



Department of the Environment

LNG Task Force

Overview -
Innovative Use of Dredged Materials

presented by
George Harman

Nov 1, 2006



Status quo is not possible

- Open water placement of dredged material in Maryland has been discontinued
- Costs for “standard” options continue to rise
- Sediment needs to be viewed as a product with worth or value
- Options for placement of Baltimore Harbor sediments are limited by law and may not or will not be available in 15 to 20 years



Beneficial Use means:

(Per Article Environment 5-1102 as written in SB 830 in 2001)

- Restoration of underwater grasses
- Restoration of islands
 - Not the creation of islands (Open question: how far back should we go for determining restoration vs. creation)
- Stabilization of eroding shorelines
- Creation or restoration of wetlands
- Creation, restoration or enhancement of fish or shellfish habitats





Innovative Use means:

- Per Article Environment 5-1102 as written in SB 830 in 2001:
- Development or manufacture of commercial, industrial, horticultural, agricultural, or other products



Reuse

Reuse is defined in Article 83A § 6-801 from HB 1471-2004 (DBED):

- Recycling of dredged material for its use in another product (commercial or industrial, etc.)
- Thus, Reuse = Innovative reuse

History of Reuse

- Mining values well recognized
 - Direct industrial use for sand, gravel, & shell
- European experience is extensive
- Options for blending with other wastes for neutralization or stabilization are well-documented (e.g., fly ash for pozzolanic material and with bio-solids for creating soils)

Brief History

- Previous committee review led to a proposed procurement
- Prior efforts to procure contractors failed – bid process was too complicated – costs were too high
- Current Innovative Reuse Committee was established under HB 1471 of 2004
- Under the current efforts - meetings during 2006 with recommendations by spring 2007

Options Being Considered

- Light-weight aggregate (vitrification at 2,000+ degrees)
 - Concrete block filler, less weight, less structural steel
- Bricks
- Flowable fill - cement filler (pozzolanic fill)
- Base material (highway construction)
- Compressed blocks – low temp process

Options Being Considered

- Remanufactured soil by:
 - Treatment (chemical, water, or thermal)
 - Encapsulation with resins
- Use for:
 - Landfills (daily cover, liners, caps)
 - Topsoil
 - Tree farms
 - Road construction



Options Being Considered

- Asphalt filler
- Agricultural use (improve soil moisture retention in sandy soils with higher silt content)
- Mine reclamation
 - Coal mines - surface and deep
 - Sand Quarries
 - Gravel Pits
- Brownfield site cover



Problems - Cost

- Current disposal costs serve as a guide for the selection of various options
 - Open water placement (if available) < \$ 8/cy
 - Hart-Miller Island (if available –closes in 2009) - \$8-\$10/cy
 - Poplar Island (not possible for Baltimore Harbor sediments) - \$10 to \$15/cy
 - Ocean dumping (if politically acceptable) – higher still (need ocean barges)
- Innovative costs ~\$30 to \$300+/cy



Problems - other

- Hauling issues
 - Trucks (community concerns, costs for fuel)
 - Rail (need rail spurs at each end of trip)
 - Barge options – sites must be proximal to water
- Site issues
 - Groundwater
- Pollutant issues
 - Leaching of metals, salts, nutrients, etc.
 - Permitting difficulties



More Problems

- Application of use standards
 - Wetland uses – Use aquatic leaching criteria?
 - Land – Use Industrial soil guidelines?
 - Land – Use residential soil guidelines?
 - Farms – Apply fertilizer standards?
 - Farms – Apply biosolid application standards?

Innovative Reuse Process

- Document, review, and quantify:
 - Technical potential for each option
 - Economic factors
 - Process costs
 - Transportation costs
 - Offsetting costs to other industries
 - Compare to current costs
 - Consider future costs
 - Environmental permitting potential
 - Public and political acceptance – zoning issues
- Recommendations by Spring 2007
- Explore funding opportunities