

DRAFT REPORT
INNOVATIVE AND BENEFICIAL USE
REGULATORY INTERAGENCY WORKGROUP
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DRAFT

Table of Contents

Executive Summary.....4

Introduction.....7

Discussion8

Key Findings.....9

Recommendations.....14

Conclusion.....15

Tables

Table 1 – Table of Uses of Dredged Material.....

Table 2 - State Comparison Matrix; Technical Screening Criteria.....

Table 3 – State Comparison Matrix; Definitions/Permitting Structures.....

Table 4 – Draft Guidance Document for Maryland.....

Table 5 – MDE Flow Chart – Regulatory Process.....

Appendices

Appendix 1 – Membership List – Interagency Regulatory Workgroup.....

Appendix 2 - Lessons Learned from Past Innovative Reuse Pilot Projects in Maryland – PowerPoint Presentation

Appendix 3 – MDE PowerPoint Presentation – Existing Regulatory Process.....

Appendix 4 - Legislative History of Dredged Material Management in Maryland – PowerPoint Presentation.....

Appendix 5 – Coal Combustion By-Product (CCB) Regulation Process in Maryland – PowerPoint Presentation.....

Appendix 6 – Overview of Process for Development of Regulations for Composting Facilities – Summary Document.....

Appendix 7 – Overview of the Independent Technical Review Team (ITRT) Sediment Quality in Baltimore Harbor Report, 2009 – PowerPoint Presentation.....

Appendix 8 – Maryland Environmental Service (MES) Sediment Quality Database – Overview
– PowerPoint Presentation.....

Appendix 9 – New Jersey Beneficial Use Policies Overview – PowerPoint Presentation.....

Appendix 10 – Pennsylvania Beneficial Use Policies Overview – PowerPoint Presentation.....

Appendix 11 – Virginia Beneficial Use Policies Overview – PowerPoint Presentation.....

Appendix 12 – Massachusetts Beneficial Use Policies Overview – PowerPoint Presentation....

Appendix 13 – Ohio Beneficial Use Policies Overview – PowerPoint Presentation.....

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Executive Summary

In August 2015 Maryland's Dredged Material Management Program (DMMP) Executive Committee¹ approved the Innovative and Beneficial Use of Dredged Material Regulatory Action Plan. Since approval of the Action Plan, the Maryland Port Administration (MPA) convened an interagency regulatory workgroup², which has met monthly in a spirit of cooperation, and conducted a comprehensive review of current regulatory policies to determine if opportunities exist to better facilitate the beneficial and innovative use of dredged material in Maryland. Based on feedback from DMMP stakeholders and the private sector, a more predictable regulatory framework is needed. For example, the approvals required from various state agencies, such as the Maryland Departments of Environment and Agriculture (MDE and MDA), as well as decision timelines and technical criteria to be met need to be clear to any entity proposing to implement an innovative or beneficial use project in Maryland. The goal of the workgroup is to identify those opportunities for clarification and predictability in the regulatory or permitting framework so as to encourage and foster economic growth in the innovative and beneficial use of dredged material³.

Building upon the lessons learned from other states, a review of Maryland's current regulatory framework, previous innovative reuse pilot projects, successful Maryland beneficial use projects, the work of various DMMP committee research and analysis of innovative reuse issues to be addressed, the interagency regulatory workgroup's evaluation identified several key findings that, if addressed, will improve the regulatory certainty surrounding beneficial and innovative use of dredged material in Maryland. To address these key findings, the workgroup provided specific recommendations for DMMP Executive Committee approval and to ensure that innovative and beneficial use options can successfully be implemented as part of the state's long term dredged material management strategy.

Key findings:

1. Other state programs reviewed included clear statutory authority to regulate acceptable uses of dredged material that was established in flexible, yet explicit definitions of key terms.
2. Most other state programs reviewed have a separate office or agency program dedicated to beneficial use (and innovative reuses as defined by Maryland law) of dredged material and/or demonstrated clear joint programmatic efforts among the water/land/waste regulatory departments.

¹ The Maryland Dredged Material Management Program Executive Committee is comprised of the Secretaries of Natural Resources (Co-Chair), Transportation (Co-Chair), and Environment, the U.S. Army Corps of Engineers Baltimore District and Philadelphia District, the Chesapeake Bay Foundation and the Director of the Maryland Environmental Service.

² See Appendix 1 for Interagency Regulatory Workgroup Membership.

³ Dredged material as defined by Maryland statute means "earth, sand, silt, sediment, shell, rock, soil, waste matter, or other material excavated or dredged from the Chesapeake Bay and its tributary waters." While the charge of this report is to focus on navigation channel dredged material, the workgroup's goal is to identify policy recommendations that could be applicable to all dredged material in Maryland including for example material dredged from lakes.

3. All state programs reviewed required a minimum set of technical screening criteria or standards that must be met.
4. Other states with robust beneficial use programs have strong statutory intent expressed from the legislature for state agencies to beneficially or innovatively use dredged material in publicly-funded infrastructure or remediation projects where appropriate.
5. In advancing Maryland's innovative and beneficial use program, the physical and chemical characteristics of the majority of Baltimore Harbor dredged material present difficult challenges, often more difficult than in other states.
6. Potential exists for the historical perception of Baltimore Harbor dredged material to hinder beneficial use and innovative reuse.
7. A comprehensive review of Maryland Department of Environment's existing regulatory framework identified several gaps, creating uncertainty for the regulated community.

Recommendations:

1. MDE and MPA should continue review of the existing statutory authority for MDE to regulate innovative and beneficial uses of dredged material. This will help identify areas that may have unintended consequences of hindering environmentally appropriate innovative and beneficial end uses of dredged material.
2. Based upon further review and discussion, MDE should consider adopting regulations, and/or a Regulatory Guidance Document clearly outlining the process, approvals and/or permits needed for implementing innovative or beneficial use projects in an efficient manner. The workgroup recommends this review include:
 - a. Consideration, depending on the conclusions of legal and regulatory review, of an Authorization by Rule structure for certain end uses and for dredged material meeting specific, technical criteria.
 - b. Consideration, depending on the conclusions of legal and regulatory review, of a General Permit approach for the Innovative and Beneficial Use of Dredged Material or a series of General Permits for categories of end uses of dredged material.
 - c. In conjunction with either or both of the approaches outlined above, consideration of when MDE would require site or project-specific permits or approvals that are outside of the authorized uses specified by regulation or a general permit.
 - d. Consideration, if the above approaches are outside of current statutory authority, whether the General Assembly should pass legislation amending the Environment Article (specific Title and Subtitle to be determined) to authorize MDE to adopt regulations governing the innovative reuse and beneficial use of dredged material based on science and technical screening criteria of the material and end uses. These discussions should also continue to include examination of explicitly excluding dredged material from MDE's definition of "solid waste".
 - e. MDE should consider establishing a single point of contact for all innovative and beneficial use of dredged material related questions from the public and continue to assign at least one person to administer an Innovative and Beneficial Use of Dredged Material Program.

3. The workgroup recommends development of appropriate technical screening criteria for evaluation of innovative and beneficial uses of dredged material, including Baltimore Harbor dredged material. Building upon the recommendation of the Independent Technical Review Team (ITRT) Report *Sediment in Baltimore Harbor, 2009*, MDE should consider alternate criteria for dredged material that are protective of public and environmental health.
4. The workgroup should expound upon previous and ongoing outreach efforts and create resources available to the general public, as well as the private sector that may be interested in pursuing innovative and beneficial use projects, on the technical characteristics of dredged material as well as the public health and environmental protections that will be in place. The MPA should continue to work extensively with stakeholders to develop a comprehensive public outreach and education campaign promoting the understanding of and opportunities for the successful reuse of dredged material.
5. The DMMP Executive Committee should call for state agencies to consider the innovative and beneficial use of dredged material in state-funded projects, where appropriate, including but not limited to transportation-related projects and publicly funded site-remediation projects.

