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The Beneficial Use of Dredge Material at the Pacific Sound Resources Superfund Site

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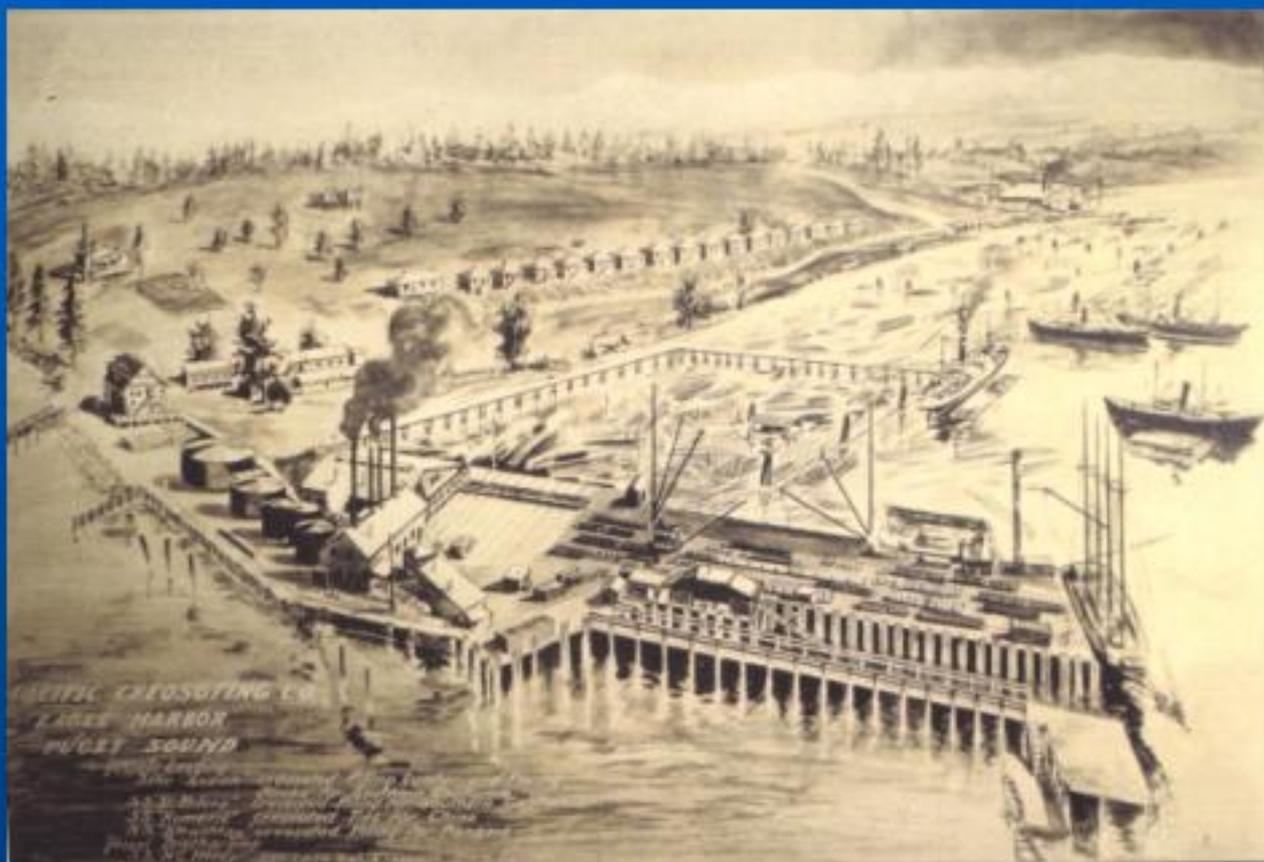
View from the PSR Site





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Pacific Creosoting Company



Circa 1910



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Major Contaminants



- Polycyclic Aromatic Hydrocarbons (PAH)
- Pentachlorophenol (PCP)
- PCBs
- PCDD/F



Upland Remedy

- **Containment of Upland LNAPL Sources**
- **Containment of Contaminated Groundwater**
- **Upland Cap**
- **Institutional Controls**



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Upland at PSR





PSR Cap Vital Statistics

- **Total cap area = 55 acres**
- **Phased placement starting close to shore**
- **Highly engineered cap**
- **Estimated material includes 350,000 tons of borrow material and 217,000 cy of dredge material**
- **Layered design including a chemical isolation layer and an erosion protection layer**



