

14 January 1994

SUBJECT: DETERMINATION OF THE SUITABILITY OF DREDGED MATERIAL TESTED FOR THE ITT RAYONIER MAINTENANCE DREDGING (OYB-2-010368) FOR DISPOSAL AT EITHER THE SOUTH JETTY OR POINT CHEHALIS ESTUARINE OPEN WATER DISPOSAL SITES.

1. ITT Rayonier proposes to maintenance dredge 20,000 cubic yards of material near its dock at Hoquiam, Washington. The following summary reflects the consensus determination of the agencies' (Corps of Engineers, Department of Ecology, Department of Natural Resources¹ and the Environmental Protection Agency) with jurisdiction over dredging and disposal on the acceptability of the sampling plan and all relevant test data to make a determination of suitability for the disposal of the material at the South Jetty or Point Chehalis open water disposal sites.
2. The ranking for the project area was "low-moderate", based on the guidance provided in the "Interim Evaluation Guidelines for Testing Sediments Proposed for Dredging from Regulated Projects In Grays Harbor and Willapa Bay" for the ITT Rayonier.
3. Sampling and testing for sediments at the ITT Dock took place in 1989 and 1991. In both instances, the material was found suitable for open-water disposal. Testing for dioxin was completed in 1991. With the adoption of the Interim Guidelines, testing is required for the first two rounds of dredging, to be followed by significantly relaxed testing requirements. Because only one round of dioxin testing had been completed for ITT, an additional round of dioxin testing was required prior to DY94 dredging.
4. A sampling and analysis plan was developed for this project and approved by the regulatory agencies on 12 November 1993. Sampling was conducted on 23 November 1993.
5. One dioxin analysis was completed on composited sediment from four grab sample locations. Testing was completed by Weyerhaeuser Labs utilizing EPA method 1613. These data are summarized in Table 1. Results indicated that 2,3,7,8 TCDD (Tetrachloro-Dibenzo-p-Dioxin) was undetected at .66 parts per trillion. This congener is regarded by EPA as the most toxic form of dioxin. A few other less toxic dioxin congeners were detected at low parts per trillion concentrations. In the following table, the toxicity equivalence in terms of 2,3,7,8-TCDD is shown for the most toxic congeners of dioxin.
6. One way to summarize potential toxicity for mammals is to calculate the toxicity equivalent concentrations (TEC) measured in tissue. Total TEC is calculated by multiplying the toxicity equivalent factor (TEF) by the congener specific concentration and summing the TEC's for all congeners. Total TEC comparisons are usually used for food ingestion, and have limited applicability to sediment because TEC does not consider the relative bioavailability of the congeners. Accordingly, TEC overstates toxicity to mammals when applied to sediments. TEC as a toxicity measure does not apply to fish, shellfish or birds. For comparison purposes only, the TEC totaled 3.28 parts per trillion for all congeners of dioxin quantified by EPA method 1613.

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ITT Rayonier
OYB-2-010368

7. Based on the agencies' present best professional judgement, these low concentrations are unlikely to be environmentally harmful for this project. The agencies' consensus is that the material is suitable for open-water disposal relative to the dioxin test results.

8. In summary, the agency-approved sampling and testing plan was followed, and quality assurance/ quality control guidelines specified by the agencies were generally complied with during testing. The data gathered were deemed sufficient and acceptable for a determination of suitability under the Gray Harbor/Willapa Bay interim guidelines.

Concur:

20 Jan 94
Date

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Date

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1. Project not reviewed; suitability determination deferred to other PSDDA agencies

