DEPARTMENT OF TRANSPORTATION
STATE OF MARYLAND

MARYLAND PORT ADMINISTRATION

COX CREEK
DREDGED MATERIAL CONTAINMENT FACILITY
OPERATIONS PLAN

Draft: August 8, 1999

Prepared by

Maryland Environmental Service
2011 Commerce Park Drive
Annapolis, Maryland 21401

MPA Contract No. 596815

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2 Rules and Regulations
3 Unexploded Ordnance Policy and Procedures

GLOSSARY

CDF	Confined Disposal Facility
CENAB	Baltimore District, U.S. Army Corps of Engineers (Corps of Engineers, North Atlantic, Baltimore)
DMCF	Dredged Material Containment Facility
EPA	Environmental Protection Agency
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MDOT	Maryland Department of Transportation
MES	Maryland Environmental Service
MLLW	Mean Lower Low Water
MPA	Maryland Port Administration
OPLAN	Operations Plan
QA/QC	Quality Assurance and Quality Control
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USACE	U.S. Army Corps of Engineers
WES	U.S. Army Engineer Waterways Experiment Station

1.0 INTRODUCTION

1.1 Purpose.

1.1.1 This operations plan provides the operational requirements, policies, and procedures for the operation of the Cox Creek Dredged Material Containment Facility (DMCF) which is located in Anne Arundel County, Maryland. Operation of the DMCF will be conducted in accordance with the provisions of this operations plan (OPLAN), except when temporary deviations are authorized by cognizant authority to accommodate unusual or emergent operating conditions or operational situations.

1.1.2 Cognizant authority is hereby defined to be:

- the Project Sponsor(s) for contractual matters;
- the Facility Operator, in consultation with the Project Sponsor(s), as practicable, for operating conditions and operational situations; and,
- appropriate regulatory authorities for regulatory compliance.

1.1.3 The term facility as used in this OPLAN refers to the Cox Creek DMCF.

1.2 Applicability. The provisions of this OPLAN and the Cox Creek DMCF Rules and Regulations (Attachment 2) apply to the operation and maintenance of the Cox Creek DMCF and are binding on all parties involved in operating or using the facility.

1.3 Facility Owner. The Cox Creek DMCF and the adjacent upland natural area (formerly CSX property) and the industrial site immediately to the west of the DMCF (formerly Cox Creek Refining Company) are state-owned properties. Title is held by the Maryland Port Administration (MPA), the marine modal of the Maryland Department of Transportation (MDOT).

1.4 Project Sponsor(s). Operation of the Cox Creek DMCF is sponsored by the Maryland Port Administration.

1.4.1 Joint federal-state sponsorship of the project has been requested by the MPA under the terms of the Water Resources Development Act (WRDA) of 1996. If joint federal-state sponsorship with participation by the U.S. Army Corps of Engineers (USACE) is approved and implemented, then lead responsibility for sponsorship of facility operation will shift to the Baltimore District, USACE (CENAB).

1.4.2 This OPLAN has been developed insofar as practicable to accommodate either state or joint federal-state sponsorship. Except as provided for in this OPLAN,

State of Maryland rules, regulations and policies are applicable for a state-sponsored facility. If Federal co-sponsorship is established, then this OPLAN will be modified as appropriate for consistency with USACE rules, regulations and policies as they pertain to operation of confined disposal facilities. (See Sections 4.1.1, 5.3.2)

1.5 Facility Operator.

1.5.1 The facility may be operated by the MPA, as determined by the Project Sponsor(s).

1.5.2 The Facility Operator may be contracted through the MPA (for a jointly sponsored project).

1.5.3 The Facility Operator, including a description of the organization, will be listed in Appendix A. The contracted Facility Operator is responsible for preparing Appendix A and providing it to the Project Sponsor(s) for approval prior to inclusion in the OPLAN.

1.5.4 The Facility Operator is responsible for providing contracted services, which will include the general scope of services specified in Appendix B.

1.6 Goals and Objectives. The Cox Creek DMCF is a previously used confined disposal facility. The goal of reactivating the facility is to provide confined disposal for the placement of sediments dredged from Baltimore Harbor. The operational goal is to provide safe, economical, and environmentally sound management of dredged material that is considered to be contaminated.

1.6.1 Primary Objective. To provide for confined disposal of up to six million cubic yards of sediments from Baltimore Harbor that are defined by state law to be contaminated, optimizing the capacity potential to the maximum extent practicable.

1.6.2 Supporting Objectives:

- To provide environmentally sound confined disposal for contaminated sediments consistent with applicable State and Federal regulatory requirements.

- To obtain maximum economic efficiency of operation for the Project Sponsor(s) and the State of Maryland.

1.7 General Operational Concept.

1.7.1 The Cox Creek DMCF has been modified for single cell operation.

1.7.2 The sponsor-authorized annual placement cycle for the DMCF will consist of two main components: dredged material placement (inflow operations) and crust management (dessication and consolidation). The planned in-flow window is October 1 through March 31.The Project Sponsor(s) reserves the right to modify the placement cycle to correspond to actual dredging and dredged material management needs.

1.7.3 The facility will be operated, consistent with environmental regulatory requirements, so as to optimize the placement of contaminated sediments from maintenance and improvements to Baltimore Harbor's marine navigation infrastructure.

1.7.4 The water around the facility is used by canvassback ducks for rafting between November 15 through April 15 each year. Waterside activities potentially may be affected during the winter rafting period. The sponsors of dredging work that will result in placement in the DMCF and dredging contractors are responsible for coordinating with the Maryland Department of Natural Resources (MDNR) regarding the nature and level of dredged material management activity in the designated rafting area during the rafting period.

1.7.5 The facility has been renovated for hydraulic placement. A hydraulic unloader may need to be positioned at a distance of approximately 2,500 to 3,500 feet offshore from the facility to avoid shallow water areas. An unloader stationed this distance offshore would remain outside of the rafting area for canvasback ducks.

1.7.6 The facility has not been specifically designed to support mechanical placement. Mechanical placement is not specifically precluded, but will require a case-by-case analysis to determine technical feasibility, environmental acceptability, and cost-effectiveness. In this regard, access from waterside is limited by shallow water, the lack of offloading facilities, and potential request for limits on vessel activities within the canvassback duck rafting area. Access from landside may be limited because of logistic and cost considerations and development opportunities for the upland Cox Creek property which could potentially affect transportation via this route.

1.7.7 The planned operational concept for the facility is presented in Appendix C.

1.8 Facility Permits. Copies of permits and certifications applicable to the facility are included as Attachment 1 to this OPLAN. Attachment 1 will be updated as changes occur.

1.9 Amendments to Facility Operations Plan. The designated Facility Operator is responsible for maintaining this operations plan. Amendments to the plan shall be provided to the Project Sponsor(s) for approval. Once approved, the amendments will be incorporated into the plan and copies of the revisions provided to the organizations shown on the OPLAN distribution list.

2.0 SITE AND FACILITY DESCRIPTION

2.1 Facility Description. The Cox Creek DMCF is a previously used confined disposal facility (CDF) that has been renovated and reactivated by the MPA to contain contaminated sediments from Baltimore Harbor. A summary of the facility's history is provided as Appendix D. The reactivated facility consists of a single cell formed by a perimeter dike system on the north, east and south and by upland on the west. The facility layout is provided as Appendix E.

2.2 Location.

2.2.1 The Cox Creek DMCF is located in northwestern Anne Arundel County on the Patapsco River approximately one mile south of the southern end of the Francis Scott Key Bridge. The facility is located at the extreme northeastern end of Kembo Road at the former location of the Cox Creek Refining Company and an adjoining undeveloped area immediately to the south.

2.2.2 Portions of the facility and adjacent areas are within the Chesapeake Bay critical area..

2.3 Access.

2.3.1 Authorized Entry.

- The Cox Creek DMCF is a limited access facility. Access is limited to official representatives of the facility owner, Project Sponsor(s), Facility Operator, pertinent regulatory agencies, authorized contractors and subcontractors, official visitors, and other parties whose presence is necessary to support operation of the facility.

- The facility is not open to the general public.

- Unauthorized entry or activity at the facility will be documented by the Facility Operator and reported to the Project Sponsor(s). Unauthorized entry situations requiring law enforcement support shall be coordinated with the Project Sponsor(s) in advance if time permits, and with the appropriate law enforcement authorities as described in Appendix L.

2.3.2 Entrance. Individuals authorized access to the facility will enter to site through the security gate located at the east end of Kembo Road.

2.3.3 Chain of Locks.

- The MPA has authorized a chain of locks at the landside entrance to the Cox C reek property.

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- The MPA has authorized a chain of locks at the landside entrance to the Cox C reek property.

- The Facility Operator is authorized to include the operator's lock in the chain of locks at the facility entrance gate(s) and to establish entry procedures for access by the Facility Operator's employees.

- The Facility Operator may establish a chain of locks for direct access into the DMCF.

2.3.4 Access Upon Redevelopment of Upland Property. The Cox Creek industrialized upland property is planned for redevelopment. Any redevelopment will be required by the Project Sponsor(s) to provide unrestricted access to the Cox Creek DMCF as may be required for operation of the facility.

2.4 Facility Capabilities for Dredged Material Management.

2.4.1 Designed Capabilities. The Cox Creek DMCF has been specifically designed for hydraulic placement of dredged material by dredging contractors following the provisions of this OPLAN. Inflow of dredged material is constrained by the limited capacity of the facility and water quality criteria for effluent discharge which may result in periodic suspension of inflow until cell water can be discharged. A rehandling basin is not available. The designed capabilities for inflow are summarized in Appendix F.

2.4.2 Actual Operating Conditions. Operating conditions may vary substantially from design criteria based on site specific conditions encountered during actual operations. Dredging contractors must plan their operations accordingly. A copy of Appendix F will be provided to sponsors of harbor dredging projects designated for placement at the facility for provision to prospective dredging contractors.

2.4.3 Dredging Resources. Mobilization and demobilization and operation of all dredging resources necessary to accomplish hydraulic placement are the responsibility of dredging contractors. Should mechanical placement be authorized, the mobilization, demobilization and operation of all resources needed to accomplish mechanical placement are the responsibility of dredging contractors. Electric utility service is not available from the facility. (See Section 3.4.1)

3.0 FACILITY RESOURCES

3.1 Human Resources.

3.1.1 Project Management.

- Representatives from the MPA and CENAB will participate on a project coordination team as may be required by a Project Cooperation Agreement applicable to this facility if Federal/USACE co-sponsorship is established.

- The Project Sponsor(s) and Facility Operator will each designate an individual to serve as the administrative point of contact for contract administration.

- The Project Sponsor(s) and Facility Operator will each designate a project manager to serve as the point of contact or coordination of operational activities.

- Planning factors for project management and facility staffing levels for the Facility Operator are shown in Appendix G. Actual staffing requirements may be adjusted by mutual agreement of the Project Sponsor(s) and addressed in project budgets.

- The Facility Operator shall assign qualified professional and facility staff for operation of the facility as required by contract with the Project Sponsor(s) and the approved project budget(s).

- The Facility Operator shall maintain and post an up-to-date list of personnel assigned for facility operation in the facility operations center/office. A copy of the listing shall be provided to the Project Sponsor(s).

3.1.2 Facility Staff. Planning factors for facility staffing levels for the Facility Operator are shown in Appendix G. Actual staffing may be adjusted by mutual agreement of the Project Sponsor(s) and the Facility Operator and addressed in annual budgets.

3.1.3 Subcontracted Labor. Facility Operator use of subcontracted labor is planned for the facility to support facility operations with emphasis on crust management activities. The level and duration of subcontracted labor will depend upon operating conditions. General planning factors for subcontracted labor are shown in Appendix G.

3.2 Equipment.

3.2.1 Dedicated On-Site Equipment. Appendix H of this OPLAN specifies the minimum operating capabilities that the Facility Operator is required to provide for the facility. The Facility Operator may provide and maintain other dedicated capabilities consistent with contractual obligations and annual budgets approved by the Project Sponsor(s).