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Dredging at PSR





Construction Challenges

- Layered design = multiple lifts
- Steep slopes
- Soft native sediments
- Tidal currents and wave action
- Short construction season mandated by Endangered Species Action (ESA) restrictions on in-water work



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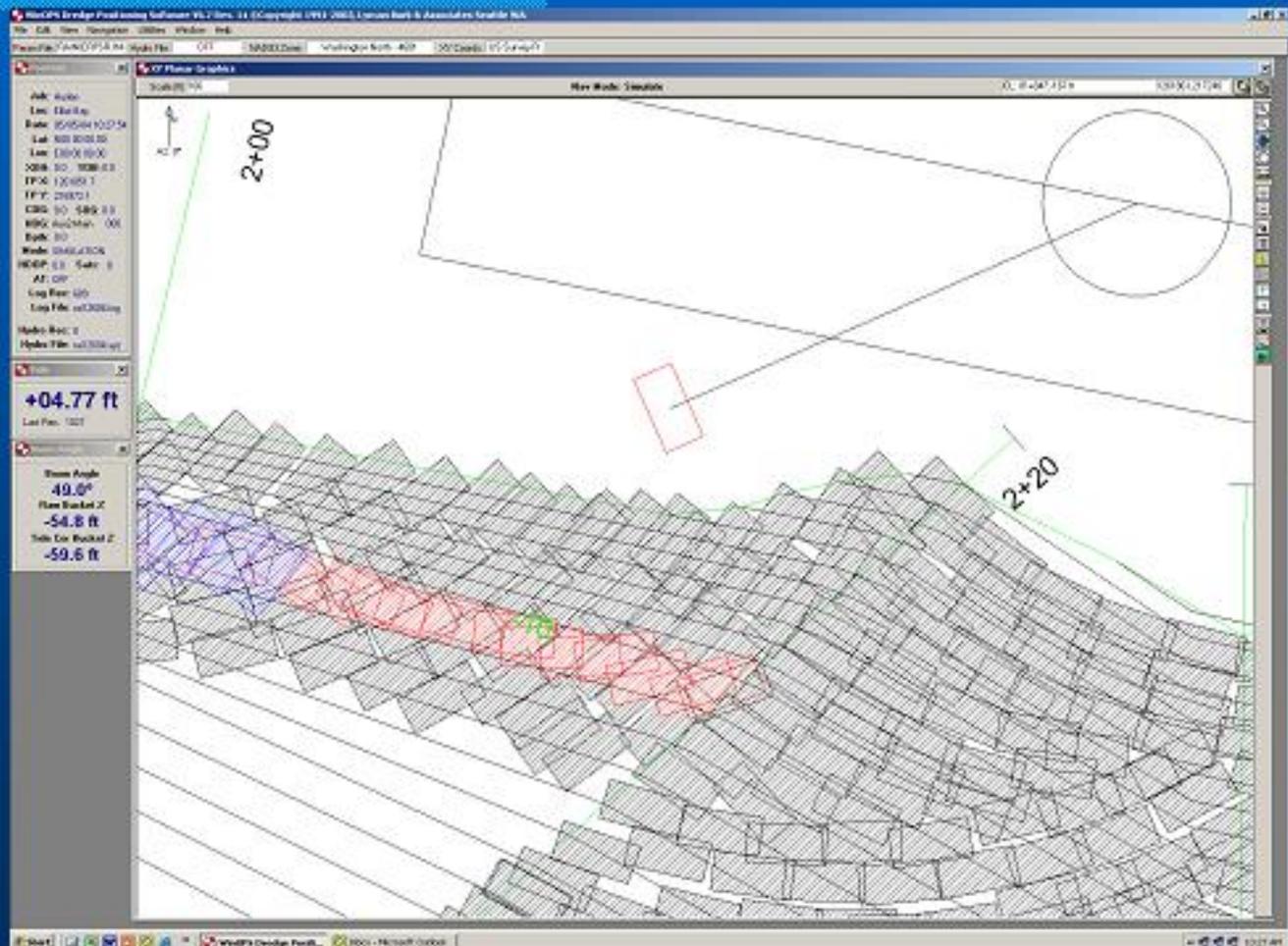
Capping at PSR