Although the workgroup identified several areas of regulatory uncertainty it also developed several straightforward opportunities to clarify and streamline what could be a successful innovative and beneficial use program in Maryland. Building upon the success that Maryland has experienced with implementing several beneficial use projects, even in the absence of a formal Beneficial Use program, the Workgroup is confident that with several minimal policy changes, Maryland can communicate to the general public and interested private stakeholders what steps are involved in successfully proposing and completing a variety of innovative and beneficial use projects. Continued coordination and collaboration with the regulatory administrations, policy decision-makers and legal counsel at MDE will be imperative to fully develop policy recommendations. Engagement with the public and key stakeholders will also be instrumental as these recommendations are refined, formally proposed and ultimately considered for adoption.

Introduction

The Maryland Port Administration (MPA) has explored various methods for recycling dredged material from Baltimore Harbor channels for a number of years. With the conclusion of several demonstration projects in conjunction with extensive input and feedback from key stakeholders, including the state's Dredged Material Management Program (DMMP) advisory committees as well as the Innovative Reuse Committee (IRC) and Innovative Reuse Technical Team (IRTT), the MPA determined a need to revise its overall approach to implementing innovative reuse and beneficial use projects.

It has proven extremely difficult to find a single large-scale solution for innovatively reusing dredged material that is technically sound, financially affordable and environmentally acceptable to regulatory agencies. In addition, this objective has never been a more critical task as it is becoming increasingly challenging to identify management solutions and placement capacity options for Harbor dredged material.

In updating the innovative and beneficial use strategy, MPA incorporated lessons learned from the demonstration projects that it conducted over the past several years and the lessons learned from the recent Request for Information (RFI) for a proposed public-private partnership (P3) project to recover dredged material placement capacity in the Cox Creek Dredged Material Containment Facility (DMCF).

A key component of the Revised Innovative and Beneficial Use Strategy, which was approved by Maryland's DMMP Executive Committee in June 2014, is a comprehensive review of current regulatory policies. With the formation of an inter-agency workgroup, the goal is to (1) determine if opportunities exist to better facilitate innovative and beneficial reuse of dredged material in Maryland and (2) better understand current regulatory requirements and whether changes to that process could create a more predictable regulatory environment.

Members of the interagency workgroup include representatives from the U.S. Army Corps (Corps) of Engineers - Baltimore District, the U.S. Environmental Protection Agency (EPA), the Maryland Department of Environment (MDE), the Maryland Department of Natural Resources (DNR), the Maryland Geological Service (MGS), the Maryland Environmental Service (MES), the Maryland State Highway Administration (SHA), and the Maryland Port Administration (MPA). Various DMMP stakeholder committees have been briefed on the progress of the workgroup. Input from those committee members has been very useful and continues to inform the workgroup's efforts.

To conduct a comprehensive regulatory review, MPA, with stakeholder input, identified the following core tasks as the basis of the workgroup's Regulatory Action Plan:

- Review policies in Massachusetts, Pennsylvania and New Jersey to assess how they might apply in Maryland;
- Review the recent MDE/industry process for development of streamlined regulations for Composting Facilities as a potential process model for developing a regulatory framework for dredged material; and

- Based on this review consider drafting a new statewide policy, regulations or legislation as appropriate for the innovative and beneficial reuse of dredged material from Baltimore Harbor.

The Regulatory Action Plan established an expeditious timeline for development of a Final Report with policy recommendations due to the DMMP Executive Committee in spring 2016.

Discussion

In order to ensure the success of this effort, the Workgroup, which began monthly meetings in July 2015, set out to refine its purpose and goals by first developing a Mission Statement, list of Objectives, and corresponding Strategies for accomplishing them.

Mission Statement

Our mission is to identify any scientific, regulatory or policy gaps that are creating uncertainty as to how the innovative or beneficial reuse of dredged material is regulated in Maryland and recommend strategies to streamline the regulatory framework in order to provide predictability and better facilitate dredged material management alternatives. Our scientific, regulatory, operational, and policy expertise will allow us to comprehensively review, analyze, problem-solve and ultimately recommend changes that will have a direct and positive impact on the Port of Baltimore and the State of Maryland.

Objectives and Strategies

1. (A) Develop a portfolio of end uses of dredged material.

See Table 1 – Table of Uses for Dredged Material

(B) Identify technological advances to help minimize environmental and public health impacts.

- Ensure other efforts and work that is already underway is shared with this Workgroup.

(C) Address any gaps in the scientific characterizations of sediment from the Baltimore Harbor to ensure a thorough synthesis of environmental and public health risks and corresponding regulations that may need to be developed or simply clarified.

- Conduct a review of the sediment studies.
- Conduct a review of the Residential Soil Standards.
- Conduct a review of the quality or composition process in other states.
- Compile existing information and determine what gaps exist.
- In particular, review past and present sediment characterization data from the DMCFs.

See Table 2 – State Comparison Matrix, Technical Screening Criteria

(D) Identify “Best Practices” from other successful innovative and beneficial use programs including differences in regulatory or technical parameters that enabled the project’s success.

- Conduct a review of other states and synthesize what is applicable to Maryland.

See Table 3 – State Comparison Matrix, Definitions/Permitting Structure

2. Apply past lessons learned as well as re-assess past rejections of ideas or potential projects in order to facilitate an ongoing discussion of future viable project proposals.
 - Conduct a review of lessons learned from previous innovative and beneficial use projects in Maryland.

See Appendix 2 – Lessons Learned PowerPoint Presentation

3. Address the question “when is it no longer regulated as dredged material?”
 - Compile the group’s work as they move through the process and toward the final goal.

See Table 4 – Draft Guidance Document for identification of when and how dredged material is acceptable for reuse.

4. Establish a well-defined regulatory pathway or flow chart that clearly shows the environmental/public health permits and/or other approvals necessary should one wish to enter the market of innovative and beneficial reuse of dredged material in Maryland.
 - Create a flow chart of the current MDE regulatory process as it pertains to dredged material.
 - Compile the group’s work as they move through the process and toward the final goal.

See Table 5 – MDE Flow Chart – Regulatory Process

5. Inform the public about the current science available regarding dredged material and specifically in the context of innovative and beneficial reuse projects.
 - Use positive and understandable language during the review process.
 - Coordinate with partners on possible outreach opportunities.
 - Conduct presentations at public outreach/committee meetings.

In addition to a review of the Beneficial Use programs in Pennsylvania, Massachusetts and New Jersey, the workgroup determined that the following state programs should be added to the list for future review: Ohio, Virginia, Oregon, Washington, and California. Further, the workgroup conducted more frequent, in-depth meetings on specific issues within the framework of three separate Workgroup Sub-Committees: Technical Criteria; Statutory/Policy Issues; and Outreach Opportunities.

With these administrative and organizational tools in place, the workgroup explored how Maryland could build upon its current regulations, statutory language, experience with comparable programs and lessons learned from its own best practices as well as those identified in other states.

