Report of an Independent Federal Review Team on Management of Dredged Material Disposal Sites at the Mouth of the Columbia River, Oregon/Washington

19 October 2001

ACCEPTANCE OF REPORT
OF INDEPENDENT REVIEW TEAM

1. On September 18, 2001, I commissioned an independent team of experts to review the practices of the Portland District, U.S. Army Corps of Engineers in managing ocean dredged material disposal (ODMD) sites in the vicinity of the mouth of the Columbia River. I specifically requested the team to

a. Review the Corps' site management practices at site E.

b. Determine whether any modifications to our site management practices could improve our ability to meet our target.

c. Recommend modifications or improvements to our site management for all disposal actions in the ocean and Section 404 disposal sites.

d. Provide any other recommendations that the team deems necessary.

The team completed their review and submitted their report to me on October 19, 2001; an addendum to the report was submitted on November 9, 2001.

2. I accept for consideration the findings and recommendations in the report pertaining to the technical aspects of site management. I have authorized immediate implementation of particular recommendations, and I am continuing to evaluate the remaining recommendations for consideration of future action.

3. I do not accept the findings and recommendations pertaining to the stipulations and orders (referred to in the report as "Settlement Agreement") in Columbia River Crab Fisherman's Association, et al. v. Caldera, et al., Civil Action No. C98-0359D (dismissed in 1998). The team of experts was not tasked to review the Settlement Agreement and the interpretation of that agreement falls outside of the team's expertise. Thus, any opinions, conclusions or interpretations expressed in the report regarding the Settlement Agreement, its legal effect or representations by the team of interpretations by the Portland District or others do not reflect the views of the United States, including the U.S. Army Corps of Engineers.

9 NOV 2001

RANDALL J. BUTLER
Colonel, EN
Commanding

9 November 2001

Errata:
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In the 13th bullet of Section III C 1. BACKGROUND INFORMATION, replace the existing bullet with "The wave climate goal is prescribed in site management guidance documents and a Settlement Agreement (SA)."

On the 10th line in the 4th paragraph of Section IV A. OVERVIEW OF SITE MANAGEMENT, change "3.6" to "about 2.3"

On the 4th line in the 1st paragraph of Section IV C 2. DIFFERENT DISPOSAL PRACTICES WERE ALLOWED IN THE SEPARATE ZONES, change "cells (Figure 3)." to "cells (Figure 3) or lanes."

Change the next sentence to begin with "For example in 2000, Site E1…"

In the original October 19, 2001 report, Figure 12 was incorrectly identified as representing wave response to bathymetric conditions for 2000 and thus to compare well with 2000 conditions shown in Figure 11. In fact, however, Figure 12 represented 2001 conditions and the wave approach angles were also different. The attached replacements for Figures 11 and 12 show the results of modeling based on comparable bathymetric and incident wave approach conditions in 2001. The following text changes relate to these replacement figures.

On the 6th line in the 1st paragraph of Section IV F 2. STWAVE MODEL, change "Figure 11." to "Figures 11 and 12."

On the 5th line in the 1st paragraph of Section IV F 3. LIMITED AREA OF INFLUENCE, change "2000" to "2001".

On the 9th line in the 1st paragraph of Section IV F 3. LIMITED AREA OF INFLUENCE, change "Natural accretion on the north portion of Peacock Spit created a potential amplification area much larger than did the bathymetric changes in Site E." to "Natural accretion on the north portion of Peacock Spit created a potential for amplification in the fourth and most northerly area."

On the 5th line in the 4th paragraph, *Multiple models*, under Section IV F 4. RECOMMENDATION TO DETACH CONSIDERATIONS OF WAVE MODIFICATIONS FROM DREDGED MATERIAL DISPOSAL DECISIONS, change "in Figure 11" to "by comparing Figures 11 and 12."