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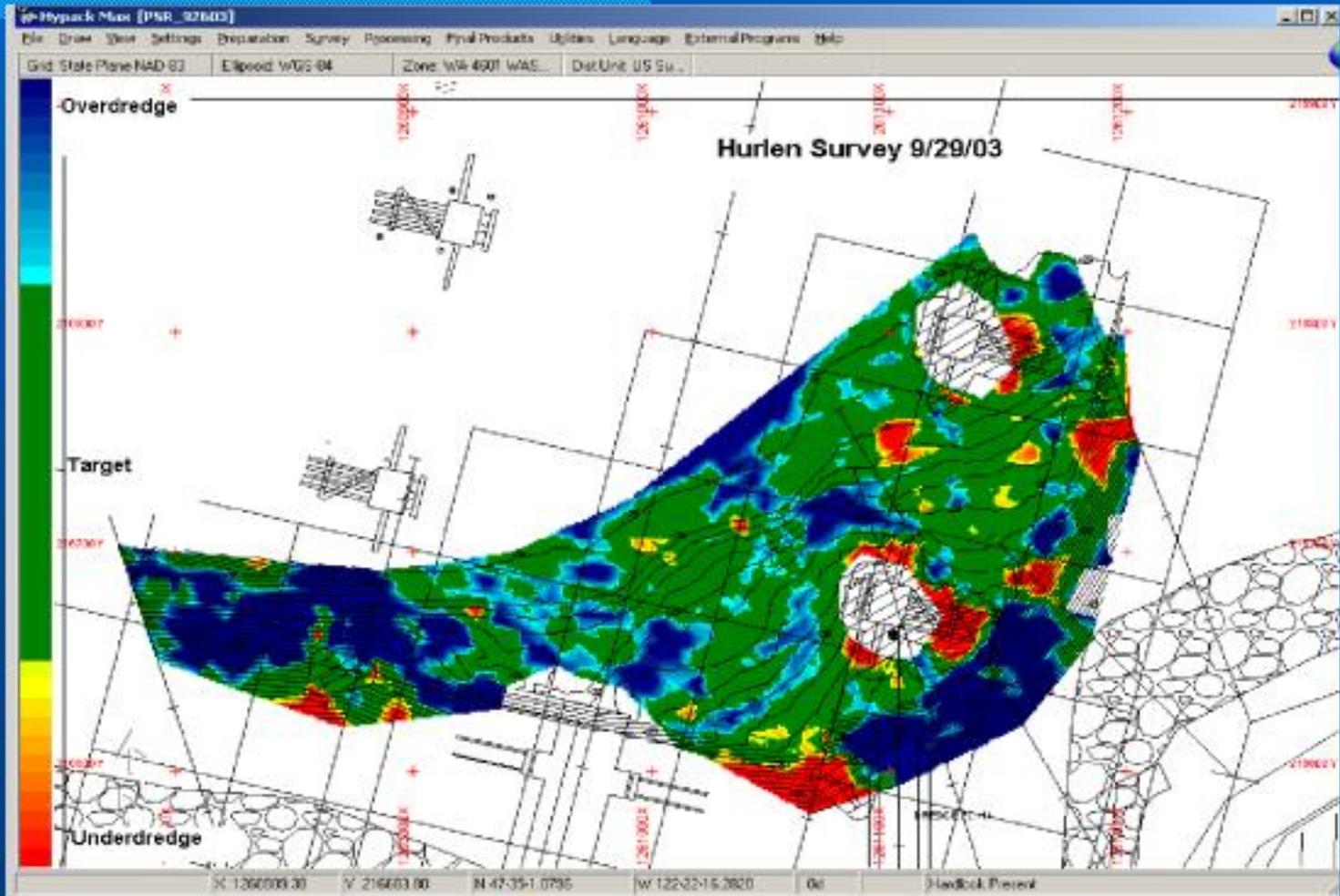
Where was material placed?





