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CLARIFICATION PAPER

EVALUATING THE VOLUME TRIGGER GUIDELINE FOR ENVIRONMENTAL MONITORING AT THE COMMENCEMENT BAY NONDISPERSIVE OPEN WATER DISPOSAL SITE.

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INTRODUCTION

Throughout its 18-year history, the Dredged Materials Management Program (DMMP) agencies have established a rich history of sustainable resource protection at the open-water dredged material disposal sites they manage. Environmental monitoring events are one important tool the agencies employ to verify that no unacceptable adverse impacts have occurred on or around the disposal site as a result of dredged material disposal.

The PSDDA program, which later transitioned into the DMMP when its geographic scope expanded to include Washington's rivers and coastal estuaries, initially planned for monitoring events to occur relatively frequently to verify that the new program could meet environmental conditions outlined in the two Final Environmental Impact Statements (FEIS) and associated technical appendices. However, these documents reflected the PSDDA agencies' recognition that monitoring frequency would be front loaded with subsequent monitoring frequency reduced as evidence mounted to verify that pre-dredge sediment evaluation procedures adequately characterized the material sent to the disposal sites.

> "The most intensive monitoring will occur during the first few years of site use. This will allow for early response should unexpected adverse impacts occur. Future monitoring effort may be lessened if monitoring indicates no significant effects have occurred, (i.e. PSDDA evaluation procedures are producing the expected results)" (PSDDA, 1988).

The DMMP agencies evaluate whether a monitoring event is needed when cumulative disposals at an individual non-dispersive site reach an established "soft trigger" volume.

> "The qualifier 'soft' indicates that the potential need for a monitoring event is investigated when the volume of dredged material disposed at a non-dispersive site reaches the established volume. The source(s) and character of the materials deposited is analyzed, as is the frequency of site use. That information is used to determine if a need exists for immediate monitoring" (DMMP, 2002).

The DMMP agencies also consider the nature of any dredging projects planned for the immediate future as they evaluate when they should implement a monitoring event.

Consistent with the PSDDA program's determination that monitoring events would be required less frequently as the program matured, the soft-trigger volume at non-dispersive

disposal sites first increased in 1990 from 45,000 cubic yards (cys) to 150,000 cys. In 1996, the DMMP agencies determined that monitoring results supported increasing the soft-trigger to 300,000 cys. In 2002, after subsequent monitoring events documented continued program success, the DMMP agencies raised the soft-trigger to 500,000 cys for the Elliott Bay and Port Gardner non-dispersive disposal sites. Because the 2001 monitoring event showed that a small amount of material had drifted offsite they temporarily maintained the 300,000 cys soft-trigger at Commencement Bay, but acknowledged that "when the modified predictions for material behavior at Commencement Bay have been verified, the volume trigger will [also] be adjusted" (DMMP, 2002) to 500,000 cys.

The Commencement Bay dredged material disposal site is by far the most intensely monitored DMMP site to date, and the DMMP agencies have amassed a considerable understanding of disposal site dynamics and confidence in their pre-dredge material characterizations. Including the initial baseline monitoring event performed in 1988, the DMMP agencies have conducted 8 monitoring events since the site's designation in the 1988 FEIS. A complete list of Commencement Bay monitoring events is documented in the table below, which cites when the DMMP agencies conducted the event, the scope of monitoring, and the volume of dredged material disposed since the previous monitoring event.

YEAR	1988	1995	1996	1998	2001	2003	2004	2005
MONITORING	Baseline	Full New Baseline	Partial	SVPS	Full	Full	Partial	SVPS
VOLUME (cys)	N/A	326K	461K	694K	1.3M	711K	1.2M	949K

PROBLEM IDENTIFICATION

This DMMP Clarification Paper focuses on two related issues: the need to correct pervasive misunderstandings about the monitoring event soft-trigger guideline, and the need to implement the soft-trigger guideline proposed for Commencement Bay in the 2002 DMMP Issue Paper for consistency with the other Central Puget Sound disposal sites.

