAC 173-204-600 through -610 and department guidance;[54] and

(c) Site safety ~~cleanup study plan shall address proposed activities~~ to meet the requirements of the Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.) and the Washington Industrial Safety and Health Act (chapter 49.17 RCW), and regulations promulgated pursuant thereto. These requirements are subject to enforcement by the designated federal and state agencies. Actions taken by the department under this chapter do not constitute an exercise of statutory authority within the meaning of section (4)(b)(1) of the Occupational Safety and Health Act.[55]

(d) Each person performing a cleanup action to meet the requirements of this chapter shall submit an RI/FS work plan conforming to department guidance for department review and approval prior to implementing the remedial investigation.

(3) ~~Cleanup study plan public information/education~~ Public participation plan requirements. The ~~cleanup study plan~~ public participation plan shall encourage coordinated and effective public involvement commensurate with the nature of the proposed cleanup action, the level of public concern, and the existence of, or potential for adverse effects on biological resources and/or a threat to human health. The plan shall address proposed activities for the following subjects:

(a) When public notice will occur, the length of the comment periods, the potentially affected vicinity, and any other areas to be provided notice;

(b) Where public information ~~repositories~~ will be located to provide ~~site~~ information about the cleanup;

(c) Methods for identifying the public's concerns which may include ~~e.g.,~~ interviews, questionnaires, community group meetings, etc.;

(d) Methods for providing information to the public, which may include ~~e.g.,~~ press releases, public meetings, fact sheets, list servs, etc.;

(e) Coordination of public participation requirements mandated by other federal, state, or local laws;

(f) Amendments to the planned public involvement activities; and

(g) Any other elements that the department determines to be appropriate for inclusion in the plan.

(4) ~~Cleanup study plan site investigation and cleanup alternatives evaluation~~

[54] Moved from original subsection (5) Cleanup study plan.
[55] Moved from original subsection (6) Cleanup study plan site safety requirements.

~~requirements~~[56] **Remedial investigation content.** The content of the ~~cleanup study plan for the site investigation and cleanup alternatives evaluation~~ remedial investigation is determined by the type of cleanup ~~action~~ selected as defined under WAC 173-204-550. As determined by the department, the ~~cleanup study plan shall address~~ person(s) responsible for the cleanup shall conduct a remedial investigation that includes the following ~~subjects~~ requirements:

(a) General site information. General information~~,~~ including: Project title; name, address, and phone number of project coordinator; legal description of the cleanup site; area and volume dimensions of the site; present and past owners and operators; present and past owners and operators of contaminant source discharges to the site and their respective operational history; and other pertinent information determined by the department;

(b) Site conditions map. An existing site conditions map which illustrates site features as follows:

(i) Property boundaries~~.~~ ;

(ii) The site boundary defined by the individual contaminants exceeding the applicable sediment ~~quality standards of WAC 173-204-320 through 173-204-340~~ cleanup objective of WAC 173-204-570.[57] Delineations should be made at the point where the concentration of the contaminant would meet the:

(A) Site specific sediment cleanup standards as defined in WAC 173-204-570(2); and

(B) Sediment cleanup objective as defined in WAC 173-204-570(3); and

(C) ~~Minimum cleanup level~~[58] Maximum allowable level as defined in WAC 173-204-570(4);

(iii) Surface and subsurface structures and topography~~.~~ ;

~~(v)~~ (iv) Utility lines~~.~~ ;

~~(vi)~~ (v) Navigation lanes~~.~~ ;

~~(vii) Current and ongoing sediment sources.~~[59]

~~(vii)~~ (vi) Other pertinent information determined by the department~~.~~ ;

(c) Site investigation. Sufficient investigation to characterize the distribution of sediment contamination ~~present at the site,~~ and the threat or potential threat to human health and the environment. Where applicable to the site, these investigations shall address the following:

(i) Surface water and sediments. Investigations of sediment, surface water hydrodynamics, and sediment transport mechanisms to characterize significant hydrologic

[56] Section -560 revised to focus on the content and process of developing an RI/FS. Remedy selection requirements have been moved to section -580 and cleanup action decisions have been moved to new section -585 for clarity.
[57] Added to include human health, background and ecological criteria.
[58] Replaced with maximum allowable level to include human health, background and ecological criteria.
[59] Already addressed in subsection (4)(c)(i) and (4)(d).

features such as:

(A) Site surface water drainage patterns, quantities and flow rates;

(B) Areas of sediment erosion and deposition including estimates of sedimentation rates;

(C) ~~and actual or potential~~[60] Contaminant migration routes to and from the site and within the site;

(D) ~~Sufficient water and sediment sampling shall be performed to adequately characterize the~~ [61]Areal and vertical distribution and concentrations of contaminants in sediment;

(E) Recontamination potential of sediments which are likely to influence the type and rate of contaminant migration, or are likely to affect the ability to implement alternative cleanup actions ~~shall be characterized~~.[62]

(ii) Geology and ground water system characteristics. Investigations of site geology and hydrogeology to ~~adequately~~ characterize the physical properties and distribution of sediment types, and the characteristics of ground water flow rate, ground water gradient, ground water discharge areas, and ground water quality data which may affect site cleanup alternatives evaluations;

(iii) Climate. Information regarding local and regional climatological characteristics which are likely to affect surface water hydrodynamics, ground water flow characteristics, and migration of sediment contaminants such as: Seasonal patterns of rainfall; the magnitude and frequency of significant storm events; prevailing wind direction and velocity;

(iv) Land use. Information characterizing human populations exposed or potentially exposed to sediment contaminants released from the site and present and proposed uses and zoning for shoreline areas contiguous with the site;

(v) Natural resources and ~~ecology~~ habitat[63]. Information to determine the impact or potential impact of sediment contaminants from the site on natural resources and ~~ecology~~ critical habitat of the area such as ~~sensitive environment, local and regional habitat~~[64]; nursery grounds, shellfish or eelgrass beds and other plant and animal species ~~and other environmental receptors.~~ ;[65]

(d) Current and potential ~~Sediment~~ contaminant sources. A description of the location, quantity, areal and vertical extent, concentration and sources of active and inactive waste disposal and other sediment contaminant discharge sources ~~which affect or potentially affect the~~

[60] "Potential" removed because recontamination is already addressed in this subsection (4)(c)(i)(E) and (4)(d) Site investigation.
[61] Removed because already addressed in this subsection (4)(c) Site investigation.
[62] Removed because already addressed in this subsection (4)(c) Site investigation
[63] Removed "ecology" and added "habitat" for clarity.
[64] Removed because this term is not well defined. Added more specific examples.
[65] Removed because already included in "other plant and animal species".

~~site~~.[66] Where determined relevant by the department, the following information shall be obtained by the department from the responsible discharger:

(i) The physical and chemical characteristics~~,~~ and the biological effects of ~~site sediment~~ contaminant sources;

(ii) The status of source control actions for permitted and unpermitted ~~site sediment~~ contaminant sources; and

(iii) A recommended compliance time frame for known permitted ~~and unpermitted site sediment~~ contaminant sources which affect or potentially affect implementation of the timing and scope of the ~~site~~ cleanup action alternatives.