- Generally, the dedicated equipment consists of that equipment which is needed throughout the year, required to be on standby at the site, and specialized equipment that is not readily available from subcontractors or which was determined to be more cost-effective to procure rather than obtaining through other means.

- The Facility Operator is required to maintain an updated list of equipment that is stationed at the facility and to provide a copy to the Project Sponsor(s) for approval. The approved list will be maintained as Appendix I of this OPLAN.

- The Facility Operator is required to maintain equipment use records and to make them available to Project Sponsor(s) for review upon request. These records will include hours of use, productivity, and a maintenance and repair history for all dredged material management equipment including subcontracted or leased equipment. For dedicated on-site equipment owned by the Facility Operator or Project Sponsor, a comprehensive maintenance and repair record shall be maintained. These records shall be provided to the Project Sponsor(s) by the outgoing Facility Operator in the event that there is a change in the Facility Operator.

3.2.2 Contracted Equipment, Operators and Services. The Facility Operator may subcontract for equipment, operators and supporting services as may be required to effectively conduct facility operations including monitoring, maintenance and other sponsor-approved activities. All subcontracting will be accomplished in accordance with the contract between the Facility Operator and Project Sponsor(s), consistent with the annual budget for facility operations and maintenance.

3.3 Structures. No structures are available for use at the facility as of the effective date of this OPLAN. The potential to use existing structures at the former Cox Creek Refinery is uncertain due to redevelop proposals which, if implemented, could result in the removal or alternative use of all existing buildings on the upland portion of the MPA-owned property.

3.3.1 Office Space. If not provided by the Project Sponsor(s), the Facility Operator is required to provide and maintain a trailer or other suitable structure suitable for use as an on-site office and for progress meetings with sponsors and dredging contractors. The facilty operator shall, at the minimum, equip the office trailer with a desk, meeting table with chairs for a minimum of eight individuals, telephone, fascimile machine, desktop computer with internet and e-mail capabilities, and sanitary facilities.

3.3.2 Maintenance, Repair and Storage Facilities. If not provided by the Project Sponsor, the Facility Operator is required to provide suitable shelter as needed to support maintenance and repair of on-site equipment. The Facility Operator is required to make suitable arrangements for maintenance and repair and on-site storage needs as part of operating costs; these costs shall be reflected in project budget(s).

3.3.3 Field Laboratory. If not provided by the Project Sponsor(s), the Facility Operator is required to provide install and maintain a trailer or other suitable structure for use as an on-site field laboratory for environmental monitoring and such field

analysis as may be required to support regulatory compliance and to enable optimization of effluent discharge, insofar as practicable.

3.4 Utilities.

3.4.1 Electricity.

- Electrical service is available to support general site operations by the Facility Operator. The Facility Operator is required to make necessary arrangements for electrical hookups and for maintaining the electrical supply lines from the electrical pole connection point located on the upland property which provides service to the facility. Primary power is not available.

- Dredging contractors requiring electrical service are responsible for making their own arrangements and installations. Any installations must be authorized in advance by the Project Sponsor(s) in coordination with the Facility Operator and will be accomplished by the dredging contractor in accordance with applicable safety requirements and in a manner that does not interfere with operation of the facility.

3.4.2 Water. Potable water service is not available at the DMCF. The Facility Operator is required to provide potable water for personnel.

3.4.3 Sanitary Systems. Sanitary services are not available at the facility. The Facility Operator is required to provide sanitary and shower services for personnel.

3.5 Dredged Material Unloading Capabilities.

3.5.1 Facility-provided Unloading Capabilities. None available.

3.5.2 Temporary Unloading Capabilities. The temporary installation and removal after inflow of unloading capabilities are the responsibility of dredging contractors.

4.0 POLICIES AND PROCEDURES

4.1 General Policies and Procedures.

4.1.1 Operation of the Cox Creek DMCF shall be consistent with applicable State and Federal rules and regulations, contract provisions for operation of the facility, and the provisions of this OPLAN. (See Section 1.4)

4.1.2 The Facility Operator may establish rules, regulations, policies and procedures which are applicable to the Facility Operator's staff, subject to the overriding provisions of Section 4.1.1 of this OPLAN.

4.2 Dredged Material Management. Dredged material placed in the facility will be managed to the extent practicable so as to optimize the placement potential of the containment cell. The Facility Operator shall plan and refine operations in consultation with the Project Sponsor(s) using pertinent published guidelines for dredged material management, lessons learned and adapted from operation of the Hart-Miller Island DMCF where similar material has been deposited, and site-specific experiences gained through the operation of the Cox Creek DMCF. An aggressive crust management program shall be implemented, insofar as budgets permit, to maximize the potential for dessication and consolidation of sediments placed within the containment cell.

4.3 Regulatory Compliance.

4.3.1 The Project Sponsor(s) and Facility Operator will plan and conduct all facility operations in conformance to applicable state and federal regulations.

4.3.2 The Project Sponsor(s) is responsible for obtaining all necessary permits, certifications, and other pertinent clearances needed to enable operation of the facility according to this OPLAN. These actions may be taken on behalf of the Project Sponsor(s) by the Facility Operator to the extent included in governing contractual arrangements. The Facility Operator may hold the appropriate permits and/or certifications, if mutually agreed to by the Facility Operator and the Project Sponsor(s).

4.3.3 Appropriation of Water. The dredging contractor is required to obtain the State Surface Water Appropriation Permit (SWAP) for water appropriated as part of placement activities.

4.4 Facility Operator Responsibilities. The Facility Operator is responsible for operating the Cox Creek DMCF in accordance with the provisions of this OPLAN and contractual obligations to the Project Sponsor(s).

4.5 Dredging Contracting Authority's Responsibilities. As a condition for placement at the facility, dredging contracting authorities who are authorized by the Project Sponsor(s) to place dredged material in the Cox Creek DMCF are responsible for insuring that dredging contractors fully comply with pertinent provisions of this OPLAN, the *Cox Creek DMCF Rules and Regulations* (Attachment 2 to this OPLAN), and any other requirements imposed by cognizant authority.

4.6 Dredging Contractor Responsibilities.

4.6.1 Dredging contractors are responsible for conducting their activities at the facility in accordance with applicable provisions of this OPLAN and the *Cox Creek DMCF Rules and Regulations* (Attachment 2 to this OPLAN), including development and provision of a Placement Operations Plan for approval by Project Sponsor(s) in coordination with the Facility Operator.

4.6.2 Dredging contractors are responsible for mobilizing and demobilizing all equipment and resources needed for unloading and inflow operations. All installations associated with dredging contractor activities must be temporary and must be completely removed within 30 calendar days after completion of inflow unless a longer period for demobilization is mutually agreed to by the Facility Operator, the Project Sponsor(s), the dredging contracting authority, and the dredging contractor.

4.6.3 Dredging contractors are responsible for obtaining and complying with any and all necessary approvals and permits for the placement and use of dredging and associated equipment and resources needed for unloading and inflow operations.

4.6.4 Dredging contractors are responsible for making or funding repairs to any disturbance to the dike system and facility roads resulting from the dredging contractor's activities at the facility. Repairs will be made as part of demobilization activities, unless the repairs need to be done immediately in order to preclude further damage or to restore serviceable operating conditions. The Facility Operator, on a not to interfere basis with the requirements of this OPLAN and contract obligations with the Project Sponsor(s), may provide or arrange for subcontracted repairs as a service to the dredging contractor on a reimbursable basis.

4.7 Safety and Health.

4.7.1 The facility will be operated in conformance with applicable State and Federal safety and health requirements. Details are provided in Section 5.3 and Appendix J of this OPLAN.

4.7.2 All individuals who are authorized access t0 the facility are required to receive a safety orientation. The Facility Operator will provide each person with a card or other suitable document which highlights the safety procedures that visitors will be required to observe while at the facility. The Facility Operator will establish a written record of safety orientations. Upon completion of the safety orientation, individuals authorized access on a repeat basis (e.g. representatives of the Project Sponsor(s), employees of the Facility Operator, subcontractors, dredging contractor personnel) will be issued a card stating the individual's name and the date that the orientation was received. The card is required to be available for inspection by the Facility Operator upon request. Safety orientations must be renewed within 12 months of the date of the previous safety orientation to remain in effect.

4.8 Emergency Procedures.

4.8.1 General. The Facility Operator will develop and maintain emergency procedures as specified by Appendix K of the OPLAN. The emergency procedures will be provided to the Project Sponsor(s) for review and concurrence. The Facility

Operator will maintain an up-to-date call-up list of emergency contacts.

4.8.2 Emergency Response Procedures. Refer to Appendix K. For pollution prevention and control, refer to Appendix N.

4.8.3 Emergency Equipment. Refer to Appendix K.

4.8.4 Coordination and Response Arrangements. The Facility Operator is responsible for establishing coordination and response arrangements and for including them in Appendix K.

4.8.5 Evacuation Plan. The Facility Operator will establish procedures for determining when evacuation is necessary and will develop and maintain an evacuation plan as part of Appendix K.

4.8.6 Unexploded Ordnance (UXO). Historically, UXO has been reported to have been disposed overboard in the Baltimore Harbor area in the World War II timeframe. Therefore, there is a potential for the presence of UXO in sediments dredged from Baltimore Harbor. The responsibilities of dredging contractors with respect to UXO are specified in Attachment 2. The UXO policy applicable to the facility is specified in Attachment 3.

4.8.7 Documentation and Reporting. In accordance with applicable sections of the OPLAN, Appendixes C, K, J and N and Attachments 2 and 3.

4.9 Visitors.

4.9.1 The Cox Creek DMCF is a working facility that involves the operation of heavy and specialized earth moving and construction equipment. General access to the facility is limited to individuals whose presence is required for or in support of facility operations and associated dredged material management activities.

4.9.2 The facility is not open for visitation by the general public. The Project Sponsor(s) may authorize escorted visits or tours by individuals or groups.

4.9.3 The following specific policies apply to visitors.

- All visits will be on a not-to-interfere basis with operation of the facility.
- All visitors, as a condition of entry, are subject to the safety oversight and direction of the Facility Operator, and are required to observe the safety policies and procedures applicable to the facility.
- All visitors are required to be under escort by a representative of the Facility Operator or, with advance notification to the Facility Operator, the project

manager(s) designated by the Project Sponsor(s).

- Visitors will be provided a safety orientation by a representative of the Facility Operator prior to touring the facility.

5.0 GENERAL OPERATING PROCEDURES

5.1 Physical Security. Physical security for the DMCF will be provided as specified in Appendix L to this OPLAN.

5.2 Communications. Communications for the DMCF will be provided as specified in Appendix M of this OPLAN.

5.3 Health and Safety Program.

5.3.1 The Facility Operator will develop, implement and maintain a comprehensive health and safety program that conforms to these requirements, as specified in Appendix J of this OPLAN.

5.3.2 The safety and health requirements specified in the *U.S. Army Corps of Engineers Safety and Health Requirements Manual* (USACE, 1996) will be applicable to operation of this facility upon joint sponsorship of the project by the Army Corps of Engineers. Note: This manual is applicable for dredging and placement activities by USACE contractors. (See Section 1.4) The Health and Safety Program for the facility for State-only sponsorship will be designed, to the extent practicable, to minimize modifications upon establishment of USACE co-sponsorship of facility operations.

5.4 Pollution Prevention and Response. Pollution prevention and response will be accomplished as specified in Appendix N of this OPLAN.

5.5 Groundwater Protection. Groundwater protection will be accomplished as specified in Appendix O of this OPLAN.

5.6 Dredged Material Unloading Operations. Unloading operations will be conducted in accordance with applicable provisions of this OPLAN and Appendix C to this OPLAN. The following specific requirements are highlighted.

5.6.1 General Requirements.

- Only hydraulic placement of dredged material is authorized at the facility unless an exception is specifically authorized by the Project Sponsor(s) in coordination with the Facility Operator.

- Dredging contractors proposing mechanical placement will be required to provide a Mechanical Placement Operations Plan for review and consideration

by the Facility Operator and approval of the Project Sponsor(s). The mechanical placement operations plan will identify the equipment proposed for use, offloading plans including extent of use of public roads and temporary infrastructure installations, regulatory requirements, logistic plans, placement plan including grading of placed material. The Project Sponsor(s) may, on a case-by-case basis, authorize mechanical placement if the dredging contractor's plan is found to be acceptable.