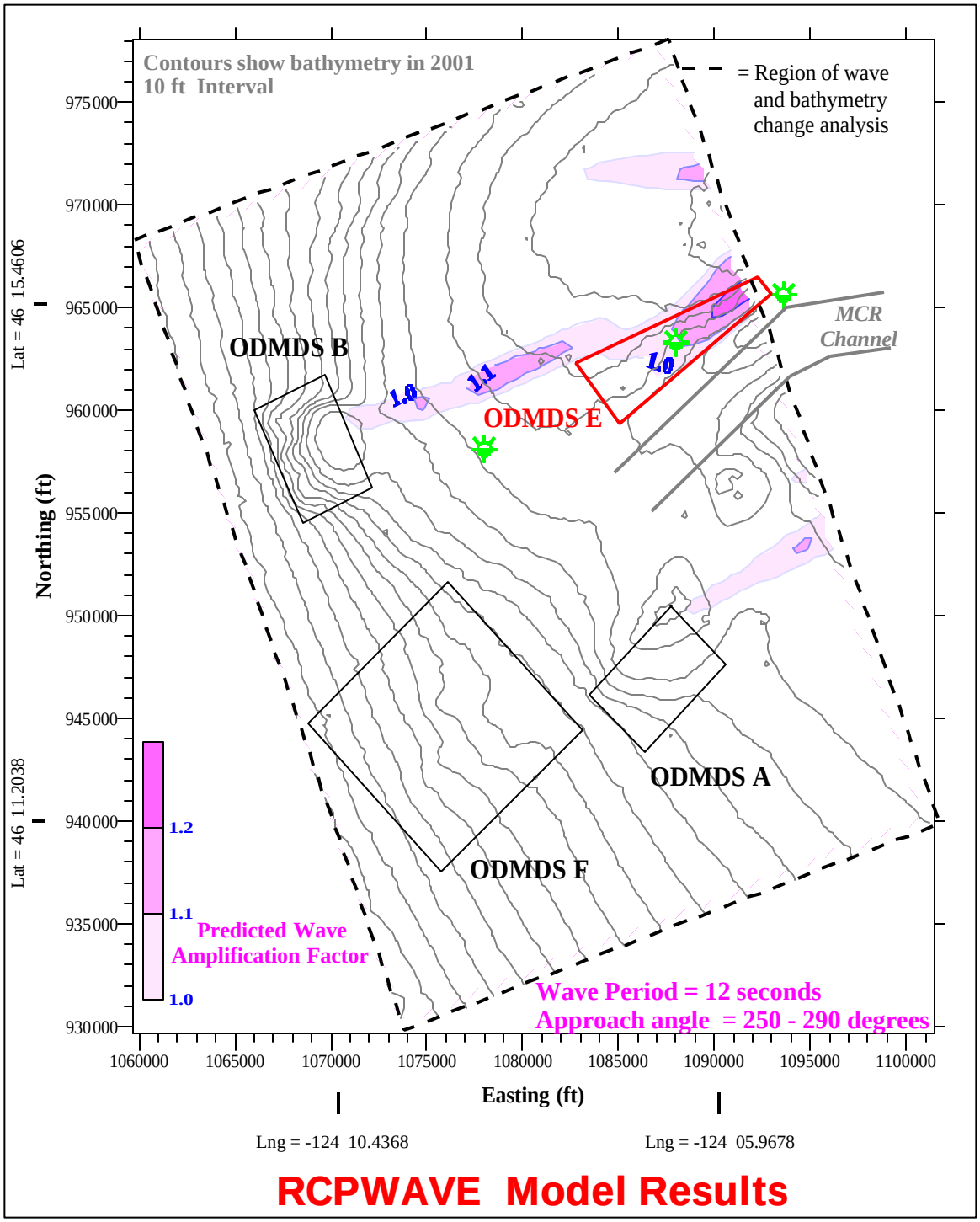

Figure 11. RCPWAVE model estimate of potential wave height amplification in September 27, 2001, above heights that would have occurred if the same incident waves crossed 1997 bathymetry (Figure and modeling by NWP). Note that amplifications between 1 and 1.1 were within the model's margin of error. Using this model, one area within Site E shows a potential for 20 to 30 percent amplification.