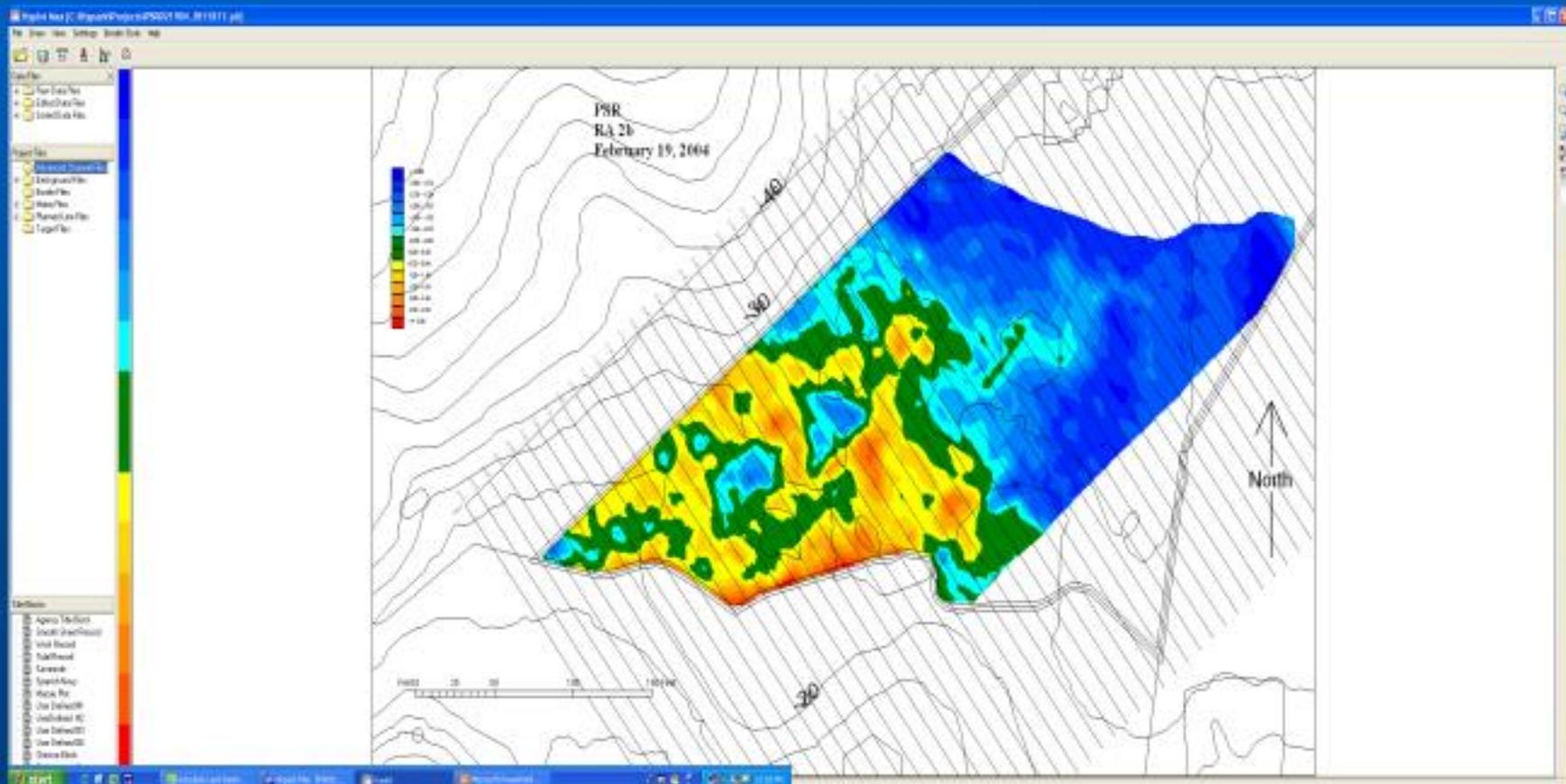
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Where did we remove material?