- Permanent installation of dredging infrastructure and equipment is not authorized. All installations associated with dredging contractor activities must be temporary and must be completely removed within 30 calendar days after completion of inflow unless a longer period for demobilization is mutually agreed to by the Facility Operator, the Project Sponsor(s), the dredging contracting authority, and the dredging contractor.

- All temporary installations shall comply with all applicable rules and regulations.

5.6.2 Facility Operator.

- The Facility Operator will recommend access areas and installation requirements for pipelines to maintain the safety and physical integrity of the facility and provide these recommendations to the Project Sponsor(s) for inclusion in the specifications for dredging contracts.

- The Facility Operator will designate inflow points and provide them to the Project Sponsor(s) for inclusion in the specifications for dredging contracts.

- The Facility Operator will coordinate with the representative of the dredging contractor and dredging contracting authority in order to optimize placement of material within the cell, consistent with regulatory requirements for effluent discharge.

- The Facility Operator will assume no responsibility for the dredging contractor's operations. The Facility Operator is required to provide such oversight as required to insure compliance with the provisions of this OPLAN. The Facility Operator will work cooperatively with the dredging contractor to facilitate the placement operations consistent with the provisions of this OPLAN. Except for immediate action that may be required for regulatory compliance or for health and safety within the facility's boundaries, the Facility Operator shall refer problems requiring correction action that cannot be resolved at the facility level to the Project Sponsor(s) for referral as may be required to the designated representative of the dredging contracting authority.

5.6.3 Dredging Contracting Authority.

- Dredging Contracting Authorities, as a condition for using the facility, are required to comply with the *Cox Creek DMCF Rules and Regulations* (Attachment 2 to this OPLAN).

- The dredging contracting authority will designate a representative to serve as a point of contact for coordination and consultation for the contracted dredged material placement activity.

- The dredging contracting authority is responsible for inspection, quality assurance and quality control (QA/QC), and safety oversight for dredged material placement activities of the dredging contractor on and off of the facility.

5.6.4 Dredging Contractor.

- Dredging Contractors, as a condition of using the facility, are required to comply with the provisions of the Cox Creek DMCF Rules and Regulations (Attachment 2 to this OPLAN).

- All equipment and resources needed for operations will be mobilized and demobilized by dredging contractors. Very limited supporting services or equipment may be available on a reimbursable basis from resources required to be maintained on site by the Facility Operator. The availability of facility resources is at the discretion of the Project Sponsor(s), consistent with contract provisions with the Facility Operator, provided that such support is determined to be essential to facilitate inflow operations.

- Dredging contractors will obtain and comply with all regulations, approvals and permits for the placement and use of dredging and associated equipment and resources needed for unloading and inflow operations.

- Dredging contractors will manage inflow in coordination with the Facility Operator and the contractor's approved Placement Operations Plan. The dredging contractor should be capable of adjusting inflow rates and inflow points to aid in optimizing placement of dredged material within the cell and to assist in providing physical and operating conditions needed by the Facility Operator to optimize the discharge of effluent, consistent with discharge criteria.

- The dredging contractor will provide qualified personnel to control inflow at all times that inflow is occurring. The persons(s) controlling inflow will have radio or other direct communication contact with the unloader, dredge or other plant that is supplying material to the cell. The inflow installation shall be capable of immediate shutdown to avoid exceeding freeboard requirements within the cell or as needed to satisfy water quality criteria for effluent discharge. It is anticipated that installation of Y-valves, sleeves and anti-seep

collars and other similar equipment will be necessary for effective inflow operations.

- Dredging contractors, at the contractor's expense, will make or arrange for repairs to any disturbance of the dike system and facility roads resulting from the dredging contractor's activities at the facility. Repairs will be normally made in conjunction with demobilization activities unless otherwise agreed to by the dredging contractor, Facility Operator, and Project Sponsor(s).

5.7 Logistics.

5.7.1 Fuel.

- On-site fuel storage is not provided by the facility owner or Project Sponsor(s).

- The Facility Operator is responsible for making suitable arrangements for provision of fuel in a manner and on a schedule needed to maintain uninterrupted provision of services required from the Facility Operator. Any installation of storage tanks and associated equipment will require approval of the facility owner and Project Sponsor(s).

- All fueling activity will be accomplished in accordance with applicable federal, state, local rules and regulations.

- The dredging contractor is responsible for making all arrangements needed for fuel for the dredging contractor's activities. The dredging contractor is responsible for insuring that fuel handling for the contractor's activities is performed in accordance with applicable rule and procedures. The dredging contractor is responsible for response to pollution resulting from the dredging contractor's activities.

5.7.2 Waste.

- The Facility Operator will arrange for removal of waste and refuse associated with operation and maintenance of the facility by the Facility Operator. Waste and refuse will not be allowed to accumulate on site.

- All waste and refuse will be disposed of in accordance with applicable federal, state and local regulations.

- The Facility Operator will recycle waste materials where practicable.

- The dredging contractor is responsible for the collection and removal of waste and refuse resulting from the dredging contractor's activities in accordance with applicable rules, regulations and procedures. (See Attachment 2)

5.8 Dredged Material Recycling Operations.

5.8.1 The Cox Creek DMCF is being considered by the MPA as a possible future staging point for the innovative use of contaminated and clean dredged sediments for environmental acceptable use. Appendix P to this OPLAN is reserved for future use should the innovative use of dredged material prove to be feasible at the facility.

5.8.2 Any support required by the MPA from the Facility Operator for innovative use capabilities will be coordinated separately.

5.9 Equipment and Power Failure.

5.9.1 Equipment Failure. The Facility Operator will notify Project Sponsor(s) of major equipment failures and plans for corrective action including any cost requirements not accounted for in project budget(s).

5.9.2 Power Failure. Emergency power is not available at the facility. The Facility Operator is required to provide battery backup units or other suitable electrical backup capability to maintain uninterrupted operation of the spillway system and associated environmental monitoring equipment.

5.10 Watercraft Operations. The operation of watercraft will be as specified in Appendix Q to this OPLAN.

5.11 Pest Control..

5.11.1 Mosquitos. A program to control mosquito populations shall be performed as specified in Appendix R of this OPLAN.

5.11.2 Other Pests. Control of pests other than mosquitos shall be as specified in Appendix R to this OPLAN.

5.12 Multiple Contractors. Operation and maintenance of the facility, placement operations, and other activities may occur concurrently, resulting in multiple contractors at the facility. All contractors are required to cooperate to the maximum extent possible to avoid interference with the activities of other contractors. The Facility Operator will facilitate coordination among contractors in coordination with the Project Sponsor(s).

6.0 ENVIRONMENTAL MONITORING

6.1 Water Quality Requirements. Dredged material management will be performed in conformance to effluent discharge criteria prescribed by the Maryland Department of the Environment and in conformance to any other applicable regulatory requirements. A

copy of the effective regulatory requirements for water quality treatment and effluent discharge will be maintained as Appendix S of this OPLAN.

6.2 Data Collection and Analysis. Data collection for environmental monitoring and data analysis will be performed in conformance with the requirements of the monitoring plan. The monitoring plan will be implemented and maintained by the Facility Operator. All modifications will be coordinated with the Project Sponsor(s) and the pertinent regulatory authorities. The monitoring plan is included in Appendix T to this OPLAN.

6.3 Environmental Documentation and Reporting. Environmental documentation and reporting will be as required by the Project Sponsor(s), pertinent regulatory authorities, and by the Facility Operator. The current documentation and reporting requirements will be maintained by the Facility Operator in Appendix T to this OPLAN.

7.0 DREDGED MATERIAL MANAGEMENT PROCEDURES

7.1 Dredged Material Placement Requirements.

7.1.1 Overview.

- The operational concept for dredged material management at this facility is included in Appendix C to this OPLAN.

- Management of dredged material may include, but is not limited to, use of the placement techniques and procedures identified in *Environmental Effects of Dredging Technical Notes: Dredged Material Containment Area Management Practices for Increasing Storage Capacity* (USACE, 1989), as appropriate and adapted for use consistent with facility design and operating conditions associated with the Cox Creek DMCF.

7.1.2 Requirements.

- A primary objective for facility operations is to increase the quantity of dredged material that can be placed in the containment cell insofar as practicable, consistent with the environmental criteria prescribed for this facility and consistent with annual harbor dredging needs as determined by CENAB and the MPA.

- Management of the material placed in the containment cell will consider, but is not limited to, appropriate dredged material management techniques and procedures identified in U.S. Army Corps of Engineers Dredging and Environmental Dredging Publications, other pertinent publications and materials, through experience gained from operation of other similar facilities including the HMI DMCF, as adapted for use at the Cox Creek DMCF, consistent with facility design and site-specific operating conditions and regulatory and contractual requirements.

- The placement of dredged material in the containment cell will be managed so as to facilitate the treatment and decanting of effluent from the cell insofar as practicable, consistent with environmental criteria prescribed for this facility. Inasmuch as an annual dredged material management cycle is planned for the facility, a crust management program will be undertaken during each interval between scheduled inflow periods in order to optimize facility capacity.

7.1.3 Annual Placement Capacity Requirements and Limitations. Unless otherwise authorized by the Project Sponsor(s), an annual average of 500,000 cubic yards of in-situ material dredged from channels, anchorages, and berths applies to the placement of dredged material in this facility.

7.1.4 Sediments Allowable for Placement.

- Unless otherwise authorized by the Project Sponsor(s), only dredged material from CENAB and MPA Baltimore Harbor dredging projects west of a line between Rock Point in Anne Arundel County, Md., and North Point in Baltimore County, Md., is eligible for placement in the facility, subject to the provisions of the Cox Creek DMCF Rules and Regulations (Attachment 2 to this OPLAN).

- The MPA may authorize the placement of material dredged from access channels, anchorages and berths serving publicly-owned and privately-owned port facilities. Dredged material from other sources will not be accepted at the facility without the approval of the MPA.

7.2 Dredged Material Placement

7.2.1 General. As described in Appendix C to this OPLAN.

7.2.2 Project Sponsor Responsibilities. The Project Sponsor(s) will provide the contracting authority for dredging activity that will result in placement of dredged material in the Cox Creek DMCF with a copy of the main text of this OPLAN, pertinent appendixes, and the *Cox Creek DMCF Rules and Regulations* (Attachment 2 to this OPLAN).

7.2.3 Dredging Contracting Authority. The dredging contracting authority will provide prospective contractors for their use in planning and preparing for placement at the facility.

7.2.4 Facility Operator's Responsibilities. The Facility Operator will conduct operations as specified in Appendix C.

7.2.5 Dredging Contractor's Operations and Responsibilities. The dredging contractor will prepare and provide the Placement Operations Plan required by the *Cox*

Creek DMCF Rules and Regulations (Attachment 2 to this OPLAN) to the Project Sponsor(s) and Facility Operator allowing sufficient time for review and approval of the plan prior to the scheduled start of the dredging contractor's operations. The inflow plan will provide the information specified in Appendix C to this OPLAN.

7.2.6 Progress Meetings. Representatives of the dredging contracting authority, dredging contractor, Project Sponsor(s) and Facility Operator will attend progress meetings. The meetings will normally be scheduled to occur at the DMCF. An alternative location such as the Project Sponsor(s) local offices may be designated by the Project Sponsor(s).

7.2.7 Documentation.

- The Facility Operator will prepare a weekly summary on the status of dredged material in the facility to aid in guiding facility operations.
- The Facility Operator will document placement activities in a semi-annual operations report to the Project Sponsor(s).
- The Facility Operator will prepare and provide the Project Sponsor(s) with a monthly status report including budget status.
- Dredging contractors are responsible for preparing and providing documentation required by the contracting authority.

7.3 Dredged Material Consolidation and Dessication.

7.3.1 Dredged material placed at the facility will be managed to the extent practicable in order to increase the facility's storage capacity after each placement cycle and to enable the use of dried crust as a construction material for backfilling perimeter trenches, construction of a bench on the interior slope of the containment dike, and for incrementation dike raising. These activities will be conducted as provided for in Appendix C.