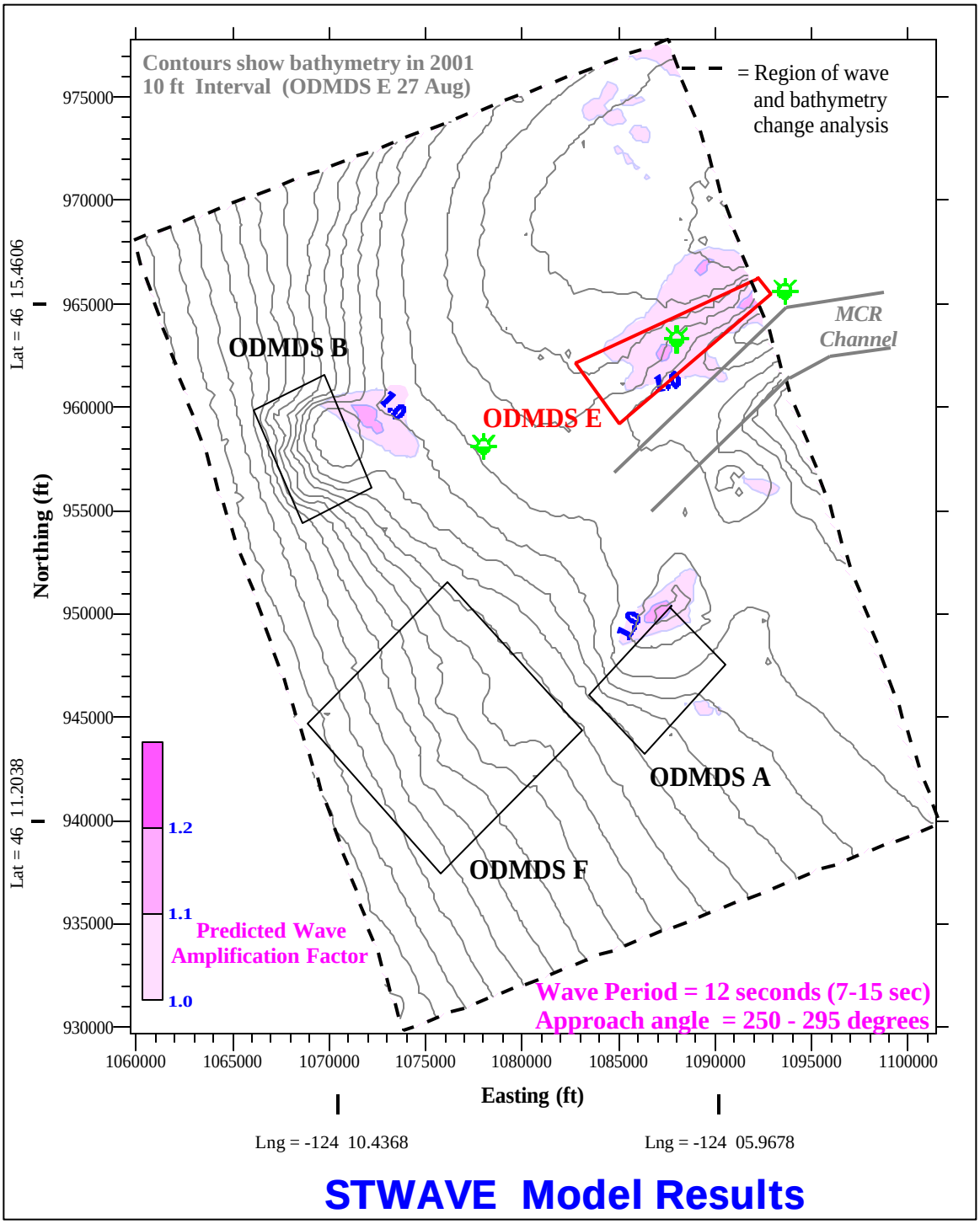

Figure 12. Spectral estimate of potential amplification for comparable conditions to those used with the monochromatic model shown in the previous figure (Figure and modeling by NWP). Note STWAVE indicates less intense amplification than does RCPWAVE. Nowhere do STWAVE amplifications exceed 1.2 (20 percent).

