Lower Willamette River Maintenance and Cleanup

US Army Corps of Engineers

Portland District

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4 March 02

Lower Willamette River
Portland Harbor

Portland Harbor Economic Viability

- Trade hub for Pacific Northwest region
- Ranked 22nd for all US ports for imports/exports
  - Wheat
  - Automobiles
  - Aluminum
  - Petroleum
- High recreation use

Corps is Responsible for Harbor Operations and Maintenance

- Approximately 11 river miles
  from confluence of the Columbia River
- Last dredged in 1997
  - Contaminated sediments
  - Ocean dumping not an option
  - Inwater disposal not an option
- Requires EPA approved
  plan/study (EIS) for dredging and disposal

Sediment Quality Evaluation

- Dredged Material Evaluation Framework
- Loosely based on Puget Sound Dredged Disposal Analysis Guidance Manual
- Used for regulatory permits Section 404
- Tier evaluation approach for aquatic disposal
  - Available information/data … reason to believe
  - Physical/chemical testing
  - Biological testing
  - Non-routine evaluation

DMEF

- COE, EPA and State Cooperative
- Defines minimum requirements for evaluating sediment for regulatory decisions under Clean Water Act. Focus on:
  - Open fresh and marine water disposal
  - Loosely applicable to upland & near-shore disposal.
  - Prescriptive sampling protocols for sediment
- Bioassay focus with bioaccumulation options
- Comprehensive QA/QC program **not** required

Physical Analysis

	%	%	%
Sample Id	Sand	Silt/Clay	Vol. Solids
WR-VC-01	24.9	74.0	7.96
WR-VC-02	31.4	67.5	7.79
WR-VC-03	29.5	70.3	7.53
WR-VC-09	31.6	67.9	7.12
WR-VC-09-lab dup	42.2	57.8	6.89
Mean	35.2	63.7	7.09
Minimum	24.9	55.1	4.79
Maximum	43.7	74.0	7.96

Inorganics TOC TBT (mg/kg)

						Ug/L
Sample ID	As	Cd	Pb	Hg	TOC	TBT
WR-VC-01	3.8	<0.18	<14	<0.14	24000	ND
WR-VC-02	3.3	<0.19	<18	<0.16	19000	ND
WR-VC-03	4.1	<0.21	<17	<0.13	22000	0.32
WR-VC-05	3.6	<0.15	<12	0.11	12000	0.60
WR-VC-05-dup	2.4	<0.18	<14	0.19	20000	ND
WR-VC-09	3.8	<0.17	<13	0.22	20000	ND
Screening level	57	5.1	450	0.41	N/A	0.15

Pesticides/PCBs (ug/kg)

	DDD	DDE	DDT	Total DDT
WR-VC-02	5.4	5.9	<2.1	11.3
WR-VC-08c	3.1	4	<2.1	7.1
WR-VC-07	<2.9	5.4	3.4	8.8
WR-VC-07d	<2.6	5.4	10	15.4
WR-VC-03	2.2	3.5	<2.2	5.7
Screen level	Combined DDD, DDE, & DDT			6.9
PCB= ND @ 18.0 ppb second column confirmation				

The Problem

- Superfund Listed December 2000
- Three endangered species listed
- Corps policy prohibits O&M expenditure
- No EPA/DEQ accepted fresh water sediment characterization protocols
- Contaminated sediment
- No inwater disposal sites

The Strategy

- Persuade EPA to allow COE to use DMEF for sediment characterization of Federal Channel
- Persuade HQ to allow us to work in Superfund Site temporally
- Persuade the state to allow inwater disposal if sediments are not “dirty”
- Persuade EPA to remove Federal Channel from listing if not “dirty”
- Persuade NMFS, et all that ESA not compromised

The Approach

- Identify stakeholders and interest groups
- Common ground for all parties:
  - Clean, healthy and sound river system
  - Economically viable working river
  - Compliant with statutes and regs
- Collaboration in scoping out the needs and the "how to proceed"
- "Open hand" approach

The Solution

- Interagency agreement with EPA/DEQ
  - Coordination agreement
  - Joint development sediment quality criteria
- Regional committee (NMFS, USDFW, ODEQ, WDEO, NWP, NWS, tribes, etc.) to formulate freshwater criteria
- Federal Channel will be used as a study area

The Focus

	USFW	NMFS	ODEQ	EPA
Grain size	x		x	x
Tox testing		x		
Sampling			x	x
Bio Magnification		x	x	
Risk Assessment	x	x	x	
Reference areas	x	x	x	
ESA concerns	x	x		
Data management	x	x		x
Screening levels	x	x		x

Challenges & Opportunities

- Innovative sampling principles and technique development/implementation
- Dynamic work-plans and modeling
- Electronic data deliverables and database management
- Collaboration in test method development