~~(b) Human health risk assessment. The current and potential threats to human health that may be posed by sediment site contamination shall be evaluated using a risk assessment procedure approved by the department.~~[67]

(e) The RI/FS shall be submitted to the department for review and written approval prior to implementation of the cleanup action.

(5) Feasibility Study content.[68] The purpose of the feasibility study is to develop and evaluate cleanup action alternatives to make a cleanup action decision. The feasibility study shall include the following:

(a) Summary of remedial investigation results including:
(i) Conceptual site model to provide the basis from which cleanup action alternatives are developed and evaluated;

(ii) The proposed biologically active zone;
(iii) The proposed sediment cleanup standards; and
(iv) Maps, cross-sections, and calculations illustrating the location, estimated amount and concentration distribution of hazardous substances above cleanup standards and the sediment cleanup objective;
(b) Results of any additional investigation conducted after completion of the remedial investigation;
~~(4f)~~ (c) Cleanup action alternatives. Each ~~cleanup study plan~~ feasibility study shall include an evaluation of alternative cleanup actions that protect human health and the environment by eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and migration route. The number and types of alternatives to be evaluated shall take into account the characteristics and complexity of the site and be evaluated using the requirements in WAC 173-204-580~~.~~ ;
(d) Identified alternatives;

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[66] Already addressed in the title.
[67] Removed because already addressed in sections -570, -571, and -580.
[68] This section has been amended to focus on the process and content requirements to develop an FS. Remedy selection requirements have been moved to section -580 and 580 and cleanup action decisions have been moved to new section -585 for clarity.

(e) Alternatives eliminated that do not meet the requirements in WAC 173-204-580;

(f) Documentation of the alternatives evaluation process. For each alternative evaluated in detail this shall include:

(i) The location and estimated amount of each contaminant to be removed or treated by the alternative and the estimated time frame in which removal or treatment will occur; and

(ii) The location, estimated amount and projected concentration distribution of each contaminant remaining on site above proposed cleanup standards after implementation of the alternative;

(g) The preferred remedy and the basis for selection;[69] and

~~(4i)~~ (h) Upon department approval, the proposed site cleanup alternatives ~~may~~ to include establishment of ~~site~~ sediment cleanup units with individual sediment cleanup standards within the range required in WAC 173-204-570. ~~Based on site physical characteristics and complexity, and cleanup standard alternative established on consideration of cost, technical feasibility, and net environmental impact.~~[70]

(i) Applicable local, state and federal laws specific to the proposed preferred remedy, including a description of permit/approval conditions identified in consultation with the permitting agencies;

~~(4(f)(ii)~~ (j) The proposed ~~site cleanup alternatives~~ preferred remedy[71] may include establishment of a sediment recovery zone as authorized under WAC 173-204-590, Sediment recovery zones. Establishment or expansion of a sediment recovery zone shall not be used as a substitute for active cleanup actions, when such actions are practicable and meet the requirements of WAC 173-204-580. ~~The cleanup study plan shall include the following information for evaluation of sediment recovery zone alternatives:~~[72]

~~(4)(ii)(A) The time period during which a sediment recovery zone is projected to be necessary based on source loading and net environmental recovery processes determined by application of a department approved sediment recovery zone computer model under WAC 173-204-130(4) as limited by the standards of this section and the department's best professional judgment;~~

~~(4)(ii)((B) The legal location and landowner(s) of property proposed as a sediment recovery zone;~~

~~(4)(ii)(C) Operational terms and conditions including, but not limited to proposed confirmational monitoring actions for discharge effluent and/or receiving water column and/or sediment chemical monitoring studies and/or bioassays to evaluate ongoing water quality, sediment quality, and biological conditions within and adjacent to the proposed or authorized sediment recovery zone to confirm source loading and recovery rates in the proposed sediment~~

[69] Subsection (5)(d) through (g) added to incorporate MTCA requirements.
[70] The definition "sediment cleanup unit" in WAC 173-204-200 incorporates this language. Section -580 addresses cost, technical feasibility, and environmental impact.
[71] Added to harmonize with the MTCA process.
[72] Subsection (4)(f)(ii)(A) through (G) is addressed in section -590. Removed to eliminate duplicity.

~~recovery zone.~~

~~(4)(ii)(D) Potential risks posed by the proposed sediment recovery zone to human health and the environment;~~

~~(4)(ii)(E) The technical practicability of elimination or reduction of the size and/or degree of chemical contamination and/or level of biological effects within the proposed sediment recovery zone; and~~

~~(4)(ii)(F) Current and potential use of the sediment recovery zone, surrounding areas, and associated resources that are, or may be, affected by releases from the zone.~~

~~(4)(ii)(G) The need for institutional controls or other site use restrictions to reduce site contamination risks to human health.~~

~~(4)(f)(iii)~~ [73] ~~A phased approach for evaluation of alternatives may be required for certain sites, including an initial screening of alternatives to reduce the number of potential remedies for the final detailed evaluation. The final evaluation of cleanup action alternatives that pass the initial screening shall consider the requirements of subsection (4) and the following factors:~~

~~(A) Overall protection of human health and the environment, time required to attain the sediment cleanup standard(s), and on-site and offsite environmental impacts and risks to human health resulting from implementing the cleanup alternatives;~~

~~(B) Attainment of the sediment cleanup standard(s) and compliance with applicable federal, state, and local laws;~~

~~(C) Short-term effectiveness, including protection of human health and the environment during construction and implementation of the alternative; and~~

~~(D) Long-term effectiveness, including degree of certainty that the alternative will be successful, long-term reliability, magnitude of residual, biological and human health risk, and effectiveness of controls for ongoing discharges and/or controls required to manage treatment residues or remaining wastes cleanup and/or disposal site risks;~~

~~(4)(g) Ability to be implemented. The ability to be implemented including the potential for landowner cooperation, consideration of technical feasibility, availability of needed offsite facilities, services and materials, administrative and regulatory requirements, scheduling, monitoring requirements, access for construction, operations and monitoring, and integration with existing facility operations and other current or potential cleanup actions;~~

~~(4)(h) Cost, including consideration of present and future direct and indirect capital, operation, and maintenance costs and other foreseeable costs;~~

~~(4)(i) The degree to which community concerns are addressed;~~

~~(4)(j) The degree to which recycling, reuse, and waste minimization are employed; and~~

(k) Environmental impact. Sufficient information shall be provided to fulfill the requirements of chapter 43.21C RCW, the State Environmental Policy Act for the proposed preferred remedy. Discussions of significant short-term and long-term environmental impacts,

[73] Subsections (4)(f)(iii) through (4)(j) are referencing remedy selection requirements and have been moved to section -580.

significant irrevocable commitments of natural resources, significant alternatives including mitigation measures, and significant environmental impacts which cannot be mitigated shall be included.

