



# Testing for Upland Confined Disposal

Tab U1

Dr. Paul R. Schroeder

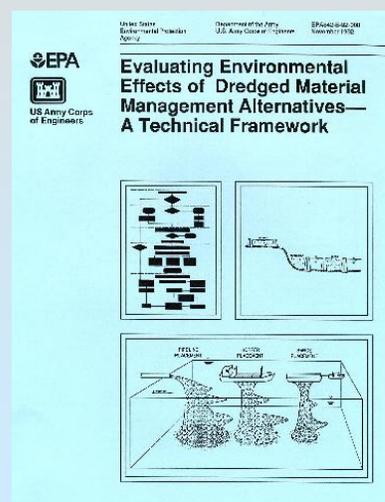
**Keywords: CDFs, Contaminant Pathways, Testing**

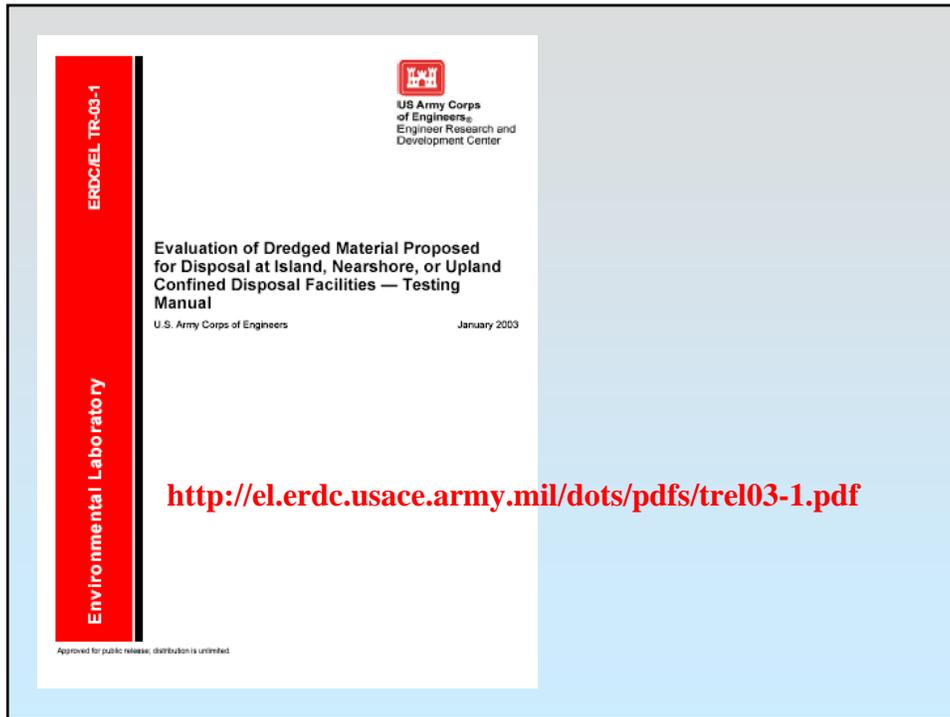


## USACE/ EPA Technical Framework



- **Alternative Screening Based on Environmental Suitability**
- **Open Water**
- **Confined (diked)**
- **Beneficial Uses**
- **Umbrella for OTM, ITM, UTM, etc.**
- **Applicable to Full Range of Materials**





## The High Points

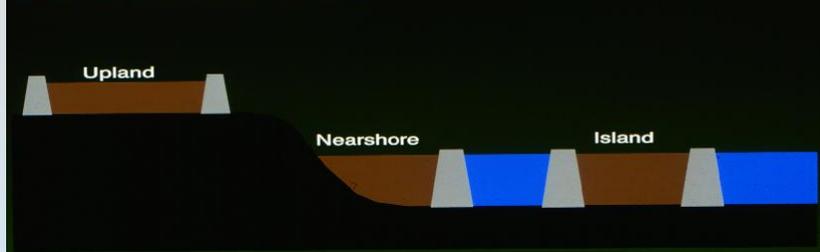
- UTM provides a tiered approach for contaminant pathways evaluations for CDFs
- Technically sound testing/ evaluation procedures are available for all pathways
- Pathway controls are available

## UTM – What does it do?

- Provides approach and methods to evaluate potential CDF contaminant effects
- Determines the need for management actions or controls for placement of material in a CDF

Material suitability is not an issue for CDFs

### Confined Disposal Areas May Be Constructed As



**Purpose:** Technical guidance for evaluation of potential CDF contaminant migration pathways.

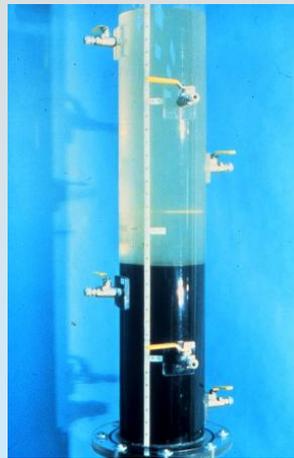
**Applicability:** Upland, Nearshore, Island CDFs.