7.3.2 The Facility Operator will prepare and submit a crust management plan to the Project Sponsor(s) not later than one month prior to the scheduled completion of placement operations in order to provide sufficient time for refinement and approval of the plan prior to the commencement of crust management operations. The plan will consider, but is not limited to, the crust management techniques and procedures identified in *Environmental Effects of Dredging Technical Notes: Dredged Material Containment Area Management Practices for Increasing Storage Capacity* (USACE, 1989) as appropriate and adapted for use consistent with facility design and operating conditions associated with this facility and lessons learned and adapted from crust management activities at other similar facilities including HMI.

7.4 Cell Water Discharge

7.4.1 Operational Requirements. The discharge (i.e. decanting) of cell water is fundamental to the effective operation of a confined disposal facility in order to enable effective dessication and consolidation of dredged material (USACE, 1989). Cell water will be discharged from the facility throughout the entire year as described in Appendices C, T and U of this OPLAN.

7.4.2 Regulatory Compliance. Dredged material placement will be performed in strict conformance to effluent discharge criteria prescribed by MDE and contained in Appendix S of this OPLAN.

7.4.3 Monitoring. Effluent discharges at the facility will be monitored as prescribed in Section 6.0 and Appendix T of this OPLAN to enable compliance with applicable effluent discharge criteria.

7.4.4 Best Management Practices.

- Effluent Discharge Best Management Practices approved for use at the DMCF are shown in Appendix U of the OPLAN. Modifications to the best management practices will be coordinated with the Project Sponsor(s) and MDE.

- The discharge of effluent will require the effective use of a suite of best management practices which may be used singularly or in combination to achieve water quality requirements as may be necessary to accommodate prevailing or anticipated operating conditions during the planned inflow period.

7.4.5 Documentation and Reporting.

- Regulatory compliance documentation and reporting will be as prescribed in Section 6.0 and Appendices S and T.

- The Facility Operator will included cell water discharge in the required weekly report (Section 7.6) of operational activity.

7.5 Cell and Fill Material Conditions

7.5.1 General. The Facility Operator will monitor and periodically report the condition of the cell and fill material.

7.5.2 Topographical Surveys.

- The Facility Operator will conduct periodic surveys to determine the amount of material placed in the facility and to monitor crust management activities as specified in Appendix C.

- Access to the cell interior for surveying will employ specialized equipment maintained on-site. A small surface-effect (air cushion) vessel (or other suitable conveyance) will serve as the primary equipment to transport surveyors prior to formation of the crust. The amphibious excavator will provide access to the cell interior when conditions are not suitable for use of the surface-effect vessel.

- The results of surveys will be reported to the Project Sponsor(s) upon completion of analysis and will be included in the semi-annual operations report (Section 7.7.3).

7.6 Operational Reporting.

7.6.1 Weekly Report of Operational Activity. The Facility Operator will prepare and submit to the Project Sponsor(s) a weekly report of operational activity. The report shall include the data specified in Appendix C.

7.6.2 Incident Reports. The Facility Operator shall prepare and maintain incident reports for unusual occurrences or emergency situations. The objective will be to provide a record that may be of assistance to the Project Sponsor(s) and the Facility Operator in improving facility operations, responding to related inquiries or claims, or for such other official use as may be necessary and appropriate. The Facility Operator will provide copies of incident reports to the Project Sponsor(s) and will make all incident reports available for review by the Project Sponsor(s) upon request.

7.6.3 Operations Reports. The Facility Operator shall prepare and submit to the Project Sponsor(s) a semi-annual operations report. The report will contain the information specified in Appendix C.

8.0 MAINTENANCE

8.1 Dikes. The Facility Operator is required to maintain the dike system as a component of facility operations. The Facility Operator will include dike system maintenance requirements in budget request submissions to the Project Sponsor(s).

8.2 Effluent Discharge System. The Facility Operator is required to maintain the effluent discharge system as a component of facility operations. The Facility Operator will include system maintenance requirements in budget request submissions to the Project Sponsor(s).

8.3 Sediment and Erosion Control. The Facility Operator is responsible for operating the facility and maintaining the dike system to satisfy the sediment and erosion control plan filed with MDE for the facility.

8.4 Plant and Property. The Facility Operator is responsible for maintaining plan and property owned or provided by the Project Sponsor(s) for use at the DMCF. The cost of maintaining plant and property shall be included in annual operations and maintenance budget submissions to the Project Sponsor(s) by the Facility Operator.

8.5 Environmental and Engineering Instrumentation. The Facility Operator is responsible for maintaining environmental and engineering instruments installed at the facility and backup instruments. The cost of maintaining these instruments shall be included in annual operations and maintenance budget submissions to the Project Sponsor(s) by the Facility Operator. The Facility Operator will maintain a list of installed environmental and engineering instruments as Appendix W to this OPLAN. The appendix shall include a diagram depicting the location of each instrument and will specify any special instructions regarding operations in vicinity of installed instrumentation.

8.6 Storm Water Management Pond. The Facility Operator is responsible for maintaining the storm water management pond area and its protective berm immediately north of the containment cell. The cost of maintaining this area shall be included in annual operations and maintenance budget submissions to the Project Sponsor(s) by the Facility Operator. The area to which this requirement applies is shown in Appendix X to this OPLAN.

8.7 Co-Located Mitigation Sites.

8.7.1 Mitigation Site Maintenance. The Facility Operator is responsible for maintaining any mitigation sites on MPA-owned property adjacent to the containment cell. Co-located mitigation sites to which this requirement applies are shown in Appendix Y to this OPLAN. The mitigation sites will be maintained for the period specified in regulations and associated permits for the mitigation project.

8.7.2 Mitigation Site Maintenance Budget. The Facility Operator shall include the cost of maintaining co-located mitigation sites in annual operations and maintenance budget submissions to the Project Sponsor(s) by the Facility Operator.

9.0 EQUIPMENT LIFE-CYCLE MANAGEMENT.

9.1 General.

9.1.1 Life Cycle Management Program. A life-cycle management program shall be established by the Project Sponsor(s) and Facility Operator for equipment required to be stationed at the facility.

9.1.2 Programmed Life Cycle. For planning purposes, a five-year life cycle shall be used for specialized equipment except where an alternative life-cycle can be substantiated. This time frame is keyed to the prospective five-year contract term that CENAB has indicated would be considered if the USACE becomes a

contract sponsor and if CENAB were to contract operations directly rather than contract operations through the MPA.

9.1.3 Extension of Equipment Service Life. Equipment may be used in excess of the planned life-cycle if in good operating condition and will be reflected in the facility Capital Improvements Plan (Section 9.2). Costs and savings will be managed in accordance with terms of the contract between the Project Sponsor(s) and the Facility Operator.

9.2 Capital Improvements Plan.

9.2.1 The Facility Operator will develop and maintain a capital improvements plan for equipment provided or directly funded by the Project Sponsor(s) for use at the facility.

9.2.2 The Capital Improvements Plan shall be updated at least annually and provided to the Project Sponsor(s) for review and approval.

9.3 Procurement of Equipment. Equipment will be procured under the terms of the contract between the Project Sponsor(s) and the Facility Operator. (See Appendixes H and I)

10.0 PHASED DIKE SYSTEM IMPROVEMENTS.

10.1 Cell Interior Benches.

10.1.1 The Facility Operator, as a component of crust management operations, will establish a berm to the extent practicable on the interior slope of the perimeter dike to serve as a working platform for earth moving equipment such as excavators used to excavate perimeter trenches. Additional details regarding bench building are presented in Appendices B and C of this OPLAN.

10.1.2 The berm will be established using dredged material excavated from perimeter trenches and scraped from the crust surface as on-site borrow material.

10.1.3 The cost of establishing and raising the berm in elevation during each crust management cycle will be included in annual budget submissions to the Project Sponsor(s) by the Facility Operator.

10.2 Geotechnical Engineering.

10.2.1 Incremental or phased dike raising of the perimeter dike and the stabilizing berm are dependent upon the strength of the underlying foundation which is projected to increase in strength over time as a result of surcharges from the dike renovations and placement of dredged material. The placement of material

suitable for dike raising shall conform to the geotechncial design criteria for the facility (E2SI, 1998).

10.2.2 The Facility Operator is required to periodically perform geotechnical monitoring at installed monitoring stations and analysis of the results as required to ascertain the foundation conditions. The geotechnical monitoring may be subcontracted, subject to approval of the subcontractor by the Project Sponsor(s). The results of geotechnical monitoring will be reported to the Project Sponsor(s). Geotechnical monitoring, documentation, and reporting will be conducted in accordance with Appendix Z. (See also Appendix W)

10.2.3 The Facility Operator will include the cost of geotechnical monitoring in annual budget submissions to the Project Sponsor(s).

10.3 Perimeter Dike.

10.3.1 Upon commencement of operations, the Cox Creek DMCF is planned to consist of an improved dike system with an elevation of +24 feet Mean Lower Low Water (MLLW). There will be a single containment cell enclosed by the perimeter dike. The enclosed area will comprise approximately 115 useable acres (Moffatt and Nichol Engineers, in draft).

10.3.2 An ultimate elevation of +36 feet MLLW is planned for the facility resulting in a projected capacity of 6 million cubic yards of consolidated dredged material. However, foundation conditions did not permit initial construction to this elevation. Consequently, it will be necessary for the perimeter dike system and stabilizing exterior berm to be progressively raised in elevation during the service life of the facility (E2SI, 1998; Moffatt and Nichol Engineers, in draft).

10.3.3 The timing of dike raising and the thickness of lifts will depend upon foundation strengths (E2SI, 1998). Foundation conditions will be monitored in conjunction with operation and maintenance of the DMCF.

10.3.4 The preferred method for dike raising is use of on-site borrow material including dried crust, as available. However, the ability to undertake dike raising using on-site borrow material is uncertain and depends on the annual opportunity for effective crust management. Therefore, for planning purposes, it is assumed that off-site borrow material and use of a construction contractor will be required. Further, it is also assumed for planning purposes that dike raising will occur at staged intervals.

- The Project Sponsor(s) may incorporate annual dike raising in low lifts as a component of operations and maintenance of the DMCF using on-site borrow material, if suitable, or may elect to raise the dike at staged intervals in higher lifts using construction equipment.

- There is a potential for slope failures along the interior slope of the raised dike section because the dikes will be constructed over a variable dredged material foundation. During dike raising at HMI in similar conditions, locally-specific soft conditions resulted in the displacement of softer material into the cell. Additional borrow material was placed to backfill for the displaced material. This provided a sufficient foundation for dike raising using a controlled lift thicknesses and compaction. A similar approach is anticipated for dike raising at the Cox Creek DMCF.

10.4 Exterior Stabilizing Berm.

10.4.1 Upon commencement of operations, the Cox Creek DMCF is planned to consist of an improved dike system which includes an exterior stabilizing berm with an initial elevation of +6 feet Mean Lower Low Water (MLLW)(E2SI, 1998).

10.4.2 An ultimate elevation of +16 feet MLLW is planned for the stabilizing berm. However, foundation conditions did not permit initial construction to this elevation. Consequently, it will be necessary for the stabilizing berm to be progressively raised in elevation during the service life of the facility (E2SI, 1998; Moffatt and Nichol Engineers, in draft).

10.4.3 The timing of increasing the height of the stabilizing berm to its highest elevation will depend upon foundation strengths (E2SI, 1998). Foundation conditions will be monitored in conjunction with operation and maintenance of the DMCF.

10.4.4 The ability to undertake dike raising using on-site borrow material is uncertain. Therefore, for planning purposes, it is assumed that off-site borrow material and use of a construction contractor will be required.

10.4.5 Removal of Stabilizing Berm. The stabilizing berm may potentially be removed by the Project Sponsor(s) once required consolidation and strengths have been attained. The material from the stabilizing berm potentially may be used in conjunction with construction of a closure cap. Berm removal and disposition of excavated material, if undertaken, is not a component of planned facility operations.