~~(5) Cleanup study plan – sampling plan and record keeping requirements. The cleanup study plan shall address proposed sampling and recordkeeping activities to me the standards of WAC 173-204-600, Sampling and testing plan standards, and WAC 173-204-610, Records management, and the standards of this section.~~[74]

~~(6) Cleanup study plan site safety requirements.~~[75] ~~The cleanup study plan shall address proposed activities to meet the requirements of the Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.) and the Washington Industrial Safety and Health Act (chapter 49.17 RCW), and regulations promulgated pursuant thereto. These requirements are subject to enforcement by the designated federal and state agencies. Actions taken by the department under this chapter do not constitute an exercise of statutory authority within the meaning of section (4)(b)(1) of the Occupational Safety and Health Act.~~

~~(7) Cleanup study report.~~[76] ~~Each person performing a cleanup action to meet the intent of this chapter shall submit a cleanup study report to the department for review and written approval of a cleanup decision prior to implementation of the cleanup action. The sediment cleanup study report shall include the results of cleanup study site investigation conducted pursuant to subsection (4) of this section, and preferred and alternative cleanup action proposals based on the results of the approved cleanup study plan.~~

~~(8) Sampling access.~~[77] ~~In cases where the person(s) responsible for cleanup is not able to secure access to sample sediments on lands subject to a cleanup study plan approved by the department, the department may facilitate negotiations or other proceedings to secure access to the lands. Requests for department facilitation of land access for sampling shall be submitted to the department in writing by the person(s) responsible for the cleanup action study plan.~~

[74] Moved to subsection (2)(c).
[75] Moved to subsection (2)(c).
[76] Removed because already addressed in subsection (1), sections -580 through -585.
[77] Removed. MTCA addresses this issue in WAC 173-340-800 in more detail and applies to sediment cleanup.

WAC 173-204-570 Sediment cleanup standards – General requirements.[78]

(1) Applicability and purpose.
(2) Sediment cleanup standard.
(3) Sediment cleanup objective.
(4) Maximum allowable level.

(1) Applicability and purpose. This section establishes the sediment cleanup standards requirements for cleanup actions required under the authority of chapter 90.48 RCW or chapter 70.105D RCW. ~~,and/or this chapter, and describes the process to determine site-specific cleanup standards.~~

(2) Sediment cleanup standard. The sediment cleanup standard defines the maximum allowed chemical concentration and level of biological effects permissible at the cleanup site to be achieved by year ten after start of the cleanup.[79]

(a) ~~(4)~~ The sediment cleanup standard ~~are~~ is established ~~on a site specific basis~~ for a site or a sediment cleanup unit within an allowable range of ~~contamination~~ concentration:[80]

(i) The lower end of the range is the sediment cleanup objective as defined in subsection ~~(2)~~ (3) of this section;

(ii) The upper end of the range is the maximum allowable level as defined in subsection (4) of this section.

(b) The ~~site specific~~ sediment cleanup standard~~s~~ shall be as close as practicable to the sediment cleanup objective, but in no case shall exceed the ~~minimum cleanup~~ maximum allowable[81] level;

(c) ~~In all cases, the cleanup standards shall be defined in consideration of~~ Determinations on whether the sediment cleanup standard is as close as practicable to the sediment cleanup objective shall take into account the following per procedures in WAC 173-204-580:[82]

[78] This section has been modified to lay out the process for defining a cleanup standard that incorporates proposed human health, background, and ecological criteria into the current SMS two tier framework. Section -570 through -574 replace the language from the original -570.
[79] This clarifies the concept in section -590 Sediment recovery zones, and original section -570(3). This could be interpreted as a substantive change. Original section -570 states the CSL/Minimum cleanup level must be achieved by year ten after completion of the active cleanup action. But section -590(1) and (2)(f) require a sediment recovery zone if the cleanup standard exceeds the SQS with an allowance of a sediment recovery zone for longer than ten years.
[80] This is consistent with the current SMS framework but incorporates proposed human health, background, and ecological criteria.
[81] Changed to incorporate the proposed human health, background, and ecological criteria.
[82] Subsection (2)(c)(i) through (iii) are an editorial rewrite from section -570(4).

(i) Net environmental effects including the potential for natural recovery of the sediments over time;

(ii) ~~Cost and engineering feasibility~~ Technical[83] feasibility of cleanup alternatives;

(iii) ~~Cost and engineering feasibility~~ Cost of cleanup alternatives; and

(iv) Meeting or maintaining a sediment cleanup standard based on technical limitations by ongoing releases from public or private sources where there is no contractual relationship with the persons(s) conducting the cleanup action or where source control actions are not under the authority of person(s) conducting the cleanup action.[84]

~~(2)~~ **(3) Sediment cleanup objective**. The sediment cleanup objective shall be to eliminate adverse effects on biological resources and significant health threats to humans from sediment contamination. ~~The sediment cleanup objective for all cleanup actions shall be the sediment quality standards as defined in WAC 173-204-320 through 173-204-340, as applicable.~~[85] ~~The sediment cleanup objective identifies sediments that have no acute or chronic adverse effects on biological resources,~~[86] ~~and which correspond to no significant health risk to humans, as defined in this chapter.~~[87] This is the lower end of the range for determining sediment cleanup standards. Unless one or both of the conditions in subsection (e) apply, the sediment cleanup objective shall be at least as stringent as all of the following:

(a) Sediment quality standards for benthic toxicity as defined in WAC 173-204-320 and 173-204-573,[88] as applicable;

(b) Sediments that are estimated to result in no significant threat to human health as defined in WAC 173-204-571(2) ;[89]

(c) Sediments that are estimated to result in no significant ecological risk to higher trophic levels as defined in WAC 173-204-574;[90]

(d) ~~(5) must meet all legally~~ Requirements in other applicable federal, state, and local

[83] Term changed to maintain consistency with the rest of the rule "technical" vs. "engineering" are intended to be synonymous.
[84] Substantive change. This change reflects the need to incorporate the flexibility for Ecology to resolve PLP liability from recontamination of a cleaned up site or unit.
[85] Deleted to encompass the proposed human health, background, and ecological criteria.
[86] This is addressed in subsection (a) and sections -572 and -573 for benthic toxicity criteria.
[87] Deleted, addressed in subsection (b) and section -571.
[88] Substantive change. This replaces freshwater narrative standard for potential proposed chemical and biological criteria but maintains the marine numeric chemical and biological criteria.
[89] Substantive change. Added to incorporate proposed human health criteria.
[90] Substantive change. Added to incorporate proposed narrative standard to address ecological health risks from bioaccumulative chemicals.