DMMP Soft-Trigger Guideline

Although the DMMP agencies defined the concept of a soft-trigger in multiple programmatic documents and demonstrate it in practice, the DMMP soft-triggers continue to be misinterpreted as automatic hard-triggers. The most common misunderstanding is the belief that a monitoring event is automatically required once disposal volumes reach the soft-trigger volume. There are two primary reasons why such a hard-trigger would neither protect the environment nor serve as an efficient use of DMMP resources.

The DMMP agencies evaluate the environmental impact of dredged material disposal at all of the sites by comparing new environmental site condition monitoring data with similar data collected during the same period of a previous year. DMMP monitoring events occur between late May and early July – after the end of the dredging season. Comparison of site conditions assessed from data collected during disparate seasons is less meaningful, because the DMMP agencies cannot determine from such incompatible data whether or not disposal-related impacts have occurred. Were the DMMP agencies to observe the strictest interpretation of a hard-trigger, they would be forced to close any disposal site and immediately conduct a monitoring event once disposal volumes reached the trigger volume. These delays would impose significant expenses upon the dredging proponent who would be forced to pay for idle dredging equipment, yet the monitoring event would yield meaningless results because data collected at such random periods throughout the year could not be compared effectively to previous monitoring event data. The disposal site environment would also suffer because the DMMP would be unable to evaluate potential disposal impacts to the site with any confidence. The purpose for conducting the environmental monitoring event would be largely defeated.

The soft-trigger guideline is an adaptable tool developed by the DMMP agencies for efficient disposal site management and effective protection of the aquatic environment. When cumulative disposal volumes reach the soft-trigger guideline, the DMMP agencies evaluate whether or not a monitoring event is needed. They evaluate this need by analyzing the frequency of site use, the source(s) and character of the materials disposed at the site, and the site characteristics of any dredging projects projected to occur within the immediate future, and past monitoring results relative to site use. They do not immediately suspend disposal to conduct a monitoring event. If the DMMP agencies determine that a monitoring event is needed, it will be scheduled for the close of the current dredging season. Often, however, the disposal site use analysis will demonstrate that more critical information can be collected by waiting for the site to receive additional material before conducting a monitoring event.

Updating the Commencement Bay Soft-Trigger

When the DMMP agencies increased the soft-trigger volume at the Central Puget Sound disposal sites in 2002, they proposed delaying implementation of the revised guideline at the Commencement Bay site. They adopted this approach because the 2001 full monitoring event revealed a thin veneer of dredged material extending beyond the disposal site perimeter. Although the DMMP agencies determined that this thin layer caused no adverse impacts to the aquatic ecosystem, they retained the 300,000 cys soft-trigger as an interim measure until subsequent monitoring events could verify the agencies' modified predictions for dredged material distribution.

Since that 2002 DMMP Issue Paper the DMMP agencies have conducted three monitoring events at the Commencement Bay site. Each of these events have verified that the DMMP agencies' modified material behavior predictions have been met for dredged material disposal in Commencement Bay.

After reviewing the consistency of the monitoring event results and analyzing the pattern of past and predicted dredged material disposals, the DMMP agencies considered whether the Commencement Bay site would be better served by increasing the soft-trigger to 1 million (M) cubic yards (cys). Although the DMMP rejected this proposal for immediate consideration, the rationale for increasing the soft-trigger to 1M cys is worthy of discussion.

When evaluating whether to increase the soft-trigger guideline at Commencement Bay, the DMMP agencies observed that that disposals of 1M cubic yards per year at Commencement Bay are likely to continue for at least the next 2-3 years, and that the overwhelming majority of material disposed at this site will originate from the Port of Tacoma's Blair Waterway. The DMMP agencies have considerable experience managing material from the Blair Waterway. Since 1995 they have characterized over 7M cubic yards of material in the Blair. While not all of this was disposed at the Commencement Bay site, the DMMP agencies have demonstrated their ability to characterize material from Blair and predict how this material will behave at the disposal site without the need to conduct annual monitoring events. This is precisely the rationale outlined in the formal guidance documents cited above for reducing monitoring event frequency.