10.5 Additional Discharge and Treatment Systems. Section reserved for future development.

11.0 CLOSURE PLAN

11.1 Requirements. Future use of the Cox Creek DMCF has not been determined. The facility may either be closed and converted to other uses once filled with dredged material or it may become a long-term staging area for the recycling of dredged material as an environmental and economic resource. For planning purposes, it is assumed that the facility will be closed once filled and that a cap of clean dredged

material or other suitable material will be placed on top of the contaminated sediments.

11.2 Closure Concept. The cap will be of sufficient thickness so as to provide a sufficient depth of material to avoid uptake from the sediments of contaminants by shallow-root vegetation. For planning purposes, a three-foot cap of uncontaminated sediments will be placed on top of the final placement of contaminated sediments. The cap material would be amended as may be necessary to promote growth of vegetation suitable for planting at the facility.

11.3 Cap Construction and Maintenance. For planning purposes, uncontaminated dredged material will be hydraulically placed into the facility during the last placement cycle in order to place a cap on the facility. An additional hydraulic or mechanical placement of material may be required to complete the cap. Additional clean borrow material may be mechanically placed and graded to complete the cap and provide the planned cap thickness. Soil amendments will be applied and tilled into the cap to a depth of one foot. Suitable shallow-rooted vegetation will be planted and maintained.

11.4 Site Development After Closure. To be determined.

12.0 DOCUMENTATION AND REPORTS.

12.1 Facility Operator. The Facility Operator is required to provide the following documentation and reports to the Project Sponsor(s) in addition to any other documentation and reports required by this OPLAN or competent authority. (See Appendix C)

12.1.1 Annual budget estimates.

12.1.2 Annual crust management plan.

12.1.3 Weekly operations status reports (may be submited monthly).

12.1.4 Crust management summary report upon completion of annual crust management operations.

12.1.5 Semi-annual operations reports.

12.1.6 Topographic surveys (semi-annual or on an alternative scheduled mutually agreed to by the Project Sponsor(s) and Facility Operator).

12.1.7 Capital Improvements Plan. (See Section 9.2)

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APPENDIX A

Facility Operator

[TO BE DEVELOPED UPON DETERMINATION OF THE FACILITY OPERATOR]

APPENDIX B

GENERAL SCOPE OF REQUIRED SERVICES

1. **GENERAL**. The Facility Operator is responsible for providing the general scope of services specified in this appendix.

2. **INITIAL SCOPE OF SERVICES**. The following tasks define the general scope of initial services required from the Facility Operator for commencement of operations upon reactivation of the Cox Creek DMCF.

   a. Prepare and provide a mobilization plan and estimated mobilization costs.

   b. Provide a cost estimate for the first year of full operation of the DMCF.

   c. Prepare for and conduct initial operational setup of the facility.

   d. Mobilize the core labor force and required dedicated equipment.

   e. Prepare for and contract for subcontracted services needed for operation and maintenance of the facility.

   f. [TO BE DEVELOPED]

3. **CONTINUING SERVICES.** The following tasks define the general scope of continuing services for operation of the Cox Creek DMCF.

   a. Operate and maintain the DMCF as prescribed in the facility OPLAN.

   b. Maintain resources provided by the Project Sponsor(s) for use at the DMCF and manage the life-cycle management program for these resources.

   c. Provide oversight and inspection of placement operations including directive oversight of inflow to the extent required to insure compliance with regulatory criteria applicable to operation of the DMCF.

   d. Develop and perform a crust management program in accordance with the OPLAN and annual budgets approved by the Project Sponsor(s).

   e. Manage the discharge of effluent according to regulatory criteria prescribed by competent authority for the DMCF.

   f. Perform environmental monitoring, documentation and reporting as required by competent authority.

   g. Prepare and provide other documentation and reports required by the OPLAN.

h. Prepare and conduct a safety and health program in accordance with applicable requirements and the OPLAN.

i. Provide project and financial management for facility operations and maintenance.

j. Provide construction management and construction services for facility improvements including phased dike system improvements if mutually agreeable to by the Facility Operator and the Project Sponsor(s).

4. **FACILITY CLOSURE SERVICES**. Once the containment cell is filled to capacity, the Facility Operator will complete final crust management activities at levels mutually agreed to by the Facility Operator and the Project Sponsor(s). Any additional services related to closure will be subject to negotiation.

APPENDIX C

OPERATIONAL CONCEPT AND PROCEDURES

1. PLANNED AND EXPECTED OPERATING CONDITIONS.

a. Facility Service Life.

(1) A 10 to 12-year service life is projected for the DMCF. The facility's actual service life will depend upon the thickness, quantity and character of material placed during annual dredging cycles and the rate of success in dewatering the sediments that are placed.

(2) An average of 500,000 cubic yards of cut (i.e., in situ) dredged material is planned for placement annually using hydraulic placement.

(3) Actual quantities of sediments will vary during each placement cycle depending upon dredging needs and remaining facility capacity.

b. Available Capacity.

(1) Although the dike system is planned for an ultimate upper elevation of +36 feet MLLW, foundation conditions necessitate a phased increase in dike elevation from an initial height of +24 feet MLLW. The phased dike system improvements are described in Section 10.0 of the OPLAN.

(2) Upon reactivation of the DMCF for inflow, the estimated available placement volume will be approximately 3.35 million cubic yards assuming an initial dike elevation of +26 feet MLLW, a minimum freeboard requirement of 2 feet, and sufficient area and depth below the freeboard elevation for ponding of effluent.

c. Inflow Rates. The containment cell's ability to receive hydraulically placed dredged material is limited by the useable volume of the containment cell and regulatory criteria for effluent discharge which require treatment of effluent using best management practices to achieve water quality objectives for the receiving water body.

(1) Actual inflow rates may vary from designed rates (Moffatt and Nichol, 1998) based on operation experience with the facility.

(2) The Facility Operator and dredging contractors must be vigilant to assure that hydraulic inflow is strategically placed and in keeping with the design capability of the facility to receive hydraulic inflow and the ability to discharge effluent while remaining in compliance with all applicable regulatory requirements.

d. Best Management Practices.

(1) Best management practices for treatment of effluent are planned to consist of retention of effluent to allow settling of Total Suspended Solids (TSS) until water quality reaches a level that would enable discharge consistent with regulatory requirements prescribed for discharges from this DMCF. A clarification pond with connecting water control structures or devices may be installed to aid in the reduction of TSS prior to discharge. The Facility Operator will maintain the clarification pond containment water quality structures.

(2) Chemical treatment of effluent is not planned as of the effective date of the OPLAN. However, some treatment may be needed occasionally for pH.

(3) Interior baffles and other techniques potentially may be attempted to reduce the velocity of effluent so as to increase retention times as needed for treatment of effluent.

(4) The application of traditional treatment practices for dredged material will be assessed for adequacy by the Facility Operator and Project Sponsor(s) in conjunction with operation of the facility. If traditional best management practices do not achieve desired effluent quality, the Facility Operator will consult with the Project Sponsor(s) and cognizant authority, as may be required to achieve primary and supporting objectives for the DMCF and environmental quality.

2. FACILITY OPERATIONS CYCLE.

a. Placement of Dredged Material.

(1) The placement of dredged material is planned to occur during the fall through winter months (October 1 through March 31).

(a) Hydraulic placement is planned as the principal method for placing material into the cell.

(b) The timing of placement may vary within the placement period. Insofar as practicable, placement is required to be planned to occur during the months that are least favorable for dessication and consolidation of dredged material.

(c) The actual duration of inflow will depend upon the quantity of material that is to be placed and the ability of the facility to discharge effluent as quickly as possible while satisfying prescribed water quality criteria.

(2) The cell will be prepared to receive inflow during the month preceding the earliest projected date for commencement of the actual placement of material into the cell.

(a) The facility staff and equipment supported by subcontracted equipment and equipment operators to the extent necessary will scrape or excavate dried crust and use it to fill in perimeter trenches to approximately the interior cell elevation of the placed material prior to inflow.

(b) Dried crust material from within the cell will also be scraped or excavated and placed into the sump at the spillway as required to prevent the accumulation of soft material in front of the spillway. Sandy material, as available, will be used whenever possible for this activity. The objective of this activity is to accelerate sump excavation after inflow.

(c) The areas where inflow pipes will be located will be prepared by the Facility Operator to support basic access by the dredging contractor. Areas along the dike roadbed will be graded and made ready to support vehicular traffic. Inflow locations may be staked out or flagged for identification. Any additional preparations are the responsibility of the dredging contractor as part of mobilization.

(3) During inflow operations and approximately 3 to 4 weeks after completion of inflow, the DMCF will be staffed to provide up to 24-hour continuous inspection up to 7 days per week, environmental monitoring, and effluent discharge services. Facility service hours will be returned to normal workdays (normally 8 hours unless extended workdays are needed for special operations) as quickly as possible following inflow and decanting of the accumulated pond.

(4) It is anticipated that it may be necessary for frequent opening and closing of the spillway during each 24-hour period in order to remain within regulatory criteria for effluent discharge. The Facility Operator will manage the discharge from the cell into the clarification pond (if available), and when effluent meets discharge criteria, through the spillway.

(5) Inspection of dredging contractor's operations within the facility and monitoring of spillway discharge will be documented and reported as described in Section 7.0 of this OPLAN and the facility monitoring plan in Appendix T.

b. Crust Management. A crust management program will be used during the approximately 6 month period between the end of placement during the preceding dredging cycle and the beginning of the next dredging cycle. The objective of the crust management program will be to obtain the maximum dewatering and consolidation possible of placed material consistent with environmental criteria that govern discharge of effluent from the cell.

(1) The crust management program will consist of three planned phases as follows:

(a) Phase I: Release of ponded water and establishment of spillway sumps,

shallow depressions, and perimeter trenches to facilitate the movement release of ponded water.

(b) Phase II: Interior trenching for stormwater runoff and enhancement of evaporative drying.

(c) Phase III: Transition to inflow with crust scraping and backfilling of trenches and dessication cracks.

(1) The full crust management program consists of the following components. Crust management phases are indicated in parenthesis. Certain activities may overlap between phases.

(a) Digging out and maintaining a sump at the spillway (Phase I).

(b) Creating a system of interior depressions throughout the cell in a pattern that facilitates the movement of ponded water toward the spillway (Phase I).

(c) Excavation and maintenance of perimeter trenches leading to the spillway sump (Phase I).

(d) Excavation and maintenance of a system of interior trenches throughout the cell in a pattern that promotes both runoff of precipitation and evaporative drying (Phase I/II).

(e) Crust scraping to provide borrow material for pre-inflow preparations, interior bench building, establishment of baffles, and dike maintenance (Phase II/III).

(f) Installation and progressive raising of a bench (earth berm as sub-base for future dike construction) on the interior slope of the perimeter dike (Phase II/III).

(g) Installation of earth baffles as may be needed to assist in the settling of sediments during inflow (Phase II/III).

(h) Implementation of alternative methods as may be required to satisfy effluent discharge criteria (Phase I/II/III).

(i) Discing of the crust surface with placement of the resulting material in the dessication cracks and interior trenches, as practicable, to fill these voids so as to provide a type of underdrain system under each progressive layer of placement sediments (Phase III).

(j) Backfilling of the perimeter trench with dried crust material immediately prior to inflow (Phase III).

(k) Other actions that may be necessary to optimize consolidation, consistent with best management practices and budgeted resources (Phase II/III).

(3) Sump Maintenance.

(a) The sump will be excavated to the extent needed to provide a low point for effluent accumulation with sufficient depth as practicable to assist in reducing TSS in the effluent. An amphibious excavator and tracked long-reach excavators will be used for sump maintenance.

(b) The sump will be backfilled with dried crust approximately 1 to 2 weeks prior to inflow. The purpose of the backfilling is to facilitate the reestablishment of the sump upon completion of inflow.

(4) Interior Depressions.

(a) An amphibious excavator will be used as soon as practicable following the completion of inflow to create depressions throughout the cell following the interior trench pattern.

(b) The depressions will in effect provide a shallow trench to promote gravity flow of surface water toward the perimeter trench and then toward the sump.

(c) Spacing will initially be on approximately 250 foot centers. The spacing between depressions will be decreased to achieve approximately 25-foot centers at the end of Phase II. Spacing of depressions may be varied according to need.