Key Findings

Throughout this comprehensive review, seven key findings and themes began to emerge:

I. Clear Statutory Authority And Flexible, Yet Explicit Definitions of Key Terms

While Maryland's statute defines both beneficial use of dredged material and innovative reuse of dredged material, there could be opportunities for improvement to better facilitate innovative reuse.⁴

Maryland's definition of Beneficial Use is exclusive to the following five in-water purposes:

1. restoration of underwater grasses;
2. restoration of islands;
3. stabilization of eroding shorelines;
4. creation or restoration of wetlands; and
5. creation, restoration, or enhancement of fish or shellfish habitats

There is no catch-all category or opportunity for "other" environmentally beneficial use purpose projects. Innovative Reuse (as defined in the same section of the statute as beneficial use, pertaining to the regulation of water quality) "includes the use of dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural or other products."

Maryland is the only state examined that utilizes a separate and distinct definition for innovative reuse of dredged material. All other states reviewed, including the U.S. Army Corps of Engineers definition, instead provides an expansive definition of beneficial use, including those uses that Maryland otherwise defines as innovative reuse.

Further, the definition of innovative reuse in Maryland law exists in a section of the Environment Article dedicated to activities in the Chesapeake Bay and waterways as it pertains to regulating water quality. The vast majority of innovative reuse end uses in Maryland are going to be on land, given that the in-water uses are covered by and governed by the definition of beneficial use. Maryland's statutory delineation of what constitutes Baltimore Harbor dredged material, and the management constraints placed on Harbor material by statute, potentially inhibit further economic growth of beneficial and innovative uses of Harbor material outside of the Harbor.

As discussed later in this report, unlike the other programs reviewed, Maryland's statutory constraints on uses of dredged material are not based on specific, technical screening criteria for evaluation of the sediment. Existing Maryland statutory language could inhibit economic growth of innovative and beneficial uses of Harbor dredged material in Baltimore County within five miles of the Hart Miller Island Dredged Material Containment Facility.

In addition, several other states explicitly exclude the definition of dredged material from their definition of Solid Waste. Most notable is New Jersey's successful beneficial use program, which has been growing since the late 1990's when the state actively removed dredged material from the regulatory definition of solid waste. Although Maryland does not regulate dredged material as a solid waste unless it is mixed with solid waste material, it also does not specifically exclude dredged material from the solid waste definition.

⁴ See Table 3 – State Comparison Matrix; Definitions/Permitting Structures

II. Separate Office or Agency Program Dedicated to Beneficial Use (and Innovative Reuses as defined by Maryland statute) and/or Demonstrated a Joint Programmatic Effort between Water/Land/Waste Regulatory Departments

Six of the eight states reviewed had an established office or agency program dedicated to administration of their Beneficial Use program and its permit application or “determination” process. This clear organizational structure allows for several different approaches to streamlined programs permitting a multitude of end uses of Baltimore Harbor dredged material. Some of the programs included specific approvals such as:

- *New Jersey*: Acceptable Use Determinations (AUD), AUD permits, and AUD sites
- *Pennsylvania*: Determination of Applicability and a series of end use General Permits
- *Virginia*: Beneficial Use Demonstrations (BUD); Contaminated Media Variance determination and 3-tier permitting structure
- *Oregon*: Beneficial Use Determinations (BUD)
- *Washington*: Beneficial Use Determinations (BUD)

With extensive input and feedback from the various regulatory administrations within MDE, the Workgroup learned that there are several existing regulatory frameworks currently in place that would regulate certain end uses of dredged material in Maryland⁵. For example:

- Wetlands and Waterways for in-water uses
- Mining Program within Land Management for the upland reclamation of mines with processed or amended dredged material
- Voluntary Cleanup Program (VCP) within Land Management for the upland reclamation of brownfield sites with processed or amended dredged material.
- The Solid Waste program within Land Management Administration for any landfill-related uses (i.e. Daily Cover, Intermediate Cover or Fill for Closure Cap) with unprocessed or processed/amended dredged material.
- Air and Radiation Management Administration (ARMA) for any proposed processing facilities for processed dredged material that could generate air emissions (i.e. kilns, etc.).
- Maryland Department of Agriculture (MDA) for use of unprocessed dredged material as a land amendment for agricultural purposes.
- MDA for use of processed or amended dredged material as manufactured topsoil for landscaping.
- Solid Waste program for any proposed end uses of dredged material that are mixed with either a solid waste or industrial waste.
- Stormwater if upland use that is not contained and does not involve a wetland.
- National Pollutant Discharge Elimination System (NPDES) Program if upland use with containment or leachate collection system that includes a discharge.

III. State Programs Require a Minimum Set of Technical Screening Criteria or Standards that Must be Met

Each of the regulatory frameworks reviewed require some type of testing or chemical analysis of the dredged material as part of the permit application process. Technical screening criteria range from residential and non-residential soil standards to U.S. EPA screening levels.⁶ However,

⁵ See Table 4 – Draft Guidance Document for Maryland

⁶ See Table 2 – State Comparison Matrix – Technical Screening Criteria

several other state residential and non-residential soil standards are not as rigorous as those in Maryland.

In addition, in Maryland, the natural (geological) background levels of some metals are higher than the Maryland soil standards. These limits make it difficult to meet the criteria, therefore restricting innovative or beneficial use options.

Maryland law defines Baltimore Harbor as the area of the Patapsco River and its tributaries lying westward of a line extending from Rock Point in Anne Arundel County to North Point in Baltimore County. As such, Baltimore Harbor dredged material is restricted from use outside of the Harbor unless it is placed in a contained area as approved by MDE. This constraint could significantly impede economic opportunities for the growth of innovative and beneficial use of Harbor material, by prohibiting its use in places around Maryland outside of this statutory geographic boundary and demonstrates the need for Maryland's program to be rooted in appropriate technical screening criteria for acceptable end uses.

IV. Strong Statutory Intent for Beneficial and Innovative Uses of Dredged Material

The legislature in New Jersey enacted language expressly calling for the consideration of the reuse of dredged material in state-funded projects, where appropriate, including but not limited to road construction and other publicly funded remediation projects. New Jersey's robust beneficial use program is supported by the strong signal and tone set by the General Assembly with regard to the expectation of reusing New Jersey Harbor dredged material.

In 2015 Ohio enacted legislation which requires the state to work with the Army Corps of Engineers on developing a long-term plan for dredged material management including beneficial use, habitat restoration, beach nourishment, and other small-scale projects using dewatered dredged material. Massachusetts statute requires all relevant state agencies to adopt a policy calling for the use of dredged material for barrier beach nourishment purposes, if economically feasible.

Maryland's statute provides a similarly strong signal of support in stating that the DMMP Executive Committee shall recommend long-term management plans with innovative reuse and beneficial use of dredged material as the highest ranked placement options. However, due to the fact that the current definition of innovative reuse is placed in a section of statute pertaining to regulating water quality, and in conjunction with the absence of corresponding regulations or detailed Guidance Documents, *there is remaining uncertainty and unpredictability with regard to implementation of innovative reuse in Maryland.*

V. In Advancing Maryland's Innovative and Beneficial Use Program, the Physical and Chemical Characteristics of the Majority of Baltimore Harbor Dredged Material Present Difficult Challenges, Often More Difficult than in Other States

Maryland's dredged material is primarily fine grained estuarine sediments consisting of silts and clays with relatively high salt and sulphate content. Because of these characteristics Maryland's dredged material, when exposed to air, often produces low pH levels (acidification) which creates an environmental concern and results in the leaching of metals. This acidification can potentially be addressed by adding material, such as lime, to increase the pH, by keeping the

dredged material continually wet, or by other means. Appropriate control plans for leaching and pH would need to be proposed to and approved by MDE for the fine grained dredged material.