Although the DMMP might defend a decision to increase the soft-trigger volume for the Commencement Bay site to 1M cubic yards, they rejected this proposal as both unnecessary and inadequately protective under the current dredging paradigm in Puget Sound. Despite their expectation that the Commencement Bay site will receive roughly 1M cys per year for at least the next couple of years, it is essential to note that the DMMP agencies are not required to conduct a monitoring event every time disposal volumes exceed the soft-trigger guideline. Increasing the soft-trigger to 1M cys merely to avoid conducting a monitoring event is unnecessary. Furthermore, the DMMP agencies determined that a 1M cys soft-trigger could restrict the agencies' ability to manage the disposal site effectively. Two misleading assumptions in evaluating whether to implement a 1M cys soft-trigger is that material will originate primarily from the Blair, and that the rate of disposals will continue at 1M cys. The DMMP agencies must reject these assumptions. Although they are not aware of any significant dredging projects outside of the Blair, the DMMP agencies cannot assume that none will occur within the operable planning cycle of the Commencement Bay disposal site and must maintain the flexibility to manage the site effectively using best-professional-judgement. If a higher-risk dredging project were to occur outside the Blair, the DMMP agencies would consider implementing a monitoring event at the project's conclusion.(Peter this last sentence is not really needed. We are never impeded from requiring a monitoring event using BPJ based on a tier-1 reason-to-believe concern that nasty material might have gone to the site. We excercised that option last year at the Elliott Bay site, based on East Waterway post-dredge monitoring data showing SMS/CSL exceedances.)

To most effectively manage the Commencement Bay disposal site, the DMMP agencies must maintain the flexibility to conduct monitoring events when they are necessary, as opposed to being constrained by inappropriate or restrictive guidelines. The DMMP

agencies are confident that a soft-trigger of 500,000 cys is fully appropriate and protective at this site, and believe that the Commencement Bay soft-trigger guideline should be consistent with the other Central Puget Sound disposal sites.

PROPOSED CLARIFICATION

The intent of this clarification paper is to implement the soft-trigger guideline proposed in the 2002 DMMP Issue Paper for all Central Puget Sound (FEIS, Phase I) disposal sites, and to help alleviate misunderstanding surrounding the soft-trigger guidelines. The DMMP agencies will continue to manage dredged material disposal sites effectively, and will initiate environmental site monitoring events when they are necessary. The extensive history of monitoring events at the Commencement Bay disposal site fully supports updating the site's soft-trigger monitoring guideline as recommended in the 2002 DMMP Issue Paper. The soft-trigger for the Commencement Bay dredged material disposal site shall be established at 500,000 cys. Once cumulative post-monitoring event disposal volumes reach the 500,000 cys soft-trigger guideline, the DMMP agencies will evaluate whether another monitoring event is required by analyzing the source(s) and character of the material, the frequency of site use, and any pending dredging projects, and past monitoring results at the site (note, I think a review of past monitoring results is important in this assessment because if the probably dm sources are similar to past dm sources , the likely future monitoring results would be similar to past results, all things being equal. If the past monitoring showed problems, then we might want to trigger a monitoring event. Because all the past Commencement bay monitoring has consistently documented adherence to our site management objectives, the weight of evidence points to no-monitoring needed). The DMMP agencies will implement an environmental site monitoring event when the disposal history indicates one is needed to manage the site and evaluate potential impacts to the surrounding environment.

REFERENCES

PSDDA, 1988. Puget Sound Dredged Disposal Analysis Reports, Management Plan Report – Unconfined Open-Water Disposal of Dredged Material, Phase I (Central Puget Sound). U.S. Army Corps of Engineers – Seattle District, U.S. Environmental Protection Agency – Region X, Washington Department of Ecology, and Washington Department of Natural Resources.

PSDDA, 1996. Issue Paper - Adjustments to Site Monitoring. Sediment Management Annual Review Meeting, conducted by: U.S. Army Corps of Engineers – Seattle District, U.S. Environmental Protection Agency – Region X, Washington Department of Ecology, and Washington Department of Natural Resources.