(5) Perimeter Trenches.

(a) A perimeter trench will be excavated as soon as practicable following inflow for the purpose of establishing the primary drainage system for enabling the flow of water to the spillway. The amphibious excavator, long-reach and/or short-reach excavators will be used to construct and maintain perimeter trenches with an objective of achieving a rectangular cross section that is approximately 6 feet wide and 6 feet deep. Use of a drag line is not planned.

(b) Establishment of the perimeter trenches will begin as soon as the placed sediment can support a shallow trench about 3 feet wide excavated to an approximate depth of 6 inches without the sidewalls collapsing, approximately 2 to 4 weeks after inflow has ceased.

- The purpose of the perimeter trench is to facilitate the drying and strengthening of surrounding material.

- Excavated material will be placed to facilitate drying and accessibility for use as on-site borrow material.

- The perimeter trenches will be maintained and deepened throughout the crust management period to a width and depth that is sufficient for crust management and to provide material needed to progressively raise the bench.

- A width of 10 to 12 feet and a depth of approximately 8 feet is projected.

- Check dams using suitable materials may be installed at various locations in the perimeter trenches as means to assist in reducing the TSS potential.

(c) The perimeter trench will be backfilled with dried crust scraped from the interior of the cell within approximately 4 weeks of the next scheduled inflow. The purpose of the backfill is to provide a more solid foundation for reestablishment of the subsequent year's perimeter trench and to preclude unconsolidated material from filling the trench and hindering further consolidation.

(6) Interior Trenches.

(a) During the later stage of Phase I, a series of starter ditches following the planned interior trenching pattern may be excavated into the cell from the interior edge of the perimeter trench to a distance of several hundred feet. The actual distance will depend upon the ability of the forming crust to hold a shallow trench. The amphibious excavator and long reach excavators will be used to excavate the starter trenches.

(b) A tracked amphibious trenching machine will be used to excavate a system of interior trenches throughout the cell.

- The trenches will have a "V" shaped cross section that is approximately 2 feet wide at the surface and 2 to 3 feet deep.

- Use of a drag line is not planned.

- The trenches will be placed on approximately 25 foot centers to provide for runoff of precipitation and to enhance localized dewatering and evaporative drying.

- The trenching pattern will be initiated on 200 foot centers. Additional trenches will be excavated until the 25 foot spacing is achieved.

Additional trenches will be excavated on closer centers insofar as practicable consistent with budgeted resources in order to further promote localized dewatering and consolidation in soft areas.

- Installation of trenches will cease approximately 3 weeks prior to inflow or as otherwise determined by the Facility Operator and the Project Sponsor.

(5) Crust Scraping.

(a) An amphibious long-reach excavator will be used as the principal equipment for crust scraping due to the ability of this equipment to operate throughout the cell interior.

(b) The amphibious excavator may be supplemented, consistent with budgeted resources, with tracked long-reach excavators and low-ground-pressure bulldozers.

(c) Use of a drag line is not planned.

(d) Should other suitable equipment become available, the Facility Operator may use alternative equipment approved by the Project Sponsor(s) consistent with budgeted resources.

(e) Scraped crust will be placed on the interior slope of the perimeter dike and on the bench, along the edge of the perimeter trench, or at some other suitable location within the facility. The scraped crust will be used as borrow material for dike maintenance, backfilling of trenches and dessication cracks, and for bench building.

(8) Bench Building.

(a) Tracked long-reach and short-reach excavators and bulldozers will be used to construct an earth berm on the interior slope of the perimeter dike between the dike and the perimeter trench using scraped crust or other available suitable on-site material.

(b) The berm will be progressively raised each year to an elevation and width that will enable its continuing use following inflow as a support bench for equipment involved in the excavation and maintenance of the perimeter trench. Borrow material for the bench will consist of material excavated from the perimeter trenches.

(c) Bench construction shall not exceed the approved containment dike crest elevation until additional geotechnical testing, monitoring and analyses for the next increment of dike raising have been review and approved as

required by the USACE permit for the facility.

(d) Raising one linear foot of bench one foot in height will require approximately one cubic yard of material. Therefore, raising the entire bench will require approximately 8,500 cubic yards of dried crust material per foot of elevation raised. Once established, the bench will need to be increased in elevation by a height equivalent to the increase in relative elevation of the crust during the dredging cycle for which crust management is being performed.

(e) Initially, the bench will need to be constructed to an elevation that will be about 2 feet higher than the surface of placed material during the first placement cycle once ponded water is decanted. For planning purposes, initial establishment of the bench to an elevation of approximately 6 feet above the surface level of the cell will require approximately 51,000 cubic yards of borrow material or scraped crust. The bench will need to be raised approximately 3 feet each dredging cycle thereafter. This will require approximately 25,500 cubic yards of dried crust material.

(f) The bench will be compacted to the extent practicable so that the bench can serve as the foundation for increasing the dike elevation on the interior side of the dike.

- Minimum compaction effort, a controlled lift thickness and minimum compaction coverage, will be employed for bench construction.

- Compaction will be accomplished with multiple coverages using tracked excavation equipment or rollers.

(9) Baffles.

(a) The amphibious excavator supported by other earth moving equipment, as required, will be used to construct earthen baffles if required for the purpose of facilitating the settling of sediments during inflow.

(b) The amphibious excavator will also serve as the platform for installation of alternative materials or devices for baffles.

(10) Alternative Crust Management Methods Needed to Improve Effluent Discharge. Alternative methods will be researched and considered to the extent that traditional crust management techniques do not provide the level of treatment needed to either achieve efficient discharge of cell water for crust management purposes or to satisfy water quality criteria prescribed by competent authority for the discharge of effluent.

(11) Creation of a Natural Underdrain System.

(a) If the crust is firm enough during the final 4 to 8 weeks of annual crust management, a low-ground-pressure tractor, swamp buggy or other suitable vehicle and discing unit or harrow plow will be used to break up the crust surface. The low-ground-pressure unit will then be used to tow a sheepsfoot or other suitable roller across the dessicated crust surface to fill in and compact voids, and to the extent practicable during the final two weeks before inflow, the interior trenches.

(b) Low-ground-pressure bulldozers or other suitable equipment may be used as available and budgeted to assist in placing material into the lateral trenches. The objective of this effort will be, to the extent practicable, to minimize the filing of voids with unconsolidated dredged material and to create a form of natural underdrains to provide a natural pathway for lateral movement of trapped water toward the perimeter trenches.

(12) Innovative Dewatering Processes. The Project Sponsor(s) may consider application of innovative dewatering processes.

3. PLACEMENT.

a. **Cox Creek DMCF Rules and Regulations**.

(1) Use of the facility for placement is contingent upon adherence to the *Cox Creek Dredged Material Containment Facility Rules and Regulations*, Attachment 2 to the Cox Creek Operations and Maintenance Plan, ("Rules and Regulations").

(2) The Facility Operator will provide on-site administration of the Rules and Regulations for the MPA.

(3) Placement Permits/Authorization to Proceed. Permits and authorizations to proceed will be administered in accordance with provisions of the Rules and Regulations.

(4) Placement Operations Plan. The permit applicant is require to submit and obtain approval for a Placement Operations Plan in accordance with provisions of the Rules and Regulations.

b. **Placement Activities**. All placement activities including mobilization and demobilization will be performed in accordance with this OPLAN and the Rules and Regulations.

(1) Inflow Points.

(a) The location of inflow points shall be as stated in the MPA-issued permit.

(b) In general, it is anticipated based on facility design, that the inflow points for

hydraulic placement will be confined to the area between Station 20+00 and Station 60+00.

(c) The inflow locations are planned for placement strategically along the dike to maintain favorable cell topography. Once placement operations begin, the inflow locations may be advanced or relocated as required to preclude the settled material from accumulating to an excessive elevation or impeding placement operations or site management.

(d) Inflow points may need to be relocated to aid in achieving effluent discharge criteria for the facility or other special circumstances. Relocation of inflow points shall be conducted as required by the Rules and Regulations and the MPA permit.

(2) Facility and Dike Inspection During Inflow. The Facility Operator will perform facility and dike inspections per the Rules and Regulations.

(3) Preconstruction and Progress Meetings During Placement. Preconstruction and progress meetings will be conducted in accordance with the Rules and Regulations.

c. **Dewatering During Placement**. See Paragraph 6 of this Appendix.

4. CRUST MANAGEMENT.

a. The Facility Operator will conduct a comprehensive crust management program to regain capacity following placement. For planning purposes, a 6-month crust management period is projected during each dredging cycle. The actual period will vary according to dredging needs.

b. The Facility Operator will use the following generic crust management plan as a guide in establishing an annual crust management plan for the current dredging cycle. The annual crust management plan will be submitted for approval to the Project Sponsor(s) 4 weeks prior to the scheduled commencement of crust management.

(1) Phase I-A: First 4 week period following completion of hydraulic placement.

(a) Perimeter Trench.

- Establish and maintain a perimeter trench 3 feet wide and 6 inches deep along the interior edge of the bench approximately 15 feet from where the crust surface would otherwise intersect the interior slope of the perimeter dike and the bluff on the west side of the cell. The trench will start on either side of the inflow point or points and be excavated so as to extend along the perimeter of the cell to the spillway (or settling basin, if installed). Multiple passes of excavation equipment will be

performed until collapsing of side walls is minimal at the 6 inch depth.

- Place the excavated material on the interior slope of the perimeter dike and the interior bench to dry for future use as on-site borrow material for bench building.

- The cross sectional profile will be a shallow "V" in order to aid in collecting runoff from the cell surface.

(b) Spillway Sump Excavation and Maintenance.

- Excavate and maintain a sump at the spillway concurrently with establishment of the initial perimeter trench.

(c) Interior Depressions.

- Establish interior depressions throughout the interior of the cell using an amphibious excavator. The depressions will be initiated on 250 foot centers with progressive reductions to 25-foot centers by the end of Phase I, to the extent practicable.

- Establishment of the depressions will begin as soon as practicable (within 2 weeks) following the completion of placement.

- A total of 190,000 linear feet of depressions is planned for Phase I.

(2) Phase I-B: Second 4-week period following completion of placement.

(a) Perimeter Trench.

- Widen the perimeter trench to approximately 4 feet in width and to an approximate depth of 12 inches. Multiple passes of excavation equipment will be performed until collapsing of side walls is minimal at the 12 inch depth.

(b) Spillway Sump Maintenance.

- Continue widening and deepening the sump at the spillway to the extent practicable concurrently with establishment of the initial perimeter trench.

(c) Interior Depressions.

- Continue establishment of interior depressions throughout the interior of the cell using the amphibious excavator.

(d) Interior Trenching: Starter Ditches.

- Excavate starter ditches following the planned interior trenching pattern into the cell from the interior edge of the perimeter trench to a distance of several hundred feet. The actual distance will depend upon the ability of the forming crust to hold a shallow trench

(3) Phase II-A: Third 4-week period following completion of placement.

(a) Perimeter Trench.

- Widen the perimeter trench to about 5 feet in width and to an approximate depth of 2 to 3 feet, depending upon the consistency of material. Multiple passes of excavation equipment will be performed until collapsing of side walls is minimal at the 2 to 3 foot depth.

(b) Spillway Sump.

- Maintain, widen and deepen the sump at the spillway to the extent practicable concurrently with establishment of the initial perimeter trench.

(c) Interior Depressions.

- Continue establishment of interior depressions.

(d) Bench Building.

- Initiate bench building. Grade interior slopes and bench to manipulate and expedite dessication of excavated material from the perimeter trench.

(4) Phase II-B: Fourth 4-week period following completion of placement.

(a) Perimeter Trenches.

- Excavate the perimeter trench to between 5 and 8 feet in width and to an approximate depth of 3 to 5 feet, depending upon the consistency of material. Multiple passes of excavation equipment will be performed until collapsing of side walls is minimal at the 3 to 5 foot depth.

(b) Spillway Sump.

- Continue sump maintenance with supplemental widening and deepening a conditions warrant.

(c) Interior Depressions.

- Continue establishment of interior depressions to achieve 25 foot centers.

- Initiate a second pass through established interior depressions in areas where crust is forming.