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Executive Summary

Two different investigations were initiated following the capsizing of the *Miss Brittany* near the Mouth of the Columbia River (MCR) on August 7, 2001 and two small recreational vessels on the 2001 Labor Day weekend. The United States Coast Guard (USCG) investigated the specific circumstances and causes of the fatal incidents. This Review Team evaluated the federal government's management of dredged material disposal operations in the area. This review emphasizes operations in 2001 that led to increased mounding and the decision to re-dredge Site E. Events were specifically considered in light of the 1998 Settlement Agreement under which the agencies were operating, and further focused on Site E because of assertions that disposal practices there may have contributed to the *Miss Brittany* incident. While the USCG's final findings and report were not complete at the time this report was prepared, the Review Team did interview the USCG officer in charge of that investigation. Though we did not know the conclusions of the Coast Guard's review at the time we completed our report, nothing in our investigation suggested that mounding at Site E could have affected the condition of the waves in the area where the capsizing of the *Miss Brittany* is reported to have occurred, under the northwesterly originating wave conditions present at the time.

Disposal operations in 2001 and communication lapses resulted in more mounding at Site E than in previous years. Ultimately, the Portland District decided to re-dredge some of that material and dispose of it at Site F. However, this is generally undesirable because material removed from Site E is lost to the littoral system, and because Site F has very limited remaining disposal capacity. It has clearly become more difficult to balance the competing management goals at the MCR. Today, overall disposal options for the area have become so limited that the ability to maintain the navigation channel at the MCR is in jeopardy.

The Settlement Agreement stipulates that the District "make every effort...at Site E to avoid disposal in a way that contributes to wave amplification greater than 10 percent". We note that, at every stage, the District's measurements relating to this stipulation were conservative. Nevertheless, wave modeling at the District and independently at the U.S. Army Engineer Research and Development Center (ERDC) indicate that under certain wave conditions the post-placement mound at Site E in August and September 2001 could have amplified wave heights more than 10 percent above the heights that the same deep-water waves would have created in May 1997, the year to which such comparisons are being made. However, the model results show amplification exceeding 10 percent for only a small area under certain incident wave conditions. Furthermore the predicted amplification is temporary because waves and currents are continually dispersing material placed in Site E.

No amount of restriction on Site E usage, short of complete abandonment, would guarantee that disposal plays no part in navigation risks in the vicinity of Site E. At the

same time, even completely abandoning Site E would not significantly reduce risks to vessels transiting the area. In fact, the present restrictions on use of Site E could provide a false sense of security to those traversing the site and thereby increase the already substantial risk faced by boats taking a short cut to the north over Peacock Spit. Reducing present ambiguities in mounding criteria, and using more accurate wave models could increase the accuracy of estimated wave changes but would not reduce the existing dangers of crossing Peacock Spit.

Management of Site E requires the balancing of several competing and sometimes mutually exclusive goals: keeping sand in the littoral system, avoiding mounding/elevation thresholds, seasonally avoiding crab fishery areas, and efficient dredging. Consequences of the trade-offs among these are complex and site management by the agencies to optimize each of these goals is extremely challenging. Management is further complicated by the limited disposal alternatives presently available.

In many ways, the District and EPA are managing the MCR disposal sites well. These agencies clearly expend considerable time and effort managing the MCR project. The level of surveying, modeling, and communication are well beyond what is done for many sites throughout the nation. In view of the incremental adoption of increasingly restricted use of Site E that has occurred over the last few years, the relatively low dispersion during the winter of 2000-2001, and the loss of other disposal options, the Review Team recommends immediately updating the Disposal Site Management and Monitoring Plan, with appropriate involvement of other stakeholders. This should include development of more specific response thresholds (including magnitude and extent or potential changes) and articulation of potential management responses. In the longer run, the proposed permanent disposal site designations should be completed, and additional options should be evaluated to use the large volume of beach-quality sand regularly dredged from MCR to more directly mitigate ongoing erosion of both Peacock Spit and the shoreline.

We recommend several improvements to dredged sediment management for the MCR, including more consistency in disposal placement guidance provided to Corps dredges, having the District receive and review sediment placement positions from all operating dredges, more frequent bathymetric surveys, and quicker processing of survey results. The District should also coordinate with other agencies to improve availability of sea state conditions for the boating public such as web-based wave information or cameras.