

Ocean and Inland Testing Manuals

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KEY WORDS: Manuals, Testing, Inland, Ocean

USACE and EPA Share Responsibility

- Ocean Dumping Act (MPRSA)
 - Section 102
- Clean Water Act (CWA)
 - Section 404

The Law: MPRSA

The Marine Protection, Research, and Sanctuaries Act (PL 92-532) regulates the disposal of dredged material outside the baseline

The Regulation

Ocean Dumping (40 CFR 220-229)

MPRSA

Under the MPRSA, dredged material should not be disposed unless it can be demonstrated that such a disposal will not unreasonably degrade or endanger:

- human health, welfare, or amenities
- marine environment, ecological systems, or economic potentialities

The Other Law: CWA

The Clean Water Act (PL 95-217) regulates the disposal of dredged material inside the baseline and in the territorial sea when used as fill material

The Regulation

Guidelines for specification of disposal sites for dredged or fill material (40 CFR 230)

CWA

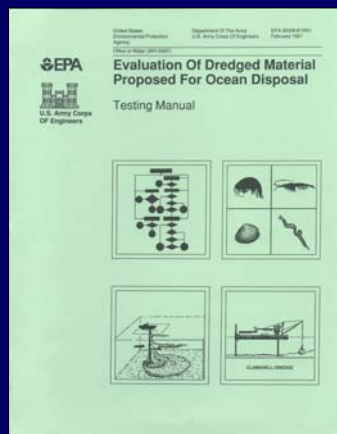
Under the CWA, dredged material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not cause “an unacceptable adverse impact” either individually or in combination with known and/or probable impacts of other activities affecting the ecosystem of concern

Joint USACE/EPA Guidance Documents for Management of Dredged Material

Existing Joint Agency Technical Guidance

- Technical framework
- Ocean testing manual
- Inland testing manual
- Ocean site designation manual
- Site Management & Monitoring

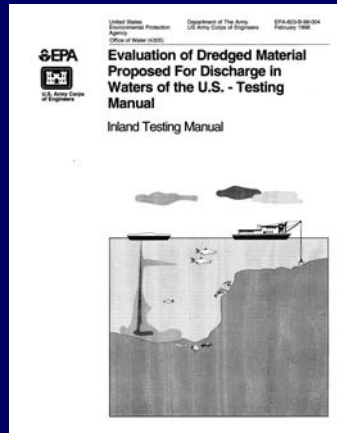
Ocean Testing Manual



- Addresses MPRSA
- Originally developed in 1977, updated in 1991
- Included:
 - Effects-based testing
 - bioaccumulation
 - Sequenced > Tiered
- Found at:

www.epa.gov/owow/oceans/gbook/

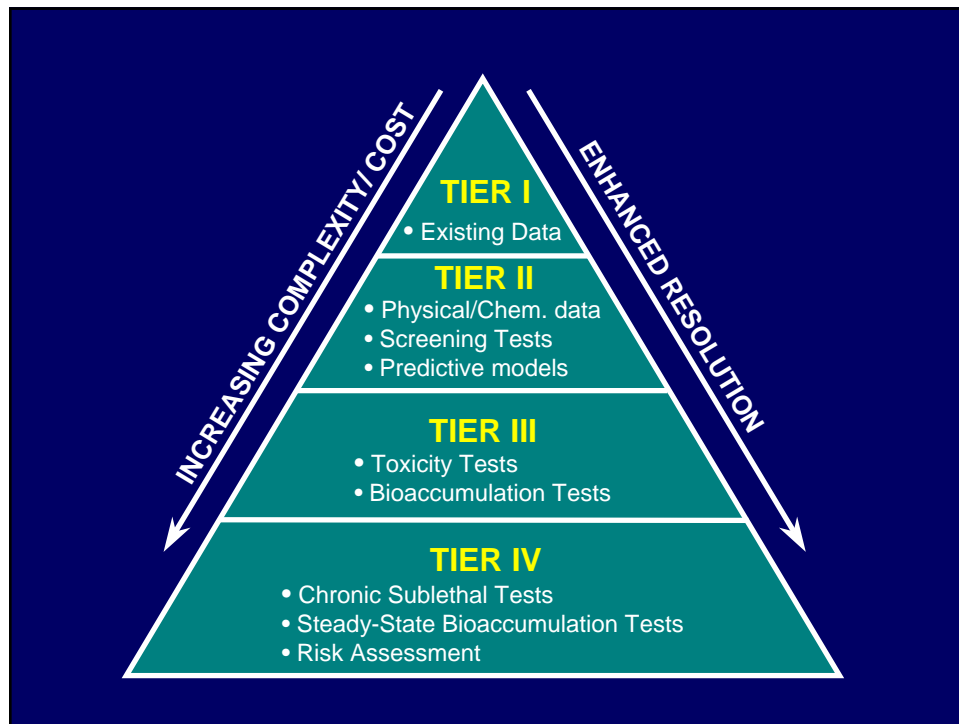
Inland Testing Manual



- Addresses CWA
- Interim guidance in 1976, updated in 1998
- Included:
 - Effects-based testing
 - Sequenced > Tiered
- Found at:
www.epa.gov/ost/itm

Dredged Material Testing Manuals

- Tiered testing and evaluation
- Testing procedures (elutriate, benthic, and bioaccumulation)
- Computer models for mixing
- Case-specific evaluations
- Statistical tools, QA/QC, and data interpretation



Tiered Approach

- Uses resources effectively
- Best professional judgement
- Not sequential
- Documentation required

Definitions

Testing

- Specific procedures which generate biological, chemical, and/or physical data to be used in evaluations.
- Data are usually quantitative but may be qualitative, such as taste, odor, color, organism behavior, etc.

Definitions

Evaluation

- The process of judging data. Objective or subjective factors (or both) are used in a consistent and logical fashion to reach a decision.

Definitions

Control Sediment/Water

- Obtained from the area where the test organisms were collected or cultured
- Serves as a check on the health of the organism and validates the test results.

Definitions

Reference Sediment

- Reflects the conditions at the disposal site had no dredged material disposal ever occurred
- Serves as a point of comparison to identify potential environmental effects of a discharge of dredged material

Exposure Pathways



Water Column

- Whole sediment screen
- Elutriate analysis

Benthic

- Bioaccumulation screen
- Acute, chronic toxicity
- Bioaccumulation

Tier I

- Evaluation
 - Exclusions from testing (grain size, adjacent to, removed from contaminant sources...)
 - Assess existing data
- Conclusions
 - Information adequate for decision
 - Information inadequate for decision

Tier II

- Application of dispersion model for dissolved contaminants in the water column
- Calculation of the theoretical bioaccumulation potential for non-polar organics in benthic organisms

Tier III

- Determine toxicity in water column evaluate results using mixing model
- Determine benthic toxicity (acute or chronic)
- Assess bioaccumulation of contaminants from sediment

Tier IV

- Case specific studies (e.g., chronic studies, in situ)
- Human and ecological risk assessment
- Comparative risk analysis (risk of options)

Regional Considerations

- Contaminants of concern
- Frequency of testing/evaluation
- Sampling scheme
- Reference site
- Species selection
- Data interpretation
- Special local considerations

MPRSA/CWA Contaminant Evaluation Differences

MPRSA

Water Quality Criteria
Mixing Specified
Exclusions Restricted
Reference Comparison
Bioassays Mandatory
Trace Contaminants
No Physical Isolation
1977 Regulation

CWA

Water Quality Standards
Mixing Variable
Exclusions Broad
Disposal Comparison
Bioassays Optional
No Trace Contaminants
Physical Isolation
1980 Regulation