Does **not** apply to capping or beneficial uses but may be applicable for common exposure pathways.

## Regulatory Considerations

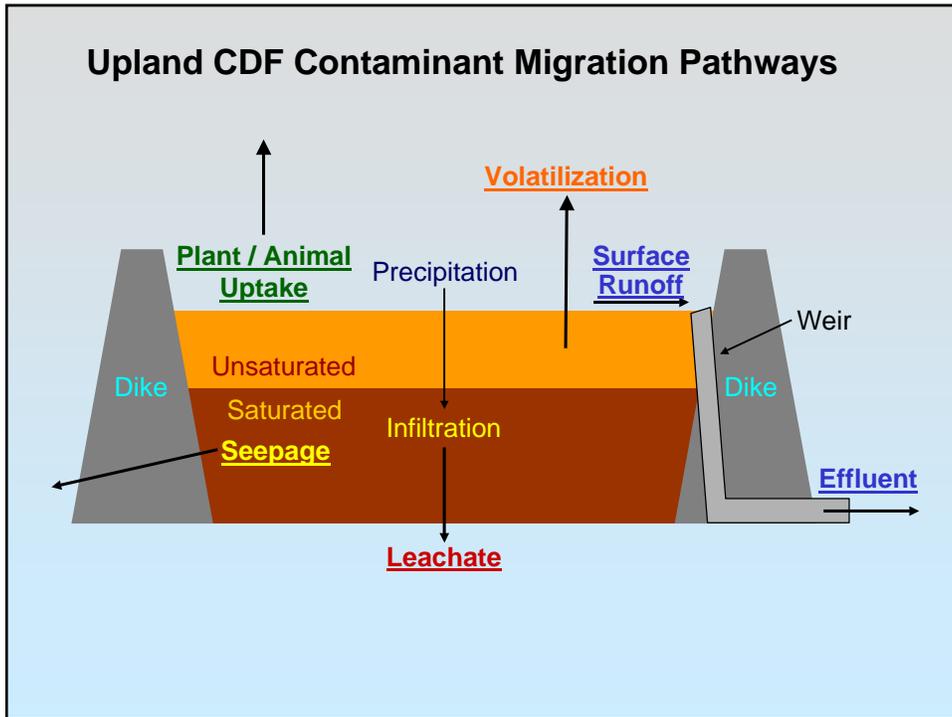
- CDF Effluent is regulated as a CWA Section 404 discharge to waters of the US
- NEPA requires consideration for all pathways
- RCRA is not applicable when the dredged material that is subject to the requirements of a permit that has been issued under the Clean Water Act or section 103 of the Marine Protection, Research, and Sanctuaries Act is not a hazardous waste.
- UTM is NOT regulatory; only technical guidance.