As discussed above, Maryland state statute does not distinguish between the types of dredged material found within Baltimore Harbor. Not all material from within the Harbor is fine grained estuarine sediment. Some material dredged from Baltimore is high quality sand, which has little or no contaminants and is well suited as a construction fill. Some fine grained sediment was deposited prior to the industrialization of Baltimore Harbor and may contain relatively low levels of organic or inorganic contaminants.

VI. Potential Exists for the Historical Perception of Baltimore Harbor Dredged Material to Hinder Beneficial and Innovative Use

Forty years after the delineation of the Baltimore Harbor as set in statute, there remains the potential for a strong negative public perception surrounding the degree of contamination of Harbor material. Given the history of industrial activity in and around the Port of Baltimore there is no doubt that there are elevated levels of contaminants including metals and organics in areas of the Harbor. However, because of years of maintenance dredging in the federal navigation channels, coupled with greater environmental controls on land implemented over time, not all Harbor dredged material has the same potential for a high degree of contamination.

Statutory constraints currently in place treat all Harbor dredged material in a similar manner, regardless of the physical or chemical characteristics. As demonstrated in the workgroup's review of Maryland's recent process of developing regulations for composting facilities, and as shown in Ohio's multi-year effort to pass beneficial use regulations for dredged material, it is imperative that strong stakeholder engagement be an early and frequent component of advancing Maryland's innovative and beneficial use program.

VII. A Comprehensive Review of MDE's Existing Regulatory Framework Identified Several Gaps, Creating Uncertainty for the Regulated Community

Through the comprehensive review process of the interagency regulatory workgroup, several clear gaps in the regulatory framework were identified which could create liability concerns for the generator of the dredged material as well as the ultimate end user of the dredged material.⁷ Although there are several programs in place at MDE that would regulate certain end uses of dredged material (both unprocessed and processed or amended), the development of a Flow Chart and draft Guidance Document identified several "new" dredged material use or placement scenarios for MDE. In these scenarios the permit or approval requirements are unprecedented.

For example, there is a current gap in the existing regulatory framework for scenarios that involve removing dewatered dredged material from a DMCF and then placing the material on land for a purpose that does not trigger any other type of existing permit or approval (i.e. Wetlands License, Mining Permit, VCP program, NPDES Permit, Stormwater Permit or Landfill permit). More specifically, the following end use scenarios were identified as needing further regulatory clarification:

- Land amendment for agricultural use with unprocessed dredged material directly from the DMCF; consultation with MDA also necessary;

⁷ See Table 5 – MDE Flow Chart – Regulatory Process and Table 4 – Draft Guidance Document for Maryland

- Upland use without containment using unprocessed/un-amended⁸ dredged material of a suitable chemical quality;
- Fill for upland use with containment using unprocessed/un-amended dredged material;
- Upland reclamation with processed or amended dredged material;
- Manufactured topsoil for landscaping with processed or amended dredged material, unless mixed with a solid waste; consultation with MDA also necessary;
- Building materials with processed dredged material from a DMCF; or
- Engineering fill with processed or amended dredged material unless mixed with a solid waste.

This review, in conjunction with an understanding of “best practices” from successful beneficial use programs around the country, has helped identify areas where new environmental policies or regulations in Maryland may better facilitate innovative reuse projects.

Recommendations

1. MDE and MPA should continue review of the existing statutory authority for MDE to regulate innovative and beneficial uses of dredged material. This will help identify areas that may have the unintended consequences of hindering environmentally appropriate innovative and beneficial end uses of dredged material.
2. Based upon further review and discussion, MDE should consider adopting regulations and/or a Regulatory Guidance Document clearly outlining the process, approvals and/or permits needed for implementing innovative or beneficial use projects in an efficient manner. The workgroup recommends this review include:
 - a. Consideration, depending on the conclusions of legal and regulatory review, of an Authorization by Rule structure for certain end uses and for dredged material meeting specific, technical criteria.
 - b. Consideration, depending on the conclusions of legal and regulatory review, of a General Permit approach for the Innovative and Beneficial Use of Dredged Material or a series of General Permits for categories of end uses of dredged material.
 - c. In conjunction with either or both of the approaches outlined above, consideration of when MDE would require site or project-specific permits or approvals that are outside of the authorized uses specified by regulation or a general permit.
 - d. Consideration, if the above approaches are outside of current statutory authority, whether the General Assembly should pass legislation amending the Environment Article (specific Title and Subtitle to be determined) to authorize MDE to adopt regulations governing the innovative reuse and beneficial use of dredged material based on science and technical screening criteria of the material and end uses. These discussions should also continue to include examination of explicitly excluding dredged material from MDE’s definition of “solid waste”.

⁸ The workgroup defines unprocessed or un-amended dredged material as that material that has been dewatered and removed from a DMCF only. The dredged material has not been processed or mixed with any additives.

- e. MDE should consider establishing a single point of contact for all innovative and beneficial use of dredged material related questions from the public and continue to assign at least one person to administer an Innovative and Beneficial Use of Dredged Material program.
3. The workgroup recommends development of appropriate technical screening criteria for evaluation of innovative and beneficial uses of dredged material, including Baltimore Harbor dredged material. Building upon the Independent Technical Review Team (ITRT) Report *Sediment in Baltimore Harbor, 2009*, recommendation MDE should consider alternate criteria for dredged material that are protective of public and environmental health.
4. The workgroup should expound upon previous and ongoing outreach efforts and create resources available to the general public, as well as the private sector that may be interested in pursuing innovative and beneficial use projects, on the technical characteristics of dredged material as well as the public health and environmental protections that will be in place. The MPA should continue to work extensively with stakeholders to develop a comprehensive public outreach and education campaign promoting the understanding of and opportunities for the successful reuse of dredged material.
5. The DMMP Executive Committee should call for state agencies to consider the innovative and beneficial use of dredged material in state-funded projects, where appropriate, including but not limited to transportation-related projects and publicly funded site-remediation projects.

Conclusion

This report represents the initial phase of recommendations for advancing a clearer and more predictable framework for regulating the innovative and beneficial uses of dredged material in Maryland. The interagency workgroup and its three sub-committees have met regularly, in a spirit of cooperation and collaboration, to discuss important areas of regulatory uncertainty that could be perceived as barriers to the facilitation of a robust and growing innovative and beneficial use program in Maryland. Recent discussions with MDE and its various regulatory administrations, including development of the draft Guidance Document and review of statutory authority, have not only been instructive to the work of the interagency workgroup but also demonstrate that MDE acknowledges regulatory uncertainty for several important potential uses of dredged material.

The interagency workgroup looks forward to continued cooperation and resolution with State agency staff, the DMMP committees and stakeholders, throughout the ongoing process of developing and implementing final policy recommendations and public education/outreach materials. The MPA will continue to work together with MDE and other State agencies where needed and appropriate in drafting legislation, regulations, a Regulatory Guidance Document and/or educational materials. Furthermore, the interagency workgroup remains committed to engaging with the public and all relevant stakeholders throughout every step of this process in

order to ensure a most successful future for the innovative and beneficial use of dredged material in Maryland.

