

WILL MBS® WORK FOR MY SITE?

The following questions apply to all contaminated sites or industrial processes where the **MBS® Technologies** are being considered for use.

1. Is the Contamination a Toxicity Characteristic Leaching Procedure (TCLP) Problem?

- This question relates to the type of metal contamination associated with your project.
- If your contamination is measured in mg/kg it is likely a “Total Metals” issue and not a “Leachable Metals” issue.
- Your contamination should be measured in mg/l or expressed as parts per million (ppm) if it is a Leachable Metals problem.

2. What is the Source Of The Contamination

- This information is required in order for MWS to evaluate and determine the proper method of treatment using the MBS® Technologies.

3. What is the Media where the contamination is located?

- Are the Leachable metals contained in soil, slag, ash or some other media?
- The media will establish the options available for utilizing the MBS® Technologies most cost effectively.

4. What is the Size and Scope of the Project?

- We need to the width, depth and length of the area of contamination.
- The volume of media to be treated will have a significant impact on the overall cost benefits of the MBS® Technologies.

5. Which Clean up Criteria Apply to the Site?

- State and federal clean up criteria vary as can local or area specific guidelines.
- Knowing the clean up criteria we are required to follow is critical information for applying the MBS® Technologies.
- If Universal Treatment Standards (UTS) are to be applied, then they will likewise affect the Treatability Study.

M&W SOLUTIONS –

Technologies

- Molecular Bonding System (MBS®) Technology
- Integrated Fixation System (IFS®) Technology
- Waste Innovative Technology Solutions (WITS®)

Services

- Engineering Certification for designing remediation plans using MBS® Technologies.
- Contractor Certification for implementing remediation plans using MBS® Technologies.
- Innovation or Design services to develop a customized application for MBS® Technologies.
- Post certification chemical reagent purchase for use by a Certified engineer or contractor.
- Joint Project work involving multiple facets of site redevelopment and remediation.

Key Markets

- Estuaries, Bays, Lakes & Rivers
- Waterfront Developments
- Port Facilities & Marinas
- Shipbreaking & Boat Yards
- Mine Tailings
- Dredge Operations
- Dam Structures & Containment Dikes
- Sludge Lagoons & Treatment Ponds
- Stormwater Management Wastewater Treatment
- Bridge Maintenance & Transportation Corridors
- Smelting Operations
- Power Plant Stack Gases Military Gun Ranges
- Redevelopment Projects
- Manufacturing Facilities

Clients

- Engineering Companies
- Remediation Contractors
- Dredge Operators
- Facility Owners
- Developers
- Environmental Attorneys
- Military
- Government Agencies
- Manufacturers



“Eliminating Toxic Metals in the Environment”

MBS® is a Permanent, Cost Effective Solution for Hazardous Heavy Metals

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Marine & Waterway Solutions is the exclusive worldwide source for MBS® Technology in marine and waterway environments.

MBS® Technology has successfully passed all of EPA's Leachate Tests, including the Multiple Extraction Procedure (MEP) test which simulates 1000 years of exposure and determines the long term stability of treated wastes.

The Patented **MBS® Technology** utilizes a solid-phase chemical stabilization* process to eliminate the leachability of heavy metals in soils, sludge's, slags, ashes, and other solid industrial wastes.

Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc are rapidly converted to less soluble metallic sulfides.

The **MBS® Technology** treats metals into a form that is not easily absorbed by plants, animals, or people to eliminate their adverse effects to human health and the environment.

The **MBS® Technology** is also used for waste minimization and pollution prevention with "Timed-Release" applications.

- USEPA DEFINITION - Stabilization: Conversion of the active organic matter in sludge into inert, harmless material.

MBS® ADVANTAGES

- Provides a Permanent Cost-Effective Solution
- Treats Multiple Metals Concurrently
- Works in Presence of Other Contaminants
- Not pH Sensitive
- Ex-Situ & In-Situ Application
- Reactions are Immediate with No Cure Times
- No Change to Physical Characteristics of Processed Soils
- Contractor Friendly, Simple, Fast, Easy, Conventional, Safe
- Multiple Application Alternatives
- Processed Materials Reused for Contour, Cover, Roadbed or Fill
- Reuse Eliminates Transportation Costs
- Works for Multiple Industrial Wastes
- Pollution Prevention Through In-Line Treatment
- Minimizes Long Term Liabilities
- Provides for Reduced Insurance Costs

MBS® Technology Plays Key Role in Licensee Winning 'Brownfield Project of the Year' Award



East Providence Pointe

COST EFFECTIVENESS

The **MBS® Technology** is the most cost effective ex-situ or in-situ solution on the market for projects producing handling, treating or disposing of leachable hazardous heavy metal waste streams

Soils treated with the **MBS® Technology** are rendered non hazardous and can be repurposed for a beneficial use on site saving time and money.

Hazardous soil transportation and disposal can cost \$250 / Ton. **MBS®** treated soils stay on site as fill and only cost \$30-\$50 / Ton.

Where the **MBS® Technology** is used in-situ (in place) the process doesn't disrupt the environment or generate hazardous wastes and is considered a "Green Best Management Practice**."

USEPA DEFINITION—Green Remediation: The practice of considering all environmental effects of remedy implementation and incorporating options to maximize the net environmental benefit of cleanup actions.