~~requirements~~ laws; and

(e) Consideration of natural background and analytical limits. Sediment cleanup standards developed under subsection (2) of this section shall not be established at concentrations below natural background concentrations or the practical quantitation limit, whichever is higher.[91]

(4) **~~Minimum cleanup level~~ Maximum allowable level**. The ~~minimum cleanup level~~ maximum allowable level is the maximum allowed chemical concentration and level of biological effects permissible at the ~~cleanup~~ site or sediment cleanup unit to be achieved ~~by year ten~~[92] after completion of the active cleanup action. This is the upper end of the range for setting sediment cleanup standards. Unless one or both of the conditions in subsection (e) apply, the maximum allowable level shall be at least as stringent as all of the following:

(d) Cleanup screening levels for benthic toxicity as defined in WAC 173-204-572 through -573,[93] as applicable;

(e) Sediments that are estimated to result in no significant threat to human health as defined in WAC 173-204-571(3) ;[94]

(f) Sediments that are estimated to result in no significant ecological risk to higher trophic levels as defined in WAC 173-204-574;[95]

(g) Requirements in other applicable federal, state and local ~~requirements~~ laws; and

(h) Consideration of regional background and analytical limits. Sediment cleanup standards developed under subsection (4) of this section shall not be established at concentrations above regional background concentrations as defined in WAC 173-204-200 or the practical quantitation limit, whichever is higher.[96]

[91] Substantive change. This incorporates the MTCA framework of establishing a cleanup standard that is the highest of a human health risk level, background, or practical quantitation limits.
[92] This could be interpreted as a substantive change. The current phrasing is in conflict with the rest of the SMS rule. Whereas the cleanup standard is not allowed to be above this upper level and a sediment recovery zone is required is the cleanup standard is above the lower level.
[93] This replaces freshwater narrative standard for potential chemical and biological criteria but maintains the marine criteria
[94] Added to incorporate new human health criteria
[95] Added to incorporate ecological health risks from bioaccumulatives.
[96] Substantive change. This changes the current two tier framework by establishing a cleanup standard that is the highest of a human health risk level, background, or practical quantitation limits for both lower and upper tiers.

WAC 173-204-571 Sediment cleanup standards based on human health risks.

(1) Purpose.
(2) Requirements for sediment cleanup objective based on human health protection.
(3) Requirements for maximum allowable level based on human health protection.
(4) Human health risk assessment methods and policies.

(1) Purpose. This section defines the human health risk assessment framework that shall be used to comply with the sediment cleanup standard requirements in WAC 173-204-570.

(2) Requirements for the sediment cleanup objective based on human health risks. Unless one or both of the conditions in subsection (2)(c) of this subsection apply, the sediment cleanup objective shall be at least as stringent as both of the following:

(a) Sediment concentrations that correspond to no acute or chronic non-carcinogenic toxic effects. Compliance with this provision[97] shall be based on a hazard quotient of one (1). The calculated sediment concentration for an individual hazardous substance shall be adjusted downward if the hazard index exceeds one for multiple non-carcinogens and/or multiple exposure pathways per procedures identified in WAC 173-340-708(4) through 173-340-708(6) and methods approved by the department.

(b) Sediment concentrations that correspond to no unacceptable cancer risks. Compliance with this provision[98] shall be based on an individual lifetime excess cancer risk of one-in-one million (1×10^{-6}). The calculated sediment concentration shall be adjusted downward if the total lifetime excess cancer risks exceed one-in-one hundred thousand (1×10^{-5}) for multiple carcinogens and/or multiple exposure pathways per procedures identified in WAC 173-340-708(4) through 173-340-708(6) or other methods approved by the department.

(c) Natural background and analytical considerations. The sediment cleanup standard or sediment cleanup objective shall not be established at concentrations below natural background concentrations as defined in WAC 173-340-200 or the practical quantitation limit, whichever is higher.

(3) Requirements for the maximum allowable level based on human health risks. Unless one or both of the conditions in subsection (3)(c) of this subsection apply, the maximum allowable shall be at least as stringent as both of the following:

(a) Sediment concentrations that correspond to no acute or chronic non-carcinogenic toxic effects. Compliance with this provision shall be based on a hazard quotient of one (1). The calculated sediment concentration for an individual hazardous substance shall be adjusted

[97] This provision is not intended to be appreciably different than MTCA for non carcinogenic effects.
[98] This provision is not intended to be appreciably different than MTCA for carcinogenic effects.

downward if the hazard index exceeds one for multiple non-carcinogens and/or multiple exposure pathways per procedures identified in WAC 173-340-708(4) through 173-340-708(6) or other methods approved by the department.

(b) Sediment concentrations that correspond to no unacceptable cancer risks. Compliance with this provision shall be based on a total site risk of one-in-one hundred thousand (1×10^{-5})[99] per procedures identified in WAC 173-340-708(4) through -708(6) or other methods approved by the department.[100]

(c) Regional background and analytical considerations. The sediment cleanup standard or maximum allowable level shall not be established at concentrations above regional background concentrations as defined in WAC 173-340-200 or the practical quantitation limit, whichever is higher.

(4) Human health risk assessment methods and policies. The following policies and methods shall be used to establish sediment concentrations that correspond to no significant human health risks:

(a) Sediment concentrations that correspond to no significant human health risk shall be based on estimates of the reasonable maximum exposures expected to occur under both current and future site use conditions. For sites located within a tribal usual and accustomed fishing area, the reasonable maximum exposure scenario shall be based on tribal fish consumption rates. The department has developed a statewide default fish consumption rate of XXX g/day. The department may approve a site specific fish consumption rate.[101]

(b) Sediment concentrations that correspond to no significant human health risk shall be based on toxicological parameters established by the USEPA and available through the Integrated Risk Information System data base. If a toxicological parameter for a particular substance is not available through IRIS, other sources may be used. The department will use the hierarchy in the USEPA Office of Solid Waste and Emergency Response Directive 9285.7-53 when evaluating the appropriateness of using alternative sources.

(c)

[99] The upper human health risk level is still under consideration by Ecology. A policy decision has not been made.

[100] Ecology is in the process of drafting a guidance document for conducting human health risk assessments at sediment sites that will include more detail such as default exposure parameters and risk equations. It is Ecology's expectation this guidance will be complete upon promulgation of this rule.

[101] Substantive change. Ecology has not made a policy decision as to a specific default rate, a range of rates, or the criteria necessary to develop a site specific fish consumption rate. A technical report is available for public review at: http://www.ecy.wa.gov/toxics/fish.html.

WAC 173-204-572 Cleanup screening levels based on benthic toxicity in marine sediment.[102]

(1) Applicability.

(2) Puget Sound marine cleanup screening levels chemical criteria.

(3) Puget Sound marine sediment cleanup screening levels biological criteria.

(4) Other toxic, radioactive, biological, or deleterious substances criteria.

(5) Maximum allowable levels for nonanthropogenically affected sediment criteria.

(1) Applicability.

(a) The ~~marine sediment~~ cleanup screening levels chemical criteria, ~~and the marine sediment~~ biological effects criteria, ~~and~~ ~~the marine sediment~~ other toxic, radioactive, biological, or deleterious substance criteria, and the ~~marine sediment~~ nonanthropogenically affected criteria of this section shall apply to marine sediment~~s~~ within Puget Sound. The cleanup screening levels establish minor adverse effects as the level above which station clusters of potential concern are defined for benthic toxicity,[103] and at or below which station clusters of low concern are defined for benthic toxicity, per the procedures identified in WAC 173-204-510(2). The cleanup screening levels also establish the levels above which station clusters of potential concern are defined as cleanup sites for benthic toxicity, per the procedures identified in WAC 173-204-530~~, hazard assessment~~. The criteria in Table III ~~and this section~~ establish ~~minor adverse effects as the Puget Sound marine sediment minimum cleanup level~~[104] the sediment cleanup screening level to be used in evaluation of cleanup alternatives per the procedures of WAC 173-204-580~~560~~, and selection of a ~~site~~ sediment cleanup standard(s) per the procedures of WAC 173-204-570.