Tables

Table 1 – Table of Uses of Dredged Material

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Table 4 – Draft Guidance Document for Maryland

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Appendix 13 – Ohio Beneficial Use Policies Overview – PowerPoint Presentation

<p>Uses of Unprocessed Dredged Material</p>	<p>Technical Criteria</p>	<p>Approval(s) Needed Note: Some applications could occur at a DMCF Facility. Would those applications be handled under the facility's operating permit (NPDES or WQC)?</p>
<p>Land amendment for agricultural use</p> <p>Example:</p> <p style="color: red; text-align: center;">A</p>	<p>Assume criteria that would apply would require a plan for preventing pollution to waters of the state (surface and groundwater), similar to Landfills (see below). Necessitates proof of ability to support vegetation. Assume needs to show that agricultural vegetation will not bio-accumulate contaminants. May require adherence to Maryland's Voluntary Clean-up Program (VCP)...see note 1.</p>	<p>Lead Program(s): MDE Wetland and Waterways Program, Wastewater Discharge Program, and/or MDA.</p> <p>This table may need to be further broken down into sections depending on where the dredged material is coming from. Specifically, if you are transporting the dredged material directly from the dredging site to the agricultural amendment site, then a Wetlands License is necessary for that dredging and placement. Also, if there is a discharge to surface waters from the agricultural site, the wetlands license would contain conditions for that. <u>However, if the material for land amendment is coming from a contained disposal facility where it has already been dewatered, then there is currently no formal approval process for that (i.e., this could be considered a regulatory gap) as it was already permitted when it was dredged and there are no more surface water discharges associated with dried material.</u> There are two ways to close this regulatory gap – (1) we can either start to put conditions in wetlands licenses/WQCs or NPDES permits that when dredged material is removed from those facilities, Departmental approval is required; or, (2) we could propose specific regulations to cover this gap similar to what has been done in other states.</p> <p>Consult with MDA on approvals and process? Guidance, links to MDA's regulations, MDA contact information, and application forms are available here: http://mda.maryland.gov/plants-pests/Pages/state_chemist.aspx</p>
<p>Aquatic habitat creation, restoration or enhancement</p> <p>Example: restoration of underwater grasses,</p>	<p>COMAR 26.24.03.05 Covers requirements for both open water and beneficial use of dredged material. Section B of the regulation requires for open water placement that chemical and physical parameters be analyzed and submitted (note that</p>	<p>Lead Program: MDE Wetlands & Waterways (potential challenge; Rock Pt./North Pt. Line)</p> <p>Wetlands License/WQC will likely also require turbidity limits outside the mixing zone (50 NTU avg./150 max.); and, a detailed WQ monitoring plan for during and post construction.</p>

<p>creation or restoration of wetlands</p> <p style="text-align: center;">B</p>	<p>open water placement is currently not allowed). For beach nourishment or marsh creation (i.e. beneficial uses) chemical testing is not required, but no adverse impacts to navigation, oyster bars, or fisheries are allowed, thus may assume some requirement for chemical testing. For these projects, the dredged material sediment size must be equal to or larger than sediments at the placement location, unless measures are taken to control sediment movement; and the dredged material must be relatively free of organic material. In addition, the dredged material may not contain more than 10 percent silts and clays unless measures are taken to control the material's movement. There are no specifics on chemical constituent analyses.</p>	
<p>Upland habitat restoration</p> <p>Example: restoration of islands</p> <p style="text-align: center;">C</p>	<p>See previous (Aquatic Habitat): assume Aquatic habitat criteria would apply because placement to restore islands would be in the waters of the state. Upland placement, considered as beach restoration above Mean High Tide, would necessarily encroach on State waters (below MHT).</p>	<p>Lead Program: MDE Wetlands & Waterways (potential challenge; Rock Pt./North Pt. Line)</p> <p>Since you are discharging dredged material back into the water, a wetlands license and/or WQC is required. Typical conditions for these types of wetlands licenses/WQCs include: limits for TSS in discharge (400 avg./800 max.) and turbidity outside the mixing zone (50 NTU avg./150 max.), and a detailed WQ monitoring plan for both construction and operation. If the island restoration is in the Harbor and with Harbor material, it would be regulated under a state discharge permit.</p>
<p>Fill for landfill daily cover with containment</p> <p style="text-align: center;">D</p>	<p>(Municipal Landfills)COMAR 26.04.07.10 Must be at least 6 inches in depth. Must not contain free liquids, putrescibles, or toxic materials, must not create dust, must not impede compaction (i.e. be slippery or thixotropic). Regarding toxics, MDE appears to require an analysis for total concentrations of metals, VOCs, SVOCs, pesticides and herbicides....but no specifics are indicated.</p> <p>(Sanitary and Rubble Landfills)COMAR</p>	<p>Lead Program: MDE Solid Waste</p> <p>MDE would need a request from the landfill that wanted to use it; revised operations manual; and physical and chemical characterization of the material. If acceptable this would result in a minor permit amendment. Depending on the chemistry of the material, there might be limitations on its use, e.g., restrictions on placing it on the outslopes where it could erode off or leach out contaminants into surface water. Time for review and approval is a few weeks, depending on the nature of the request and completeness of the information provided.</p>

	<p>26.04.07.16 Requires submitting a plan for volume and type of cover material, and the volume for “periodic” cover. Requires a plan for preventing or mitigating pollution of the waters of the State, including a monitoring system from which samples are to be collected periodically....but no specific limits are indicated. See Note 2.</p> <p>Question: is a TCLP or SPLP required and utilized by MDE?</p>	<p>MDE would require both TCLP and total analyses for a suite of metals and other parameters. Note that for landfill use the TCLP is the appropriate test – it was designed to model the behavior of a material in the environment of a sanitary landfill, where weak organic acids are present in the leachate. The SPLP is an attempt to model the behavior of materials by themselves, where they encounter the inorganic acids usually present in rainfall.</p> <p>MDE has the authority to specify the number and location of monitoring points, the parameters monitored, and the methods and frequency of monitoring that is required. See COMAR 26.04.07.09F:</p> <p>“F. Additional Monitoring Requirements. If the Department determines that contamination of waters of this State has occurred or is liable to occur as a result of operation of the landfill, the Approving Authority may require the permit holder to periodically collect and analyze ground water or surface water at the permitted site and to submit the results to the Approving Authority. The Approving Authority may furthermore specify the following:</p> <ul style="list-style-type: none"> (1) Number and location of the sampling stations; (2) Frequency of the analyses; (3) Sampling and analyses procedures; (4) Pollutants to be monitored; and (5) Reporting period.”
<p>Fill for Landfill Intermediate and Closure cap</p>	<p>(Municipal Landfills)COMAR 26.04.07.10 Intermediate: Must be not less than 1 foot in depth.</p>	<p>Lead Program: MDE Solid Waste We would need a request from the landfill that wanted to use it; revised operations manual; and physical and chemical</p>

<p style="text-align: center;">E</p>	<p>Final: Must be not less than 2 feet in depth. No specifications regarding liquids or toxics, but assume that the daily cover requirements apply. These covers need to be able to support vegetation.</p> <p>(Sanitary and Rubble Landfills)COMAR 26.04.07.16</p> <p>Requires submitting a plan for volume and type of cover material, and the volume for “intermediate and final” cover.</p> <p>Requires a plan for preventing or mitigating pollution of the waters of the State, including a monitoring system from which samples are to be collected periodically.but no specific limits are indicated. See Note 2.</p> <p>Question: is a TCLP or SPLP required and utilized by MDE?</p>	<p>characterization of the material. If acceptable this would result in a minor permit amendment. Depending on the chemistry of the material, there might be limitations on its use, e.g., restrictions on placing it on the outslopes where it could erode off or leach out contaminants into surface water. Time for review and approval is a few weeks, depending on the nature of the request and completeness of the information provided.</p> <p>We would require both TCLP and total analyses for a suite of metals and other parameters. Note that for landfill use the TCLP is the appropriate test – it was designed to model the behavior of a material in the environment of a sanitary landfill, where weak organic acids are present in the leachate. The SPLP is an attempt to model the behavior of materials by themselves, where they encounter the inorganic acids usually present in rainfall.</p> <p>ALSO, for intermediate and final, they will need to prove that the material can support vegetative stabilization, or develop procedures that render it capable of doing so.</p>
<p>Fill for upland use with containment (ex. of containment is leachate collection)</p> <p>Example:</p> <p style="text-align: center;">F</p>	<p>Assume criteria that would apply would require a plan for preventing pollution to waters of the state (surface and groundwater), similar to Landfills. See Note 2.</p> <p>MDE Voluntary Cleanup Program constituent limits may apply (e.g. metals and organics). See Note 1.</p>	<p>Lead Program: ?</p> <p>It is not a solid waste. Currently a regulatory gap, unless it is coming right from the dredge site and there is a discharge back to surface waters. However, placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered.</p>
<p>Upland Use, without containment, (physical and chemical quality deemed suitable)</p>		<p>Lead Program: ?</p> <p>Amendment to existing DMCF permit if going to be used or placed elsewhere within DMCF property which already has a permit to operate.</p> <p>Stormwater permit?</p>