(d) Interior Trenches.

- Starter Ditches. Continue excavation of starter ditches following the planned interior trenching pattern into the cell from the interior edge of the perimeter trench to a distance of several hundred feet depending upon consistency of the material.

- Interior Trenches. Initiate establishment of interior trenches on 200 foot centers where the consistency of material will allow excavation of a 2 foot wide, 2 to 3 foot deep trench with a "V" cross section.

(e) Crust Scraping.

- Perform crust scraping beginning during the second half of Phase II and extending through Phase III to expose underlying wet areas to evaporative drying and to reclaim crust material for use as borrow material to fill the perimeter trench in the weeks immediately preceding the scheduled resumption of placement.

- Scrape a one-foot deep swath in a 60 feet wide band around the perimeter of the cell adjacent to perimeter trenches. Extend the scraped surface to 120 feet wide to the extent practicable by the end of Phase III.

(f) Bench Building.

- Continue bench building. Grade interior slopes and bench to manipulate and expedite dessication of excavated material from the perimeter trench.

(5) Phase II-C: Fifth 4-week period following completion of placement.

(a) Perimeter Trenches.

- Excavate the perimeter trench to between 10 and 12 feet in width and to an approximate depth of 5 to 8 feet, depending upon the consistency of material. Multiple passes of excavation equipment will be performed until collapsing of side walls is minimal at the 5 to 8 foot depth.

(b) Spillway Sump.

- Continue sump maintenance with supplemental widening and deepening a conditions warrant.

(c) Interior Depressions.

- Continue and complete second pass through established interior depressions in areas where crust is forming.

(d) Interior Trenches.

- Starter Ditches. Continue excavation of starter ditches following the planned interior trenching pattern into the cell from the interior edge of the perimeter trench to a distance of several hundred feet depending upon consistency of the material.

- Interior Trenches. Continue establishment of interior trenches on 200 foot centers where the consistency of material will allow excavation of a 2 foot wide, 2 to 3 foot deep trench with a "V" cross section. Increase the number of trenches by decrease spacing to 100 foot centers. Progressively decrease spacing to 50-foot then 25-foot centers as conditions permit.

(e) Crust Scraping.

- Continue crust scraping.

- Scrape a one-foot deep swath in a 60 feet wide band around the perimeter of the cell adjacent to perimeter trenches. Extend the scraped surface to 120 feet wide to the extent practicable by the end of Phase III.

(f) Baffles.

- Initiate installation of earthen or other baffles, if required to assist with decanting of effluent.

(6) Phase III-A: Sixth 4-week period following completion of placement. The actions indicated for Phase III-A are required prior to inflow and will need to be completed earlier if there is less than a 6-month crust management window.

(a) Perimeter Trenches.

- Maintain the perimeter trench between 10 and 12 feet in width and to

an approximate depth of 5 to 8 feet.

(b) Spillway Sump.

- Maintain sump.

(c) Interior Trenches.

- Continue establishment of interior trenches that are 2 foot wide and 2 to 3 foot deep trench with a "V" cross section. Continue this trenching until 3 weeks prior to projected inflow of material or until 25 foot centers are achieved, whichever comes first.

(d) Crust Scraping.

- Continue crust scraping as long as possible prior to inflow.

- Scrape a one-foot deep swath in a 60 feet wide band around the perimeter of the cell adjacent to perimeter trenches. Extend the scraped surface to 120 feet wide to the extent practicable.

(e) Bench Building.

- Continue bench building. Grade interior slopes and bench to manipulate and expedite dessication of excavated material from the perimeter trench.

(f) Baffles.

- Complete installation of earthen or other baffles prior to scheduled commencement of inflow.

(g) Backfilling of Perimeter Trench.

- Initiate backfilling of perimeter trench with dried crust in sufficient time to enable completion prior to the scheduled commencement of inflow.

(h) Backfilling of Spillway Sump.

- Backfill spillway sump with sand, if available, otherwise with dried crust in sufficient time to complete this work prior to the scheduled commencement of inflow.

(i) Advanced Crust Management.

(7) Phase III-B: Period in excess of 6 months following completion of placement.

(a) Extend time frame Phase III-A activities above.

(b) Advanced Crust Management.

- Perform discing and compacting (rolling) of the crust surface to expose crust for drying and to fill dessication cracks.

- Backfill interior trenches with dried crust material, insofar as surface conditions permit, working from higher to lower elevations of the crust surface.

5. CELL DEWATERING.

a. The discharge of effluent from the facility is fundamental to its effective and efficient operation, consistent with regulatory criteria applicable to this activity which is found in Appendix S to this OPLAN.

b. In general, the Facility Operator is required to manage the cell water to protect the physical integrity of the facility, to optimize the volume available for hydraulic placement, to discharge cell water as quickly as possible following placement to facilitate dewatering and consolidation of placement material, and to perform these activities in conformance with regulatory critieria applicable to effluent discharge.

c. The discharge of effluent from the facility will be performed as described in Appendices T and U of this OPLAN.

d. Environmental Documentation. The Facility Operator will prepare, maintain and submit environmental documentation prescribed in Appendices S, T and U of this OPLAN.

6. CELL AND FILL MATERIAL CONDITIONS

a. The Facility Operator will conduct periodic topographic surveys of the cell to determine the in situ quantity of material placed in the facility and to monitor crust management results.

b. Surveys will be conducted bi-monthly unless conditions warrant an increased frequency. The results of the surveys will be analyzed and reported to the Project Sponsor(s).

c. Survey reports will consist of the following elements:

(1) Placement and Crust Management Common Elements.

(a) Origin of dredged material received

(b) Amount of material received

(c) Contractors/type of inflow, hydraulic or mechanical

(d) Dredging projects

(e) Inflow Stations

(f) Change in average elevation of material

(g) Quantify change in elevation to a gain or loss in mcy

(h) Quantify remaining available volume

(i) Historical material bulking factor = surveyed volume/dredged volume

(j) Inflow bulking factor = surveyed volume/dredged volume - per survey period during inflow

(k) Pond area and volume

(l) Describe current cell material characteristics, inflow or crust, if crust document crack depths and how much of the cell could be traversed by foot

(m) Document the equipment used to complete the survey

(2) Placement-Specific Survey Report Elements

(a) Illustrate how material is moving throughout the cell, including lift thickness over the entire cell

(b) Primary spillway being used

(c) Other spillways being used (if installed)

(d) Subsurface Monitoring to determine water content and void ratio

(3) Crust Management-Specific Survey Report Elements.

(a) Quantify and illustrate perimeter trenching, depressions, interior depressions and volume scraped

(b) Document the equipment being utilized for each crust management task

(c) Illustrate consolidation through change in elevation maps

(d) Subsurface monitoring to determine water content and void ratio

7. OPERATIONS DOCUMENTATION AND REPORTING.

a. Weekly Report of Operational Activity.

(1) The Facility Operator will collect, compile and maintain a weekly report of operational activity to support on-site placement and crust management planning and to document operation of the facility. This report will be retained on file by the Facility Operator and a copy will be provided to the Project Sponsor(s).

(2) The weekly report will consist of the following elements:

(a) Weekly Dredged material placement by inflow locations by contractor

(b) Daily Average pond elevation

(c) Daily River water appropriated

(d) Daily meteorological data

- Precipitation
- Pan evaporation
- Sky conditions
- Winds (direction, mph)
- Temperature, F (maximum)

(e) Daily Spillway discharge data

- Hours (in tenths) of discharge
- Discharge flow (MGgal)
- Daily narrative describing spillway operations
- Daily narrative describing maintenance activities
- Daily narrative describing crust management activities
- Daily tally of facility personnel, visitors, and general comments about operation of the facility
- Maintenance of the storm water management pond
- Maintenance of co-located mitigation sites

b. Operations Reports.

(1) The Facility Operator will prepare and submit to the Project Sponsor(s) semi-annual operations reports.

(2) The operations report table of contents will include the following categories:

(a) Introduction

(b) Key Activities

- Operations
- Crust Management
- Subsurface Monitoring

(c) Dredged Material Received

(d) Material Volume Summary

(e) Environmental Monitoring

(f) Appendices

- Environmental Monitoring Data
- Topographic Surveys

(3) The operations report will include all data from the survey reports within the six-month reporting period. The operations report shall also include the following data elements:

(a) Historical yearly breakdown of total inflow in mcy

(b) Tables representing current dredging projects, start and completion dates with reported dredged quantities

(c) Overview of Inflow Operations

(d) Overview of Crust Management Operations

(e) Overview of other current HMI projects, example, dike raising and beach stabilization and replenishment

- Environmental Monitoring
- TSS data
- pH data
- Nutrient data
- Well Monitoring
- Biomonitoring
- Semi-Annual Monitoring

d. **Project Status Updates**.

(1) The Facility Operator will prepare and provide a project status summary for use

by the MPA in updating the status of the facility to the Executive, Management, and Citizens Committees of the MPA Dredging Needs and Placement Options Program and for the Port of Baltimore Quarterly Coordination Meeting.

(2) The Facility Operator will prepare and provide to the Project Sponsor(s) additional updates as may be required for special events.

(3) The Facility Operator shall upon request of the Project Sponsor(s) provide a qualified professional staff member to present the status updates.

APPENDIX D

FACILITY HISTORY

1. SUMMARY.

The Cox Creek Dredged Material Containment Facility (DMCF) [formerly referred to as the CSX/Cox Creek DMCF] has a long an continuous history of use and planning for use as a dredged material placement site. The facility consists of a single containment cell that was formed from the former CSX and Cox Creek containment cells. The facility was actively used for placement between 1962 when it was established by the Baltimore District, U.S. Army Corps of Engineers, and 1984 when the most recent placement occurred prior to acquisition of the facility by the Maryland Port Administration (MPA).

The exterior dikes of the CSX and Cox Creek cells were repaired periodically for the expressed purpose of continuing use of the cells for the future placement of dredged material. Repairs were performed in 1991 for the CSX cell and in 1994 for the Cox Creek cell. Long-term planning for continued use of the facility for the placement of dredged material was performed between 1975 and 1983 by the property owners and McLean Contracting Company and from 1979 onward by the MPA in consultation with representatives of the state and federal agencies and the public. Use of the facility was presented as a critical component of the State of Maryland's Strategy for Dredged Material Management and an accompanying intergovernmental Statement of Cooperation in 1996. The MPA acquired the CSX cell in 1993 and the Cox Creek Cell in 1997.

2. INITIAL CONSTRUCTION AND USE: 1962-1965.

The initial containment site at Marley Neck was created by the Baltimore District, U.S. Army Corps of Engineers, in 1962, to receive some 3 million cubic yards of dredged material from portions of the federal navigation project (i.e., channel) within the Port of Baltimore. The Corps of Engineers utilized the site, hydraulically filling the cell to about elevation +6 feet. The filling operations occurred between 1962 and 1965 and left a shallow pond in the southern portion of the site.

Through an agreement with the State, the adjacent property owners, the Kennecott Refining Corporation (former owner of the Cox Creek site) and the B&O Railroad Company (former owner of the CSX site) received rights, the exact type of which are not defined in the background literature, to the created property in 1966. Nevertheless, at some time both companies obtained title to their respective cells. In the 1970's, both companies resumed disposal operations within their portion of the diked area.

3. OPERATIONS, FACILITY IMPROVEMENTS, AND INITIAL LONG-TERM PLANNING: 1970-1984

The CSX and Cox Creek cells and the Hawkins Point area were identified as possible sites for a large-scale containment facility for the Port of Baltimore in 1970 (Green Associates and

Trident Engineering Associates, 1970). The area in the vicinity of Hart and Miller Islands was subsequently selected for construction of a containment facility. However, owners of the CSX and Cox Creek properties were interested in the potential for long-term future use for dredged material placement.

Around 1975, the dikes around the Cox Creek cell were raised to +16 feet and were widened to their 1998 crest widths of 24 to 28 feet along the cross dike (that was removed to create the single cell) and from 32 to 42 feet along the east and south dikes. Additional dredged material was placed to the 1998 level near +10 feet. In 1975, Kennecott expressed interest in developing a study for long-term use of its containment cell.