(b) Non-Puget Sound marine sediment cleanup screening levels criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(c) Low salinity sediment cleanup screening levels criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

~~(d) Freshwater sediment cleanup screening levels and minimum cleanup levels criteria.~~

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[102] This section was moved from section -520. The chemical and biological numeric criteria have not changed.

[103] This change reflects the terminology change to limit the cleanup screening level term to the marine and freshwater numeric chemical and biological criteria for protection of the benthic community. The benthic criteria have not changed.

[104] Minimum cleanup level and cleanup screening level are synonymous terms relative to numeric values. The term cleanup screening level has replaced minimum cleanup level. This is not a substantive change.

~~Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.~~[105]

(2) Puget Sound marine sediment cleanup screening levels ~~and minimum cleanup levels~~ chemical criteria. The chemical concentration criteria in Table III establish the Puget Sound marine sediment cleanup screening levels chemical ~~and minimum cleanup levels~~ criteria.

(a) Where laboratory analysis indicates a chemical is not detected in a sediment sample, the detection limit and the practical quantitation limit shall be reported and shall be at or below the ~~Marine S~~ sediment ~~Q~~quality ~~S~~standards chemical criteria value set in WAC 173-204-320(2).

(b) Where chemical criteria in ~~this~~ Table III represent the sum of individual compounds or isomers, the following methods shall be applied:

(i) Where chemical analyses identify an undetected value for every individual compound/isomer then the single highest detection limit shall represent the sum of the respective compounds/isomers; and

(ii) Where chemical analyses detect one or more individual compound/isomers, only the detected concentrations will be added to represent the group sum.

(c) The listed chemical parameter criteria represent concentrations in parts per million, "normalized," or expressed, on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment per the equation: ppm OC = [(ppb dry weight) / (% total organic carbon X 1000)].

(d) The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds as listed.

(e) The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Total Benzofluoranthenes, Benzo(a)pyrene, Indeno(1,2,3,-c,d)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

(f) The ~~TOTAL BENZOFLUORANTHENES~~ Total Benzofluoranthenes criterion represents the sum of the concentrations of the "B," "J," and "K" isomers.

[105] Substantive change. Removed. Section -573 is reserved for future proposed freshwater chemical and biological criteria intended to replace the current narrative standard for freshwater sediment cleanup standards.

Table III Puget Sound Marine Cleanup Screening Levels ~~and Minimum Cleanup Levels~~ Chemical Criteria		
Chemical Parameter	**CAS Number (to be added)**	**Mg/Kg Dry Weight (Parts per Million (PPM) Dry Weight**
Arsenic		93
Cadmium		6.7
Chromium		270
Copper		390
Lead		530
Mercury		0.59
Silver		6.1
Zinc		960
LPAH		780
Naphthalene		170
Acenaphthylene		66
Acenaphthene		57
Fluorene		79
Phenanthrene		480
Anthracene		1200
2-Methyl Naphthalene		64
HPAH		5300
Fluoranthene		1200
Pyrene		1400
Benz(a)anthracene		270
Chrysene		460
Total Benzofluoranthenes		450
Benzo(a)pyrene		210
Indeno(1,2,3 c,d) Pyrene		88
Dibenzo (a,h) Anthracene		33
Benzo(g,h,i) Perylene		78
1,2 Dichlorobenzene		2.3
1,4 Dichlorobenzene		9
1,2,4 Trichlorobenzene		1.8
Hexachlorobenzene		2.3
Dimethyl Phthalate		53
Diethyl Phthalate		110
Di-n-butyl Phthalate		1700
Butyl Benzyl Phthalate		64
Bis (2-ethylhexyl) Phthalate		78
Di-n-octyl Phthalate		4500
Dibenzofuran		58
Hexachlorobutadiene		6.2
N-Nitrosodiphenylamine		11
Total PCBs		65
Phenol		1200
2-Methylphenol		63
4-Methylphenol		670
2,4 Dimethyl Phenol		29
Pentachlorophenol		690
Benzyl Alcohol		73
Benzoic Acid		650

(3) Puget Sound marine sediment cleanup screening levels ~~and minimum cleanup level~~ biological criteria. The biological effects criteria of this subsection establish the ~~Puget Sound marine sediment~~ cleanup screening level~~, and the Puget Sound marine sediment minimum cleanup level criteria~~.

(a) The acute and chronic effects biological tests of WAC 173-204-315(1) shall be used to:

(i) Identify the Puget Sound marine sediment cleanup screening level for the purpose of screening sediment station clusters of potential concern for benthic toxicity using the procedures of WAC 173-204-510(2); and

(ii) Identify the Puget Sound marine sediment cleanup screening level for the purpose of identifying station clusters of low concern and/or cleanup sites using the hazard assessment procedures of WAC 173-204-510(2).

(b) When using biological testing to determine if station clusters exceed the cleanup screening level or to identify the cleanup screening level for a contaminated site, test results from at least two acute effects tests and one chronic effects test shall be evaluated.

(c) The biological tests shall not be considered valid unless test results for the appropriate control and reference sediment samples meet the performance standards described in WAC 173-204-315(2).

(d) The cleanup screening level is exceeded when any two of the biological tests exceed the criteria of WAC 173-204-320(3); or one of the following test determinations is made:

(i) Amphipod: The test sediment has a higher (statistically significant, t test, $p \leq 0.05$) mean mortality than the reference sediment and the test sediment mean mortality is greater than a value represented by the reference sediment mean mortality plus thirty percent.

(ii) Larval: The test sediment has a mean survivorship of normal larvae that is less (statistically significant, t test, $p \leq 0.05$) than the mean normal survivorship in the reference sediment and the test sediment mean normal survivorship is less than seventy percent of the mean normal survivorship in the reference sediment (i.e., the test sediment has a mean combined abnormality and mortality that is greater than thirty percent relative to time-final in the reference sediment).

(iii) Benthic abundance: The test sediment has less than fifty percent of the reference sediment mean abundance of any two of the following major taxa: Class Crustacea, Phylum Mollusca or Class Polychaeta and the test sample abundances are statistically different (t test, $p \leq 0.05$) from the reference abundances.

(iv) Juvenile polychaete: The test sediment has a mean individual growth rate of less than fifty percent of the reference sediment mean individual growth rate and the test sediment mean individual growth rate is statistically different (t test, $p \leq 0.05$) from the reference sediment mean individual growth rate.

~~(4) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels human health criteria. Reserved: The department may determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.~~[106]

~~(5)~~ (4) Other toxic, radioactive, biological, or deleterious substances criteria. ~~Puget Sound marine sediment cleanup screening levels and minimum cleanup levels o~~[107]Other toxic, radioactive, biological, or deleterious substances ~~criteria~~ in, or on, sediments shall be at or below levels which cause minor adverse effects in marine biological resources~~, or which correspond to no significant health risk to humans, as determined by the department~~.[108] The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(5) Nonanthropogenically affected sediment criteria. ~~Puget Sound marine sediment cleanup screening levels and minimum cleanup levels nonanthropogenically affected sediment criteria.~~[109]Whenever the nonanthropogenically affected sediment quality is of a lower quality (i.e., higher chemical concentrations, higher levels of adverse biological response, or posing a higher threat to human health) than the ~~applicable cleanup screening levels and minimum cleanup levels criteria established under this section~~ maximum allowable levels in WAC 173-204-570[110], the existing sediment chemical and biological quality shall be identified on an area-wide basis as determined by the department, and used in place of the standards of WAC 173-204-~~520~~570.