Copies Furnished:
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DMMO file

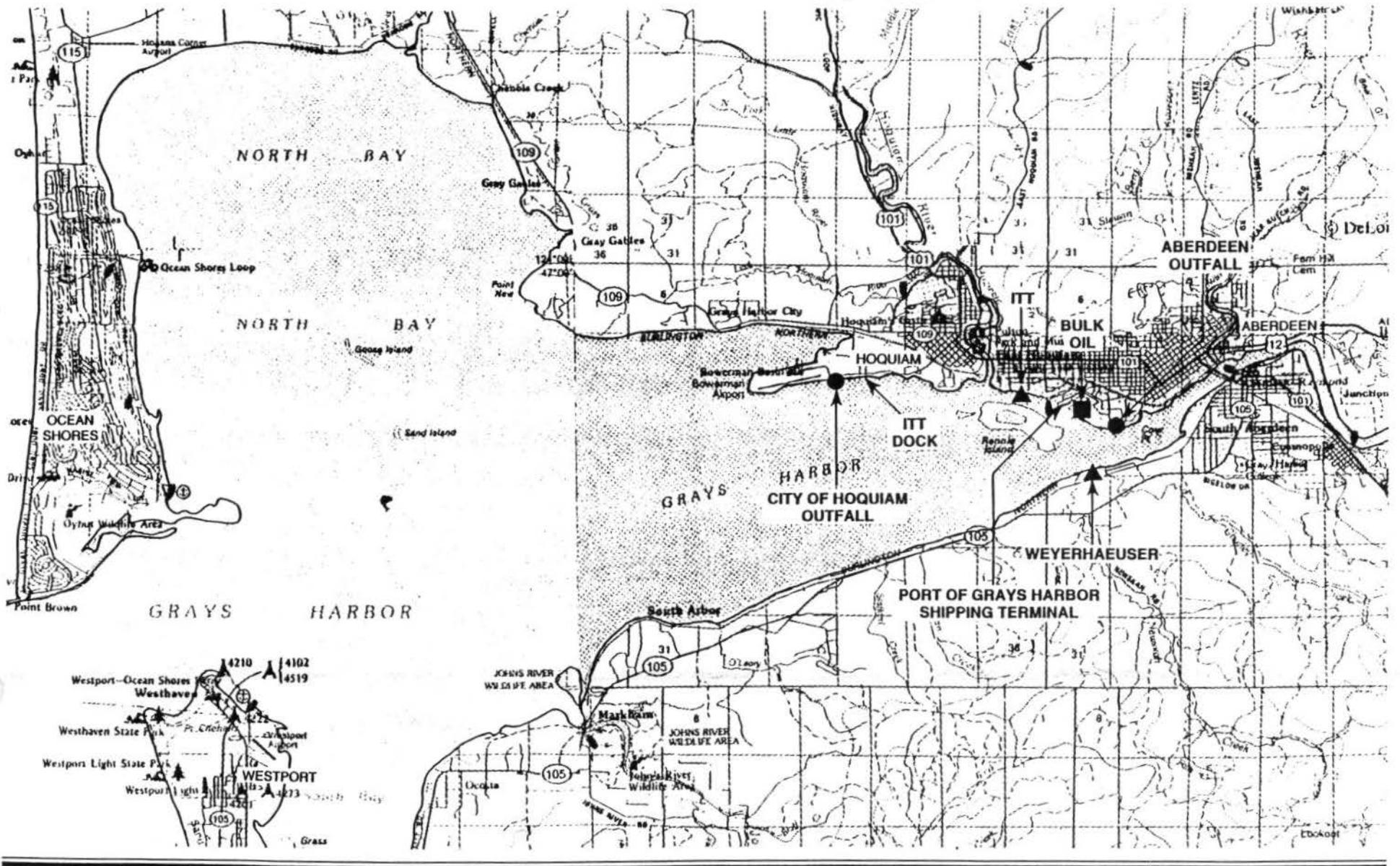
EPA/Justine Barton
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Table 1