### CDF Engineering Design – EM 1110-2-5027

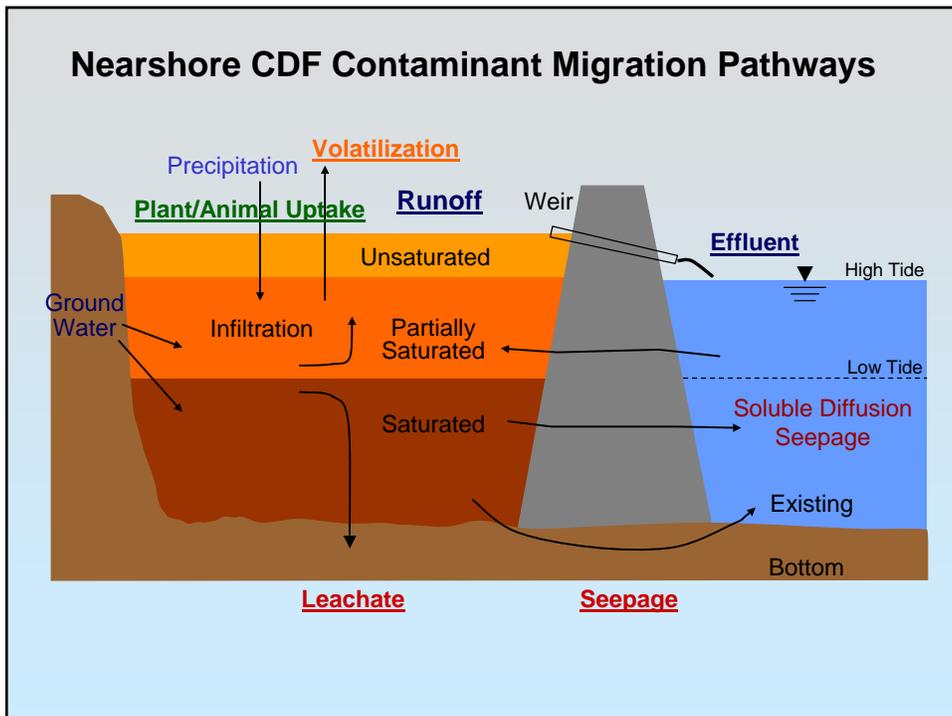


**UTM assumes sound engineering design**

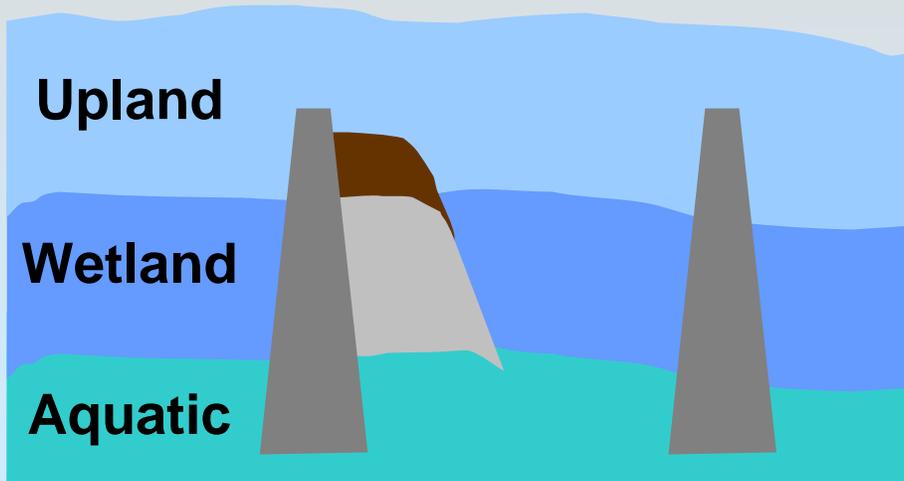
## Upland CDF Contaminant Migration Pathways



## Nearshore CDF Contaminant Migration Pathways

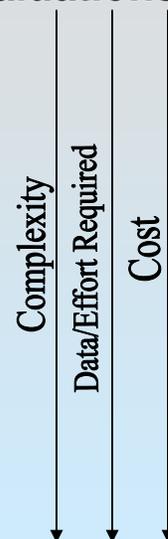


## CDF Geochemical Environments



## UTM – A Tiered Approach for Evaluations

<b>Tier I</b>	<b>Existing Info</b>
<b>Tier II</b>	<b>Screening Evaluations</b>
<b>Tier III</b>	<b>Effects-Based Testing and Evaluations</b>
<b>Tier IV</b>	<b>Case Specific Studies/ Risk Assessment</b>



## **CDF Pathway End Points**

- Effluent and Runoff
  - WQ Standards and/ or WC Toxicity after Mixing
- Leachate
  - Applicable GW Standards after Attenuation
- Volatiles
  - OSHA Human Exposure Standards after Dispersion
- Plant and Animal Uptake
  - Comparison of uptake to Reference Soil

## **Initial Evaluations (Tier I)**

- Need for Pathway Evaluations
  - “reason to believe”
  - sand/gravel; clean material; new work
- Identify Relevant Pathways
- Identify Contaminants of Concern
- Compile Existing Information

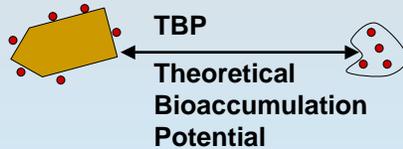
**Evaluate all relevant pathways.**

**Test only as needed.**

## Tier II - Screening



Effluent; Runoff; Leachate;  
Volatiles (Henry's Law)



Animal Uptake

Plant Uptake -

Diethylenetriamine-pentacetic  
acid (DTPA) Extract

A screenshot of a software interface displaying a data table. The table has multiple columns and rows, with some cells highlighted in yellow and others in blue. The interface includes a title bar, a menu bar, and a toolbar. The data appears to be related to environmental or chemical parameters.

## Tier III

- Effects Based Testing and Evaluations
- Chemical and Biological Tests
- Models for Mixing, Attenuation, Dispersion
- Results of all Tier III tests can be used in Risk Assessments

## Tier IV

- Case or Site Specific Studies
  - Demonstrations
  - Pilot studies
- Operation Specific Testing
- Risk Assessments

## Guidance Documents for CDFs

- <http://el.ercdc.usace.army.mil/dots/guidance.html>
- USACE/EPA Technical Framework
  - <http://www.epa.gov/OWOW/oceans/framework/>
- Engineer Manual 1110-2-5027 Confined Disposal of Dredged Material
  - <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em1110-2-5027/toc.htm>
- **Upland Testing Manual**
  - <http://el.ercdc.usace.army.mil/dots/pdfs/trel03-1.pdf>
- DOTS Website
  - <http://el.ercdc.usace.army.mil/dots/>

## The High Points

- CDFs are containment options
- Contaminant pathways must be appropriately evaluated
- UTM provides a tiered approach for evaluations
- Testing/ evaluation procedures are available for all pathways
- Pathway controls are available



**ERDC**  
**Dredging Operations**  
**Technical Support/**  
**Center for Contaminated**  
**Sediments**



Website:

<http://el.erdcl.usace.army.mil/dots>

Email:

[Paul.R.Schroeder@erdcl.usace.army.mil](mailto:Paul.R.Schroeder@erdcl.usace.army.mil)