[106] Removed to reflect the proposed human health criteria in new section -571.
[107] Editorial change.
[108] Removed to reflect the proposed human health criteria in new section -571.
[109] Editorial and terminology change to reflect the proposed new term "maximum allowable level".
[110] Changed to reflect the proposed human health, background, and ecological criteria in section -570 through -574.

WAC 173-204-573 Cleanup screening levels and sediment quality standards based on benthic toxicity in freshwater sediment.

Freshwater sediment cleanup standards rule language will be provided for discussion at a later date.

WAC 173-204-574 Sediment cleanup standards based on ecological risks from bioaccumulative chemicals.[111]

(1) Applicability and purpose.
(2) General considerations.

(1) Applicability and purpose. Cleanup standards must prevent exposure to contaminant concentrations that may have minor adverse effects on species that currently utilize, may potentially inhabit, or have historically inhabited cleanup sites. Minor adverse effects include impairment of reproduction, growth or survival.

(2) General considerations. Cleanup standards shall be protective of species based on a number of factors including, but not limited to, the species life history, feeding and reproductive strategy, population numbers, range, and the potential for recruitment/immigration of individuals to the site. For species protected under the Endangered Species Act or other applicable laws that extend protection to individuals of a species, adverse effects also include impacts that significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering.

(a) The cleanup standards shall be protective of ecological receptors that may be exposed to contaminants from the site through bioaccumulation and biomagnification through the food chain. The determination of a bioaccumulative contaminant's potential to have minor adverse effects on biological resources must be based on the contaminant's potential to be persistent, bioaccumulative, or toxic (PBT) as established in WAC 173-333-320. A bioaccumulative contaminant that is present at the site may be deemed by the department to be reasonably likely to produce minor adverse effects on ecological receptors if either of the following conditions exist:

(i) The contaminant is listed as a persistent bioaccumulative toxin on the department's PBT list in WAC 173-333-310; or

(ii) The contaminant has chemical properties which indicate a propensity to bioaccumulate. Chemicals with a log $K_{ow} > 3.5$ will be presumed to have a propensity to bioaccumulate. Chemicals that are present at a site and meet either of the conditions specified above will be considered bioaccumulative contaminants of concern (BCoCs).

(b) An ecological risk assessment using methods approved by the department may be required when BCoCs are present at the site. An ecological risk assessment may also be required when site contaminants are known or suspected of having minor adverse effects on upper trophic level receptors through direct contact exposure scenarios. Ecological risk assessments will not be required at sites where either a human health risk assessment has determined that the cleanup standard must be established at natural background or where a potentially liable person has agreed to use natural background as a cleanup standard.

(c) For determining ecological risk from BC0Cs and non-bioaccumulative contaminants, the department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

[111] Added to address the lack of a narrative standard for ecological risks from bioaccumulative chemicals.

WAC 173-204-580 ~~Cleanup action decision~~ Selection of cleanup actions.[112]

(1) Purpose.

(2) General requirements.

(3) Minimum requirements for sediment cleanup actions.

(4) Cleanup selection criteria.

(1) Purpose. This chapter establishes the minimum requirements and selection criteria for sediment cleanup actions under this chapter.

(2) General requirements.

(a) ~~Receive department review and written approval of the preferred and/or alternate cleanup actions and necessary sediment recovery zones proposes in the cleanup study report prior to implementing a cleanup action(s)~~ The department shall review and provide written approval of cleanup actions and sediment recovery zones prior to implementation of a cleanup action.

(b) Sediment investigations and cleanups conducted in compliance with this chapter shall be presumed to also meet the requirements under Chapter 70.105D RCW. For example, a remedy selected under WAC 173-204-580 does not also have to be justified under WAC 173-340-360.

(3) Minimum requirements for sediment cleanup actions.[113] These requirements and the requirements for consideration of the cleanup standard under WAC 173-204-570 shall be considered concurrently. All cleanup actions conducted under this chapter shall meet the following requirements:

~~(b)~~ (a) ~~Achieve a degree of cleanup that is protective~~ Protect human health and the environment;

~~(d)~~ (b) Comply with the sediment cleanup standards specified in WAC 173-204-570 through 574;

(c) ~~Achieve compliance~~ Comply with all applicable state, federal, and local laws;

(d) Be permanent to the maximum extent practicable;

~~(3)~~ (e) Provide for a reasonable restoration timeframe ~~for completion of the cleanup action~~. Unless otherwise determined by the department, cleanup actions that achieve compliance

[112] This section has been revised to focus on the remedy selection requirements. Some of the language from the original section -560 regarding remedy selection requirements have been moved to this section.
[113] This section is divided into minimum requirements for selecting a cleanup action and subsequent supplemental criteria the Ecology may consider during remedy selection. Additional requirements have been added to harmonize with the requirements in MTCA, WAC 173-340-360 through 173-340-370.

with the sediment cleanup standards as soon as practicable and within 10 years or sooner from the ~~completion~~ start[114] of the ~~active~~ cleanup action shall be presumed to have a reasonable restoration timeframe;

~~(e)~~ (f) ~~Achieve compliance with~~ If source control ~~requirements~~ is part of the cleanup action, comply with WAC 173-204-400 through 173-204-420 ~~if necessary~~;

(g) If a sediment recovery zone is part of the cleanup action, meet the requirements in WAC 173-204-590;

(h) Provide ~~for landowner review of the cleanup study plan and report,~~ an opportunity for review and comment by affected landowners and the general public, and consider ~~public~~ concerns ~~raised during review of the draft cleanup report~~ identified in these comments; and

~~(g)~~ (i) Provide adequate monitoring to ensure the effectiveness of the cleanup action.

(4) Cleanup selection criteria.[115] When evaluating ~~cleanup action~~ alternatives for compliance with the minimum requirements in subsection (3) of this section, the department shall consider the following criteria:

(a) Overall protection of human health and the environment,[116] ~~time required to attain the cleanup standard(s), and on-site and off-site environmental impacts and risks to human health resulting from implementing the cleanup alternatives~~ including: the degree to which existing human health risk and environmental effects are reduced by the alternative; human health risk and environmental effects of cleanup construction and disposal activities; human health risk and environmental effects after cleanup; restoration of current and potential future uses of the site; and, improvement of the overall environmental quality;

(b) ~~Attainment of~~ Whether the alternative will achieve the sediment cleanup standards;[117]

(c) Whether the alternative complies ~~compliance~~ with applicable federal, state, and local laws;[118]

(d) The degree to which the alternative permanently reduces the toxicity, mobility or volume of contaminants;

~~(a)~~ (e) The net environmental effects, including ~~consideration of residual effects, recovery rates, and any adverse effects of cleanup construction or disposal activities~~ positive and adverse impacts on natural resources and habitat resulting from implementation of the cleanup action;

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[114] This could be interpreted as a substantive change.
[115] Requirements added to harmonize with MTCA, WAC 173-340-560. Requirements from original section -560 have been moved to this subsection.
[116] Moved from original section -560(4)(f)(iii)(A) and added language to harmonize with MTCA.
[117] Moved from original section -560(4)(f)(iii)(B).
[118] Moved from original section -560(4)(f)(iii)(B).