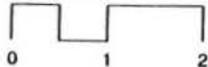
| Native Congeners | Concentration (ppt) | TEF | TEC (ppt) |
|---------------------|---------------------|-------|-------------------|
| 2,3,7,8-TCDD | 0.66 U | 1 | 0.33 ¹ |
| 1,2,3,7,8-PeCDD | 1.4 U | 0.5 | 0.35 |
| 1,2,3,4,7,8-HxCDD | 1.8 U | 0.1 | 0.09 |
| 1,2,3,6,7,8-HxCDD | 2.31 | 0.1 | 0.23 |
| 1,2,3,7,8,9-HxCDD | 5.65 | 0.1 | 0.57 |
| 1,2,3,4,6,7,8-HpCDD | 42.4 | 0.01 | 0.42 |
| OCDD | 292 | 0.001 | 0.29 |
| 2,3,7,8-TCDF | 1.85 | 0.1 | 0.19 |
| 1,2,3,7,8-PeCDF | .68 U | 0.05 | 0.02 |
| 2,3,4,7,8-PeCDF | .68 U | 0.5 | 0.17 |
| 1,2,3,4,7,8-HxCDF | 0.93 | 0.1 | 0.09 |
| 1,2,3,6,7,8-HxCDF | 1.29 | 0.1 | 0.13 |
| 2,3,4,6,7,8-HxCDF | 1.55 | 0.1 | 0.16 |
| 1,2,3,7,8,9-HxCDF | 0.7 U | 0.1 | 0.04 |
| 1,2,3,4,6,7,8-HpCDF | 18.8 | 0.01 | 0.19 |
| 1,2,3,4,7,8,9-HpCDF | 0.28 U | 0.01 | 0 |
| OCDF | 21.3 | 0.001 | 0.02 |
| Total | | | 3.28 |

U = below detection limit

1. TEC for undetected values is calculated by multiplying one-half the undetected concentration by the TEF.



SCALE IN MILES



- ▲ Pulp Mill
- Sewage Treatment Outfalls
- Other Industry Sites

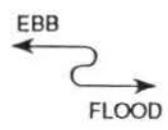
Figure 1.
Site and Pollutant
Source Location Map

No. 1
DOLPHIN

25'
20'
15'
10'
17°
16'
17°
16'
16°
16'
17°
17'
18'
18'
18'
17°
16°
16°
16°
16°

| DOCK | | | | | | | | | | | | | |
|------|-------------------|------|------|------|------|-------------------|------|------|-------------------|------|------|-------------------|------|
| •36° | •36° ¹ | •35° | •35° | •34° | •34° | •34° ² | •33° | •32° | •33° | •32° | •32° | •32° ³ | •32° |
| •37° | •37° | •37° | •37° | •37° | •37° | •36° | •36° | •35° | •34° | •34° | •35° | •34° | •34° |
| •38° | •38° | •38° | •38° | •38° | •37° | •37° | •36° | •36° | •32° ⁴ | •35° | •35° | •35° | •35° |
| •38° | •39° | •39° | •39° | •39° | •38° | •38° | •37° | •36° | •36° | •36° | •36° | •36° | •35° |
| •39° | •39° | •39° | •39° | •39° | •39° | •39° | •38° | •37° | •37° | •36° | •36° | •36° | •36° |
| •37° | •38° | •39° | •39° | •40° | •39° | •37° | •37° | •37° | •37° | •36° | •36° | •35° | •35° |
| •37° | •38° | •38° | •39° | •38° | •38° | •37° | •36° | •37° | •36° | •36° | •34° | •33° | •33° |
| •38° | •38° | •38° | •38° | •38° | •39° | •38° | •37° | •37° | •37° | •36° | •35° | •33° | •33° |
| •38° | •39° | •39° | •39° | •39° | •39° | •39° | •39° | •38° | •37° | •37° | •37° | •35° | •35° |
| •39° | •39° | •39° | •39° | •39° | •39° | •39° | •39° | •39° | •38° | •38° | •38° | •38° | •38° |
| •39° | •39° | •39° | •39° | •39° | •39° | •39° | •39° | •39° | •38° | •38° | •38° | •38° | •38° |
| •39° | •39° | •39° | •39° | •39° | •39° | •39° | •39° | •38° | •38° | •38° | •38° | •38° | •38° |
| •39° | •39° | •39° | •39° | •39° | •39° | •38° | •38° | •38° | •38° | •38° | •38° | •38° | •38° |
| • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| • | • | • | • | • | • | • | • | • | • | • | • | • | • |

No. 2
DOLPHIN



No. 3
DOLPHIN

•21°
•
•24°
•30°
•35°
•36°
•31°
•30°
•32°
•36°
•38°
•36°
NORTH EDGE
NAVIGATION
CHANNEL
•38°
•
•
•
•

Figure 2.
Sounding Grid for
Area Near the ITT Dock