<p>Example: dredged sand used for construction, fill or soil amendment purposes. Potentially used for DMCF dike construction</p> <p style="text-align: center;">Z</p>		
<p>Use of Amended (or Processed) Dredged Material</p>	<p>Technical Criteria</p>	<p>Approval(s) Needed Note: Some applications could occur at a DMCF Facility. Would those applications be handled under the facility's operating permit (NPDES or WQC)?</p>
<p>Upland reclamation</p> <p>Example: fill or soil cover for residential sites</p> <p style="text-align: center;">G</p>		<p>Lead Program: ? It is not a solid waste. Currently a regulatory gap, unless it is coming right from the dredge site and there is a discharge back to surface waters. However, placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered.</p>
<p>Manufactured topsoil for landscaping</p> <p><i>Example: mixed with an additive that binds the contaminants</i></p> <p style="text-align: center;">H</p>		<p>Lead Program: MDA??? If mixed with Solid or Industrial Waste as the binder, MDE/LMA would regulate. If not you are also probably taking dried material out of a facility which creates a regulatory gap (i.e., no wetlands license/WQC or state discharge permit required) as described above in other responses. Should consult MDA.</p>
<p>Building materials</p> <p><i>Example: aggregate; processed to a high temperature which binds the contaminants</i></p>		<p>Lead Program: ??? MDE/ARMA would regulate air emissions associated with processing equipment (kilns, etc.). Likely using dried materials from a dredge facility so no wetlands license/WQC or state discharge permit required as described above in other responses. If mixing with solid or industrial waste, MDE/LMA</p>

<p>I</p>		<p>would also need to approve use. If no air emissions or mixing with waste, this would create a regulatory gap.</p>
<p>Upland reclamation</p> <p><i>Example: cover for industrial sites such as mines, gravel pits, brownfields</i></p> <p>J</p>		<p>Lead Programs: MDE Voluntary Cleanup Program (LMA) for brownfields uses MDE Mining Program (WMA) for mine reclamation (Need Ed Larrimore's input, potentially Dr. Tien also) Note that placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered.</p> <p>How are approvals issued; letter approval, specific permit or permit amendment? For mine reclamation, the use would have to be authorized in the Mining Permit. An analysis of the material would be required and the material would not be allowed to exceed original elevation at the site. Note that placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered.</p> <p>For Brownfield clean ups you would need to meet the appropriate residential or nonresidential clean up standards and then MDE issues a No Further Requirements Determination or Certificate of Completion</p>
<p>Engineering fill</p> <p><i>Example: base material</i></p> <p>K</p>		<p>Lead Program: MDE Solid Waste (if mixed with solid waste) What approvals are needed if it is not mixed with solid waste and from which MDE Program are those approvals issued? As described above, this is currently a regulatory gap If not mixed with solid or other defined waste and using already dried material from an existing dredge facility.</p>
<p>Fill for landfill daily cover with containment</p>		<p>Lead Program: MDE Solid Waste What specific approvals are necessary; permit amendment, approval letter to MDE?</p>

L		See responses regarding landfills, above.
Fill for Landfill Intermediate and Closure cap M		Lead Program: MDE Solid Waste What specific approvals are necessary; permit amendment, approval letter to MDE? See responses regarding landfills, above.
Other uses	Technical Criteria	Approval(s) Needed Note: Some applications could occur at a DMCF Facility. Would those applications be handled under the facility's operating permit (NPDES or WQC)?

Based on Table 5, Page 21 *Sediment in Baltimore Harbor – Quality and Suitability for Innovative Reuse*, An Independent Technical Review, October 2009 http://www.mdsg.umd.edu/sites/default/files/files/Dredge_Report_and_Appendices_Web.pdf

Notes:

- 1- Voluntary Cleanup Program (VCP) – the specific levels for metals and organics associated with this program are utilized for industrial sites and brownfields ,related to residential and non-residential uses post “clean-up” [We have seen these in the 2009 Sediment in Baltimore Harbor report]
- 2- MD groundwater standards for various contaminants fall into three categories, based on federal guidelines:
 - a. Primary Standards are legally enforceable standards that apply to public water supplies
 - b. Secondary standards are non-enforceable guidelines related to cosmetic or aesthetic effects but are not considered a risk to public health
 - c. Health Advisory Standards apply to non-cancerous health effects that may occur over specific durations (e.g. one-day, ten-day, lifetime) to assist in determining the potential for risk to public health.

These standards may be applied by MDE in determining if contamination of the state’s waters has occurred, but cannot be applied *a priori* to placement of dredged sediments because of uncertainty regarding the dissolution, mobilization and movement of any specific constituent. The potential for contamination of groundwater may be arrived at from a leaching test such as the Toxicity Characterization Leaching Test (TCLP) or the Synthetic Precipitation Leaching Test (SPLP).