(f) The relative cost-effectiveness of the alternatives in achieving the approved site cleanup standards. Costs shall include consideration of present and future direct and indirect capital, operation, and maintenance costs, agency oversight costs and other foreseeable costs. The comparison of costs and benefits may be quantitative, but will often be qualitative and require the use of best professional judgment. In particular, the department has the discretion to favor or disfavor qualitative benefits and use that information in selecting a cleanup action;

(g) The time required to achieve the sediment cleanup standards,[119] with preference for alternatives that restore the site sooner;

(h) The effectiveness of source control measures to prevent recontamination of the site;

(i) The degree to which community concerns are addressed[120] in implementation of the alternative;

~~(3(a)(vi)~~ (j) The ~~degree of and~~ ability to ~~control and~~ monitor the effectiveness of the cleanup and any migration of contamination ~~from the site~~ left behind after cleanup;

(k) Short-term effectiveness[121] of the alternative, including protection of human health and the environment during construction and implementation of the alternative, and ability to control the migration of contamination during implementation of the cleanup action[122] and the restoration timeframe;

(l) Long-term effectiveness[123] of the alternative, including degree of certainty that the alternative will be successful, long-term reliability, ~~magnitude of residual, biological and human health risk,~~[124] and effectiveness of controls for ongoing discharges ~~and/or controls required to manage treatment residues or remaining wastes cleanup and/or disposal site risks~~. The following types of cleanup actions shall be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness:

- Source controls in combination with other cleanup technologies;
- Destruction or detoxification of contaminants;
- Dredging and disposal at an open water disposal site approved by the department.[125]
- Dredging and disposal in an engineered facility that minimizes subsequent releases and exposures to contaminants;
- Containment of contaminated sediments in-place with an engineered cap;
- Enhance natural recovery;

[119] Moved from original section -560(4)(f)(iii)(A) and added language to harmonize with MTCA
[120] Moved from original section -560(4)(i).
[121] Moved from original section -560(4)(f)(iii)(C).
[122] Moved from original section -580(3)(a)(vi)
[123] Moved from original section -560(4)(f)(iii)(D).
[124] Addressed in subsection (3)(a) and (4)(a).
[125] We would like to discuss with the advisory group the order of this option.

- Natural recovery; and
- Institutional controls and monitoring.

(m) ~~Ability to be implemented.~~ The ability to ~~be~~ implement~~ed~~ the alternative, including: the potential for landowner cooperation; ~~consideration of~~ technical feasibility; availability of ~~needed off-site facilities~~ a disposal or treatment facility, services and materials; administrative and regulatory~~, scheduling~~ requirements; ability to acquire access for construction, operations and monitoring; and integration with existing facility operations and other current or potential cleanup actions. [126]

~~(3)(a)(vii)~~ (n) Natural recovery processes which are expected to occur at the site that will reduce concentrations of contaminants.

~~(3(a)(v)~~ (o) Likely effectiveness and reliability of institutional controls to minimize exposures to contaminated sediments left behind after cleanup and consumption of potentially impacted aquatic resources.

(5) ~~Public participation. The department shall provide opportunity for public review and comment on all cleanup action study plans, reports, and decisions reviewed and approved by the department, for cleanup actions conducted under this chapter.~~ [127]

(6) ~~Land access. In cases where the persons(s) responsible for cleanup is not able to secure access to lands subject to a cleanup action decision made pursuant to his section, the department may facilitate negotiations or other proceedings to secure access to the lands. Required for department facilitation of land access shall be submitted to the department in writing by the persons(s) named in the cleanup action approval.~~ [128]

[126] Moved from original section -560(4)(g).
[127] Removed because addressed in subsection (3)(h).
[128] Removed. MTCA addresses this issue in WAC 173-340-800 in more detail and applies to sediment cleanup.

WAC 173-204-585 Cleanup action decisions.

(1) Purpose.

(2) Federal clean water act.

(3) Model toxics control act and water pollution control act.

(4) Federal cleanup sites.

(1) Purpose. The department shall use the remedial investigation and feasibility study, and other appropriate information, to decide the appropriate cleanup standards, extent of cleanup, cleanup methods, and other pertinent issues to be addressed at the site. These decisions must be consistent with this chapter and the underlying administrative authority.

(2) Federal clean water act. For sites being cleaned up under authority of chapter 90.48 RCW, Section 401 of the federal clean water act or other administrative authority, the department's decision shall be incorporated into the permit, administrative order, or other appropriate binding legal document. The basis for the department's decision shall be documented consistent with the requirements and procedures for the underlying legal mechanism.

(3) Model toxics control act and water pollution control act. For sites being cleaned up under the authority of chapter 90.48 RCW or 70.105D RCW, the department shall prepare a cleanup action plan documenting its cleanup decision. The cleanup action plan shall be prepared consistent with the pertinent requirements and procedures specified in WAC 173-340-380. The decisions in the cleanup action plan shall be incorporated into any permit, administrative order, or other binding legal document issued under chapter 90.48 RCW or chapter 70.105D RCW.

(4) Federal cleanup sites. For sites being cleaned up under the federal cleanup law (Comprehensive Environmental Response, Compensation and Liability Act; 42. U.S.C. 9601 et seq.,), a record of decision or order or consent decree prepared under the federal cleanup law shall be used by the department to meet the requirements of this section provided:

(a) The cleanup action meets the requirements under this chapter;

(b) The state has concurred with the cleanup action; and

(c) An opportunity was provided for the public to comment on the cleanup action.

(5) Other authorities. For sites being cleaned up under other authorities, the department's decision shall be incorporated into the permit, administrative order, or other appropriate binding legal document. The public review process and basis for the department's decision shall be documented consistent with the requirements and procedures for the underlying legal mechanisms.

(6) Public involvement. The department shall provide public notice and an opportunity for review and comment on its sediment cleanup decisions under this chapter. A separate public notice is not needed under this chapter if an adequate notice and comment opportunity has been provided through the underlying administrative authority.

WAC 173-204-590 Sediment recovery zones.

(1) Purpose.

(2) Applicability.

(3) General requirements.

(4) Criteria.

(5) Sediment recovery zone duration.

(6) Operational terms and conditions.

(7) Trespass not authorized.

(8) Public involvement.

(9) Enforcement.

(1) Purpose. The purpose of this section is to set forth the requirements for establishment and monitoring of sediment recovery zones ~~to meet the intent of sediment quality dilution zones authorized pursuant to RCW 90.48.520~~.

(2) Applicability. The standards of this section are applicable to cleanup action decisions made pursuant to WAC 173-204-580 through 173-204-585 where selected actions leave in place marine, low salinity, or freshwater sediments that exceed the applicable sediment ~~quality standards~~ cleanup objective of WAC 173-204-~~320 through 173-204-340~~570.