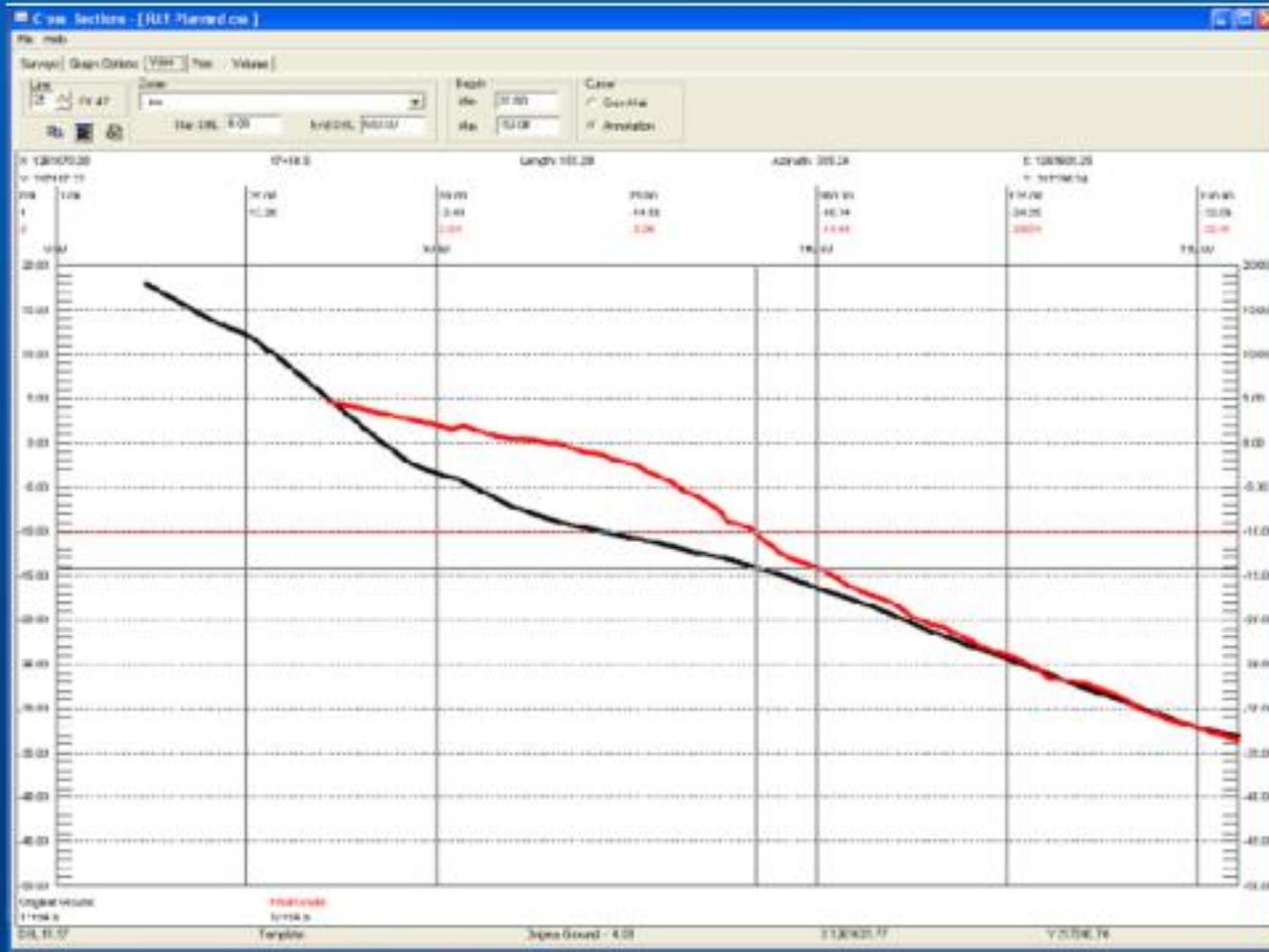


Where did material end up?





Did material stay in place?





Schedule for 2003-2004 Season

- **Dredge 10,000 cy of contaminated sediment from Remedial Area 3**
- **Place 135,000 tons of upland cap material in Remedial Area 1**
- **Complete shoreline habitat restoration**
- **Conduct material placement, water quality and cap verification monitoring**



Opportunity Knocks

- **An estimated 80,000 cy yards of dredge material became available in November 2003**
- **Provided naturally occurring organic component for the chemical isolation layer**
- **Allowed beneficial use of dredge material vs. disposal at a monitored in-water site**
- **Location of dredge site was within 5 miles of capping site = reduced transportation and material costs**



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Work Accomplished 2003-2004 Season

- Dredge 10,000 cy of contaminated sediments RA3
- Capped RA1 with upland material
- Capped RA2 and RA3 with 65,000 tons of dredge material (double planned acreage)
- Placed 50,000 tons of upland material for erosion protection
- Completed monitoring for enlarged capping footprint
- Completed shoreline restoration
- Reduced cost of the contract by \$2 million



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EPA Contacts

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