COMPARISON OF STANDARDS

TABLE 3

	Metals Standards (mg/kg)																																
	Al	Sb	As	Ba	Be	B	Cd	Ca	Cl-	Cr			Co	Cu	Fe	Pb	K	Mg	Mn	Hg			Mo	Ni	Se	Ag	Sulfate	Sulfide	Tl	Sn	V	Zn	
											III	VI	Total								Inorganic	Hg	Methylmercury										
MD Residential Clean up	7800	3.1	0.43	1600	16		3.9					23		310	5500	400			160		2.3			160	39	39			0.55	4700	7.8	2300	
MD Non- Residential Clean up	100000	41	1.9	20000	200		51					310		4100	72000	1000			2000		31			2000	510	510			7.2	61000	100	31000	
ITRT Criteria - Residential		3.1	20		16		3.9					70		8.0	310						2.3			160	39	39			0.55	4700	90	2300	
ITRT Criteria - Non-Residential		41	20		200		51					310		8.0	4100						31			2000	510	510			7.2	61000	100	31000	
NJ Residential Soil Clean up	NA	14	20	700	1.0		1.0					NA		NA	600	NA			NA		14			250	63	110			2.0		370	1500	
NJ Residential Direct Contact Soil Remediation	78000	31	19	16000	16		78					1600		3100					11000		23			1600	390	390			5.0		78	23000	
NJ Non- Residential Soil Clean up		340	20	47000	1.0		100					NA		NA	600	NA			NA		270			2400	3100	4100			2.0		7100	1500	
NJ Non-Residential Direct Contact Soil Remediation	NA	450	19	59000	140		78					590		45000					5900		65			23000	5700	5700			79		1100	110000	
EPA Region 3 Industrial Soil RBC's		40.9	1.91		204.4		51.1					306.6		4088	30600	1000			2044		30.66			2044	511	511			7.15	61320		30660	
MA Beach Nourishment			0.5									1			1						0.02			1								1.0	
MA Surface Water Quality																																	
MA Lined Landfill Reuse			40									1000				2000					10												
VA Protection of GWand Ecological Receptors - Beneficial Fill Ecological Screening		0.27	18	330	21		0.36					26		13	28		11		4400	220	0.1	0.058	0.00158		38	0.52	4.2		0.001		7.8	46	
VA Protection of GWand Ecological Receptors - Beneficial Fill GW Screening	24000	2.71	2.91	822	32		3.75					19.1		21.2	5750	276	135		20.8		1.04			19.5	2.55	59.6			1.42		78	292	
VA Soil: Residential and Other High frequency Receptors	7700	3.1	0.39	1500	16		7				12000	0.29		2.3	310	5500	400		180		2.3	1.0	0.78		150	39	39		0.08		39	2300	
VA Soil: Restricted (Commercial/Industrial)	99000	41	1.6	19000	200		80				150000	5.6		30	4100	72000	800		2300		31	4.3	10		2000	510	510		1.0		520	31000	
PA Manufactured Soil or Soil Amendment		6.75	29	15000	440	20000	47	NEL	NEL		1200	94		4400	1500	66000	500		31000		66			18	420	1100	1100	NEL	500	15	1500	2800	
PA Manufactured Soil or Soil Amendment Leachate	5.0	0.15	0.25	50	0.1	7.0	0.125	NEL	NEL		NEL	NEL	2.5	17.5	25	7.5	0.375		2.5		0.05			2.5	1.0	2.5	500	NEL	0.0125		6.5	50	
PA Roadway Construction Concrete Aggregate		30	41	5000	2.0		20					1000			700						20			200	60	5.0			6.0		1000		
PA Mine Reclamation	NEL	30	41	5000	6.0	60.0	39	NEL	NEL			30	2500	NEL	1500	NEL	200	NEL	NEL		20			NEL	420	60	5.0	NEL	500	6.0		72	2800
PA Mine Reclamation Processed Waste	NEL	30	41	5000	6.0	60.0	39	NEL				30	2500	NEL	1500	NEL	200	NEL			20			NEL	420	60	5.0	NEL	500	6.0		72	2800
PA Processing Beneficial Use of Residential Waste	190000	27	53	8200	320	6.7	38				190000	190		22	36000	190000	450		190000		10			650	26	84			14	680	72000	12000	
PA Regulated Fill Concentrations Limits (WMGR096)	190000	27	53	8200	320	6.7	38				190000	190		22	36000	190000	450		190000		10			650	26	84			14	680	72000	12000	
WA DMMP - Screening Level (Marine)		150	57				5.1					260			390						0.41								6.1			410	
WA DMMP - Bioaccumulation Trigger (Marine)			507.1				11.3					260			1027						1.5					3	6.1					2783	
WA DMMP - Maximum Level (Marine)		200	700				14								1300						2.3								8.4			3800	
WA DMMP - Screening Level 1 (Freshwater)			14				2.1					72			400						0.66			38	11	0.57						3200	
WA DMMP - Screening Level 2 (Freshwater)			120				5.4					88			1200						0.8			110	>20	1.7						>4200	
CA Wetland Cover (Bay Area)			15.3				0.33					112			68.1						0.43			112	0.64	0.58						158	
CA Wetland Foundation/Non-Cover (Bay Area)			70				9.6					370			270						1.3			200	1.4	3.7						410	
CA Wetland Levee Maintenance/Construction Fill (Bay Area)			40				12					750			225						10			150	10	40						600	
CA CAD ERL (So Cal)			8.2				1.2					81			34						0.15			20.9		1						150	
CA CAD ERM (So Cal)			70				9.6					370			270						0.71			51.6		3.7						410	

	Organics (mg/kg)			
	benzo(a)pyrene	dibenz(a,h)anthracene	CN-	
			Total	Free
MD Residential Clean up	0.022	0.022		160
MD Non- Residential Clean up	0.39	0.39		2000
ITRT Criteria - Residential	0.022	0.022		
ITRT Criteria - Non-Residential	0.39	0.39		
NJ Residential Soil Clean up	0.66	0.66		1100
NJ Residential Direct Contact Soil Remediation				
NJ Non- Residential Soil Clean up	0.66	0.66		21000
NJ Non-Residential Direct Contact Soil Remediation				
EPA Region 3 Industrial Soil RBC's				
MA Beach Nourishment				
MA Surface Water Quality Standards				
MA Lined Landfill Reuse (BWP)				
VA Protection of Groundwater and Ecological Receptors - Beneficial Fill Ecological Screening	1.1	1.1		0.005
VA Protection of Groundwater and Ecological Receptors - Beneficial Fill Groundwater Screening	8.87	42.7		20
VA Soil: Residential and Other High frequency Receptors	0.02	0.02		4.7
VA Soil: Restricted (Commercial/Industrial)	0.21	0.21		61
PA Manufactured Soil or Soil Amendment Standards	2.5	2.5		4400
PA Manufactured Soil or Soil Amendment Leachate Standards	0.0002	0.00009		0.2
PA Roadway Construction Concrete Aggregate Standards	1.8	0.6	20	
PA Mine Reclamation Standards	1.8	0.6		20
PA Mine Reclamation Processed Waste Standards	1.8	0.6		20
PA Processing Beneficial Use of Residential Waste	11	11		200
PA Regulated Fill Concentrations Limits (WMGR096)	11	11		200

- KEY:**
- ITRT - Independent Technical Review Committee (Sediment in Baltimore Harbor 2009 Report)
 - RBC - Risk Based Concentration
 - NEL - No Effects Level
 - GW - Groundwater
 - DMMP - Dredged Material Management Program
 - CAD - Confined Aquatic Disposal
 - ERL - Effects Range Low
 - ERM - Effects Range Median
 - So Cal - Southern California

DRAFT GUIDANCE DOCUMENT

1. **Proposed Use:** Land Amendment for Agricultural Use with Unprocessed dredged material directly from dredging site. *(Use A1 on Corresponding Flow Chart)*
 - **Approvals Needed:** MDE Wetland and Waterways Program, Wastewater Discharge Program and/or MDA.
 - The Wetlands License will be necessary for both the dredging and placement.
 - If there is a discharge to surface waters from the agricultural site, the Wetlands License contain conditions for that as well.
 - MDA office of the Chemist should also be consulted. Regulations/permits likely also apply.
2. **Proposed Use:** Aquatic habitat creation, restoration or enhancement with Unprocessed dredged material (currently within scope of definition of Beneficial Use). *(Use B on Corresponding Flow Chart)*
 - **Approvals Needed:** MDE Wetlands and Waterways
 - Wetlands License/WQC will likely also require turbidity limits outside the mixing zone (50 NTU avg./150 max); and a detailed water quality monitoring plan for during and post construction.
3. **Proposed Use:** Upland habitat creation with Unprocessed dredged material (currently within scope of definition of Beneficial Use). *(Use C on Corresponding Flow Chart)*
 - **Approvals Needed:** MDE Wetlands and Waterways.
 - Since you are discharging dredged material back in to the water, a wetlands license and/or WQC is required. Typical conditions include: limits for TSS (400 avg/800 max) and turbidity outside the mixing zone (50 NTU avg/150 max) and a detailed water quality monitoring plan for both construction and operation.
 - If island is restoration is in the Harbor and with Harbor material, it would be regulated under a state discharge permit.
4. **Proposed Use:** Fill for Landfills (daily, intermediate, final closure cap) with Unprocessed or Amended/Processed dredged material. *(Uses D, E, L, and M on Corresponding Flow Chart)*
 - **Approvals Needed:** MDE Solid Waste
 - DAILY COVER: MDE would need a request from the landfill that wanted to use it; revised operations manual; and physical and chemical characterization of the material.
 - If acceptable this would result in a minor permit amendment.
 - Depending on the chemistry of the material, there might be limitations on its use, e.g., restrictions on placing it on the out slopes where it could erode off or leach out contaminants into surface water.