~~(2)~~ **(3) General requirements.**[129] Authorization of a sediment recovery zone by the department shall require compliance with the following general requirements:

~~(a) The sediment recovery zone shall be determined by application of the department's sediment recovery zone computer models "CORMIX," "PLUMES," and/or "WASP," or an alternate sediment recovery zone model(s) approved by the department under WAC 173-204-130(4) as limited by the standards of this section and the department's best professional judgment.~~[130]

(a) Establishment or expansion of a sediment recovery zone shall not be used as a substitute for active cleanup actions, when such actions are determined to be practicable ~~and meet the standards of~~ under WAC 173-204-580;[131]

(b) The area boundaries of the sediment recovery zone shall be the minimum practicable surface area necessary;[132]

(c) The chemical concentrations within the sediment recovery zone shall be the minimum

[129] Subsection (3)(a) through () moved from original section -560(f)(ii)
[130] Moved to original subsection (5)(a).
[131] Moved from original section -560(f)(ii).
[132] Language from section -415(1)(e). Added for consistency with Sediment Impact Zones.

practicable concentrations necessary;[133]

(d) All discharges within the area encompassed by the sediment recovery zone shall be treated with all known, available, and reasonable methods of treatment prior to the discharge. This includes stormwater discharges;

(e) Best management practices shall be used for activities resulting in diffuse, nonpoint discharges within the sediment recovery zone;

~~(2)(b)~~ (f) The department shall ~~provide specific authorization for a~~ describe the sediment recovery zone ~~within the written approval of the cleanup study report and cleanup decision required under~~ in the cleanup action plan, or other decision document prepared under WAC 173-204-~~580~~585. Specific authorization for the sediment recovery zone must be provided in an enforceable document (permits, orders, settlements, etc.); and

~~(2(d)~~ (g) ~~The department's written sediment recovery zone~~ Any authorization for a sediment recovery zone shall identify the legal location and landowners of property in the sediment recovery zone.

(4) Criteria. When considering whether or not to authorize a sediment recovery zone, in addition to the criteria in subsection (3) of this section, the department shall consider the following factors:

(a) Limitations of any modeling used to project the aerial extent and time period needed for the sediment recovery zone;

(b) Potential risks posed by the sediment recovery zone to human health and the environment;[134]

(c) The technical practicability of elimination or reduction of the size and/or degree of chemical contamination and/or level of biological effects within the proposed sediment recovery zone;

(d) Current and potential use of the sediment recovery zone, surrounding areas, and associate resources that are, or may be, affected by releases from the zone;[135] and

(e) The need for institutional controls or other site use restrictions to reduce site contamination risks to human health.[136]

(5) Sediment recovery zone duration. Except as provided in (a) of this subsection, sediment recovery zones longer than 10 years shall not be authorized by the department.

~~(2(f)~~ (a) Where cleanup is not practicable pursuant to the analysis under WAC 173-204-~~570(4)~~580, sediment recovery zones may be authorized for periods in excess of ten years;

(b) The aerial extent and time period during which a sediment recovery zone is projected

[133] Added language to be consistent with the intent of section -415(1)(f).
[134] Moved from original section -560(f)(ii)(D).
[135] Moved from original section -560(f)(ii)(F).
[136] Moved from original section -560(f)(ii)(G).

to be necessary will be based on the source loading rate and the ~~net environmental~~ recovery rate ~~determined by the application of sediment recovery computer~~ necessary to meet the sediment cleanup objective. The source loading rate and recovery rate shall be determined by application of ~~the department's models "CORMIX," "PLUMES," and/or "WASP,"~~ a department approved sediment recovery zone computer model, or an alternate method approved by the department under WAC 173-204-130(4), as limited by the standards of this section and the department's best professional judgment;[137] and

(c) The time period during which a sediment recovery zone is authorized by the department shall be ~~so~~ stated in the department's cleanup action plan, or other decision document prepared under WAC 173-204-570, and implementing documents.

~~(2(c)~~ **(6) Operational terms and conditions.**[138] Operational terms and conditions for the authorized sediment recovery zone ~~pursuant to subsection (5) of this section~~ shall be maintained at all times. These terms and conditions shall include:

~~(5)~~ (a) Chemical monitoring and/or bioassays of discharges, receiving water column, and sediment;

(b) Confirmation of sediment source(s) loading rates, chemical quality and biological toxicity;

(c) Monitoring contaminant bioaccumulation; and

~~(5)~~ (d) ~~evaluate~~ Ongoing evaluation of the water quality, sediment quality, biological conditions, and human health impacts within and adjacent to the proposed or authorized sediment recovery zone.

~~(3)~~ **(7) Trespass not authorized.** A sediment recovery zone authorization issued by the department under the authority of chapter 90.48 or 70.105D RCW, or other administrative means available to the department, does not constitute authorization to trespass on lands not owned by the applicant. These requirements do not address, and in no way alter, the legal rights, responsibilities, or liabilities of the permittee or landowner of the sediment recovery zone for any applicable requirements of proprietary, real estate, tort, and/or other laws not directly expressed as a requirement of this chapter.

~~(4)~~ **(8) Public involvement.** Prior to authorization, the department shall make a reasonable effort to identify and notify all landowners affected by the proposed sediment recovery zone. The department shall issue a sediment recovery zone notification letter to any person it believes to be a potentially affected landowner, the Washington State department of natural resources, the U.S. Army Corps of Engineers, affected Port Districts, local governments with land use planning authority for the area, and other parties determined appropriate by the department. The notification letter shall be sent by certified mail, return receipt requested, or by personal service. The notification letter shall provide:

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[137] Moved from original section -560(f)(ii)(A) for consistency and to eliminate duplication.
[138] These are a combination of language from original subsection (5) and section -560 (2).

(a) The name of the person the department believes to be the affected landowner; ~~and~~

(b) The names of other affected landowners to whom the department has sent a proposed sediment recovery zone notification letter; ~~and~~

(c) The name of the sediment recovery zone applicant; ~~and~~

(d) A general description of the proposed sediment recovery zone including the chemical(s) of concern by name and concentration, and the area of affected sediment; ~~and~~

(e) The determination of the department concerning whether the proposed sediment recovery zone application meets the standards of this section; ~~and~~

(f) The intention of the department whether to authorize the proposed sediment recovery zone; and

(g) ~~Notification that the affected landowner may comment on the proposed sediment recovery zone.~~ Invite comments on the proposed sediment recovery zone. Any landowner comments shall be submitted in writing to the department within thirty days from the date of receipt of the notification letter, unless the department provides an extension.

(9) Enforcement. The department shall review all data or studies conducted ~~in accordance with~~ under a sediment recovery zone authorization to ensure compliance with the terms and conditions of the authorization and the standards of this section. Whenever, in the opinion of the department, the operational terms and conditions of a sediment recovery zone or the standards of this section are violated or there is a potential to violate the sediment recovery zone authorization or the standards of this section, or new information or a reexamination of existing information indicates the sediment recovery zone is no longer appropriate, the department may at its discretion:

(a) Require additional chemical or biological monitoring as necessary;

(b) Revise the sediment recovery zone authorization as necessary to meet the standards of this section;

(c) Require active contaminated sediment maintenance actions including additional cleanup in accordance with the requirements of WAC 173-204-500 through 173-204-580; and/or

(d) Withdraw the department's authorization of the sediment recovery zone.