- Time for review and approval is a few weeks, depending on the nature of the request and completeness of the information provided.
- MDE would require both TCLP and total analyses for a suite of metals and other parameters. (Note that for landfill use the TCLP is the appropriate test – it was designed to model the behavior of a material in the environment of a sanitary landfill, where weak organic acids are present in the leachate. The SPLP is an attempt to model the behavior of materials by themselves, where they encounter the inorganic acids usually present in rainfall.)
- MDE has the authority to specify the number and location of monitoring points, the parameters monitored, and the methods and frequency of monitoring that is required. See COMAR 26.04.07.09(F):

“F. Additional Monitoring Requirements. If the Department determines that contamination of waters of this State has occurred or is liable to occur as a result of operation of the landfill, the Approving Authority may require the permit holder to periodically collect and analyze ground water or surface water at the permitted site and to submit the results to the Approving Authority. The Approving Authority may furthermore specify the following:

- (1) Number and location of the sampling stations;
- (2) Frequency of the analyses;
- (3) Sampling and analyses procedures;
- (4) Pollutants to be monitored; and
- (5) Reporting period.”

- INTERMEDIATE AND CLOSURE CAP: same as above plus for intermediate and final the landfill will need to prove that the material can support vegetative stabilization, or develop procedures that render it capable of doing so.

5. Proposed Use: Upland **mine** reclamation with Amended or Processed Dredged Material. *(Use J on Corresponding Flow Chart)*

- **Approvals Needed:** MDE Mining Program (LMA); Mining Permit
 - For mine reclamation, the use would have to be authorized in the Mining Permit. An analysis of the material would be required and the material would not be allowed to exceed original elevation at the site.
 - Note that placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered.

6. **Proposed Use:** Upland **brownfield** reclamation with Amended or Processed Dredged Material. *(Use J on Corresponding Flow Chart)*

- **Approvals Needed:** MDE Voluntary Cleanup Program (VCP)(LMA) for brownfield uses.
 - For Brownfield clean ups you would need to meet the appropriate residential or nonresidential clean-up standards. Then MDE issues a No Further Requirements Determination or Certificate of Completion.
 - With regard to brownfield sites, or any other site where the sediment is going to be placed on the land, it is important to know in advance whether the presence of hazardous substances in the dredged material is (1) greater than naturally occurring background concentrations; or (2) present an exposure risk to populations using the property where the material is placed

NEED FOR GUIDANCE / IDENTIFIED REGULATORY GAP

7. **Proposed Use:** Land Amendment for Agricultural Use with Unprocessed dredged material directly from the DMCF. *(Use A2 on Corresponding Flow Chart)*

- **Notes:** if the material for land amendment is coming from a contained disposal facility where it has already been dewatered, then there is currently no formal approval process for that (i.e., this could be considered a regulatory gap) as it was already permitted when it was dredged and there are no more surface water discharges associated with dried material.
 - There are three ways to close this regulatory gap –
 - (1) Put conditions in a DMCFs wetlands licenses/WQCs or NPDES permits that when dredged material is removed from those facilities, Departmental approval is required;
 - (2) An NPDES Permit or Stormwater Permit could be issued at the location the material is to be used; or,
 - (2) Propose specific regulations to cover this gap similar to what has been done in other states.

8. **Proposed Use:** Upland use without containment with Unprocessed dredged material of a suitable physical and chemical quality. *(Use Z on Corresponding Flow Chart)*

- **Notes:** if material was removed from a DMCF and then used in an upland area, for construction, fill or soil amendment purposes, assuming suitable quality, there should be no additional need for containment, leachate, or otherwise. Meeting appropriate criteria, this material should be considered the same as any other soil.
 - Potentially a Stormwater Permit could be issued at the location the material is to be used;
 - Potentially amend the DMCF operations permit to capture this expanded use of the material elsewhere on location at the DMCF site.

9. **Proposed Use:** Fill for upland use with containment (i.e. leachate collection system) with Unprocessed dredged material. Placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered. *(Use F on Corresponding Flow Chart)*
- **Notes:** The dredged material, which is unprocessed and un-amended, even if it is Harbor dredged material, is not considered a solid waste.
 - This regulatory gap could be addressed by-
 - (1) Requiring an NPDES Permit for the upland containment facility (this assumes that no non-tidal wetland impacts would occur). This assumes the containment facility would have a discharge since it has a leachate collection system.
10. **Proposed Use:** Upland reclamation with Processed or Amended dredged material (example: fill or soil cover for residential sites). Placement that impacts surface or groundwater quality would represent a release of pollutants to the Waters of the State - a violation of Maryland law that would be subject to enforcement action once discovered. *(Use G on Corresponding Flow Chart)*
- **Notes:** this dredged material would be processed or amended with some type of binder.
 - This regulatory gap could be addressed by:
 - Issuance of a stormwater permit. .
11. **Proposed Use:** Manufactured topsoil for landscaping with Processed or Amended dredged material (example: mixed with an additive that binds the contaminants). Taking the dredged material out of a DMCF and not directly from the dredging site creates a regulatory gap (i.e. no wetlands license or WQC or state discharge permit required). *(Use H on Corresponding Flow Chart)*
- **Notes:** if mixed with solid or industrial waste as the binder then Land Management Administration's Solid Waste Program would regulate.
 - This regulatory gap could be addressed by:
 - New Solid Waste Program regulations/guidance (similar to composting, sewage sludge and other existing regulatory programs)
 - Consultation with MDA?.
12. **Proposed Use:** Building materials with processed dredged material (example: aggregate is created when the dredged material is processed to a high temperature which binds the contaminants). *(Use I on Corresponding Flow Chart)*
- **Notes:** Lead office within MDE unclear. This could be identified as an "authorized use" in Solid Waste Program regulations (similar to what is expected to be proposed in the CCB Beneficial Use regulations).
 - MDE/ARMA would regulate air emissions associated with processing equipment (kilns, etc)

- Likely using dried dredged material removed from a DMCF, so no wetlands license or WQC or state discharge permit is required so this creates a regulatory gap.
 - There is no regulatory gap if there is no discharge from the application or use.
- If mixing with a solid or industrial waste, MDE/LMA would need to approve.
- If no mixing with waste and no air emissions, this would be a regulatory gap.

13. Proposed Use: Engineering fill with Processed or Amended dredged material (example: base material). This could be identified as an “authorized use” in Solid Waste Program regulations (similar to what is expected to be proposed in the CCB Beneficial Use regulations). *(Use K on Corresponding Flow Chart)*

- **Notes:** MDE Solid waste Program would be lead office only if mixing the dredged material with a solid or industrial waste.
 - Regulatory gap if not mixed with a waste.

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TABLE 5

Existing MDE Regulatory Process

Green = known regulatory process involved.

Yellow box = area of regulatory uncertainty

Red dotted line = current regulatory gap



Obtain a Tidal wetlands License and WQC before Dredging/Placement

Bolded/Underlined letters indicates the material is mixed with industrial or solid waste.

Obtain State discharge permit or appropriate MDE approval.