The Chessie System (the successor to the B&O Railroad Company and now the CSX Corporation) entered into a contract in October 1975, granting a contractor, McLean Contracting Company, exclusive rights to use the B&O (CSX) portion of the containment area for several years. McLean made a study of the CSX cell with the thought of expanding the capacity of the site. The initial study included 28 test borings and a geotechnical report prepared by ATEC entitled *Disposal Area - Anne Arundel County, Maryland* (ATEC, 1975). The 1975 study indicated that there were soft foundation soils.

The B&O Railroad developed and extensive plan for use of their property for the placement of dredged material from the Fort McHenry Tunnel project. Permit applications were filed with the Baltimore District, U.S. Army Corps of Engineers, for improvements to the CSX facility (U.S.A. Public Notice #505-11/1/79 NABOP-F/W (Chessie Resources, Inc.) 79-1049-1) with the intention of obtaining the necessary permits by April 1980 to enable improvements by April 1984 to meet federal time tables for funding eligibility. The facility was subsequently designated as an alternative site for the placement of dredged material from the I-95 harbor Tunnel project.

A comprehensive geotechnical study was performed for McLean Contracting in 1983 and reported *Subsurface Investigations and Geotechnical Evaluation - Dredged Spoil Disposal, Anne Arundel County, Maryland* (ATEC, 1983). This study included additional test borings in the Cox Creek cell with the intent of increasing the then existing storage capacity of the cell by raising the dikes to elevation +30 feet or higher. A new north dike was propsoed along with raising of the existing east and south dikes. The study suggested that the dikes, if raised, would have to be done using incremental lifts so as to permit consolidation of the substrata.

The CSX cell was used by McLean through 1984 for disposal of material from B&O/CSX and other projects. During the period from 1975 to 1980, the dikes around the CSX cell were raised to +16 feet and riprap protection was added to the east and south dikes. During the same period, material from the utility crossing upriver from the Francis Scott Key Bridge was deposited on the Kennecott (i.e., Cox Creek) portion of the site. In 1983, ATEC conducted a subsurface investigation at the Cox Creek site and observed that the new dike fill for the cross dike was causing bearing capacity failures in the soft foundation materials. Study of the CSX cell also indicated soft foundation conditions. The field work was performed prior to raising the dikes of the CSX cell to enable continued filling. The dikes were raised to +20 feet in 1984, at which time the level of the dredged fill was at an approximate elevation of 10 to 13 feet. The largest single project placed was from the BG&E Brandon Shores Station which was permitted at 525,100

cubic yards. During its use of the CSX cell, McLean erected a conveyor into the CSX cell. It was located about midway north and south and about one-third the cell width from the CSX east dike. This became the primary unloading site. A secondary unloading site was at the north end of the cell, near the common cross dike with the Cox Creek cell. Material unloaded at this northern site was trucked inland and dumped into the cell.

4. STATE DREDGED MATERIAL MANAGEMENT PLANNING: 1979-1997

In early 1979, the Maryland Department of Transportation instructed the MPA to investigate the feasibility of axquiring the "B&O - Kennecott Spoil Disposal Area." The MPA investigated extending the entire site eastward, thereby creating a large disposal area of up to about 440 acres. The MPA explored the acquisition of the properties with the owners and conducted field studies and appraisals as part of this process in 1979 and 1980. This activity coincided with and was motivated by delays experienced by the MPA in advancing the Hart-Miller Island Dredged Material Containment Facility from design into construction, with specific emphasis on the need for placement capacity for material from the Bethlehem Key Highway project, MPA Hawkins Point facility, and the 50-foot channel deepening project for Baltimore Harbor and its southern approaches.

The Hart-Miller DMCF became available in 1984, removing the need for near-term acquisition and use of the CSX and Cox Creek cells. The material from the Fort McHenry tunnel project was deposited at the Sea Girt Marine Terminal as part of facility expansion activities rather than in the CSX and Cox Creek cells. Dredged material from federal navigation projects was deposited in the Hart-Miller Island DMCF. Dredged material from sources which previously used the CSX anc Cox Creek site were subsequently also deposited at the Hart-Miller Island facility, again removing the near-term need for improvements at the Marley Neck site.

The CSX anc Cox Creek cells were studied from 1986 to 1990 as an element of the MPA's Port of Baltimore Dredged Material Management Master Plan (MPA, 1989, 1990). From 1990 to 1991, the Governor's Task Force on Dredged Material Management conducted a broad-based assessment of the Port's placement needs. In 1991, the Task Force recommended construction of a new containment site for contaminated dredged material (MDOT, 1991). As part of its action on this recommendation, the MPA considered the potential for renewed use of the CSX and Cox Creek cells as an alternative to construction new facilities in the Inner Harbor area. CSX Corporation performed dike repairs in 1991 in order to maintain its cell. The "B&O-Kennecott" site was specifically included as a planned study site in the development of a Long-Term Management Strategy (LTMS) by the MPA and the Baltimore District, U.S. Army Corps of Engineers.

The MPA initiated negotiations with the CSX Corporation in 1992 and subsequently acquired the CSX cell and adjoining tidal wetland and upland property to the west and south in 1993. Use of the "CSX/Cox Creek facility" was also incorporated into the MPA-sponsored Dredging Needs and Placement Options Program (DNPOP) which includes active participation by the Baltimore District and Maryland Department of the Environmental, along with other pertinent State and Federal agencies, regional environmental interest groups, maritime interests, and representatives of the public (MPA, 1992; MPA and MES, 1994; MPA, 1995). The results of the

Master Plan, Governor's Task Force recommendations, and LTMS initiatives served as the planning foundation for the DNPOP program. The CSX/Cox Creek facility was included in the DNPOP program and was anticipated at that time to be the replacement for the Hart-Miller Island facility which was projected to be filled to capacity in the mid-1990s. The facility was publicly advocated as a critical element of long-term dredged material management planning in order to accommodate dredged material from State, Federal, and certain private dredging activities essential to port and navigation infrastructure in Baltimore Harbor. The MPA initiated negotiations with the owners of the Cox Creek cell beginning in 1993. Interest in the adjoining upland property by commercial interests delayed acquisition of the cell and the adjoining upland property by the MPA until early 1997. During the intervening period, the inability to resolve placement needs led to promulgation of the State of Maryland's Strategy for Dredged Material Management (MDOT, 1996), discussed further below. This strategy resulted in the raising of the Hart-Miller Island dike system, extending the facility's service life through Year 2009. Although this removed the immediate need for use of the CSX and Cox Creek cells, planned improvements of navigation projects in Baltimore Harbor necessitated renovation of the facility for near-term use.

In 1994, the Baltimore District, issued a permit to the Cox Creek Refining Company for repairs to the Cox Creek cell to enable its further use as a dredged material placement site. The Public Notice - CE-NASBOP RW (Cox Creek Refining Co./Earthen Dike Repairs) 93-67568-12 - stated that "The purpose of this project is to repair the outer embankment of the earthen dike enclosing an existing dredge disposal site. This disposal site must be stabilized to State requirements in order to be re-used for placement of additional dredged material." However, major repairs were not undertaken at that time. The MPA subsequently acquired the cell and adjacent upland refinery property after it had been remediated to standards prescribed by the Maryland Department of the Environment.

The CSX/Cox Creek containment facility was included as a central element of the State of Maryland's Strategic Plan for Dredged Material Management in August 1996 (MPA and MDOT, 1996a,b). Concurrently, it was specifically included as part of the long-term placement plan in the Statement of Cooperation Regarding Use and Placement of Dredged Material in the Maryland Portion of the Chesapeake Bay that was signed on September 5, 1996, by senior officials of the Northeast Region of the U.S. Fish and Wildlife Service, Northeast Region of the National Marine Fisheries Service, Region III of the Environmental Protection Agency, and Maryland Departments of the Environment, Natural Resources, and Transportation.

5. FACILITY RENOVATIONS.

The MPA entered into an intergovernmental agreement with the Maryland Environmental Service (MES) to provide engineering and environmental services for facility renovation and permitting including mitigation planning, for construction of a storm water diversion project to divert storm water from the former Cox Creek refinery (which had been discharging into the Cox Creek cell) to the non-tidal wetland area immediately north of the cell, and preparation of an operations and maintenance plan for the facility. New geotechnical studies (E2SI, 1998) were performed and coordinated by MPA and MES with the Baltimore District and MDE. The results of the geotechncial investigations were incorporated into renovation design (Moffatt & Nichol

Engineers, 1998).

MES, under the terms of an intergovernmental agreement with the MPA, contracted for and managed a construction project to divert upland storm water runoff from Cox Creek cell into the non-tidal wetland immediately north of the cell. The non-tidal wetland was permitted for this purpose. The existing shallow pond was excavated to increase its efficiency to retain storm water runoff to meet requirements prescribed by the Chesapeake Bay Critical Areas Commission. Various mitigation plantings were also performed in conjunction with this activity.

[ADD THE RENOVATION PROJECT, MITIGATION SITES AND PERMITTING ONCE THESE ACTIONS ARE FINALIZED]

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APPENDIX E

FACILITY LAYOUT

[TO BE DEVELOPED]

APPENDIX F

DESIGN CAPABILITIES FOR DREDGED MATERIAL MANAGEMENT

[TO BE DEVELOPED]

APPENDIX G

PLANNING FACTORS FOR FACILITY STAFFING

1. FACILITY STAFFING REQUIREMENTS.

a. **Governing Factors.**

- Regulatory Compliance. The Cox Creek DMCF is located on the shore of the Patapsco River which has been identified as an impaired water body by the Environmental Protection Agency with probable areas of concern for contaminated sediments (CITES). A Total Maximum Daily Load (TMDL) will be developed by the Maryland Department of the Environment (MDE) for this water body. A governing factor in determining facility staffing requirements will be the continuing capability to effectively manage, monitor, document and report effluent discharge from the containment cell in accordance with water quality criteria prescribed for operation of the facility. Failure to achieve water quality requirements could potentially result in either a requirement for installation of a high-cost treatment process or premature closure of the facility. Accordingly, the Facility Operator is required to maintain a permanent core staff that is experienced in dredged material management and environmental regulatory compliance.

- Optimization of DMCF Capacity. The disposal potential for contaminated sediments is limited. Therefore, a full-scale aggressive crust management program is required throughout the planned service life of the facility. Certain specialized equipment for dredged material management is required to be available for use at the facility. The Facility Operator is required to maintain a permanent core staff that is qualified to operate the specialized equipment.

b. **Cross Training of Core Staff.** The planned work load for the facility is such that the environmental inspection, regulatory compliance, and specialized crust management services are not individually sufficient to support a permanent core staff. Therefore, cross training and qualification will be required in order to provide the continuity of service that is essential for effective operation of the facility over it planned service life. Therefore, the Facility Operator is required to provide a core staff that is cross trained and qualified to provide services for regulatory compliance and the operation of specialized dredged material management services.

2. PROJECT ADMINISTRATION AND TECHNICAL SUPPORT

a. **Planned Staffing Levels.** The below listed staffing levels are planned to provide the project management and technical support needed to operate the Cox Creek DMCF for hydraulic placement during a typical annual dredged material management cycle. The level of technical support is also intended to provide resources needed to monitor

the performance and physical conditions of the facility so that essential future year dike system improvements can be effectively planned and implemented. The staffing levels assume that traditional best management practices for confined disposal facilities will suffice for effluent discharge. Increased staff time and additional scientific and engineering support including subcontracted resources would be required to undertake environmental studies and to apply advanced treatment technologies should such become necessary in response to regulatory criteria applied to the facility and the receiving water body.

(1) Program Manager - 10%

(2) Project Manager (appropriate engineering discipline)- 40%

(3) Environmental Scientist - 20%

(4) Environmental Specialist - 50%

(5) Safety and Health Officer - 10%

(6) Engineering Technician (or equivalent) - 20%

(7) Other: As determined in consultation with the Project Sponsor(s). Additional needs may include environmental scientists and specialists, construction manager, construction inspector, CADD technicians and other professional and technical staff as may be needed to satisfy operational, environmental or engineering requirements not present at the time of OPLAN development.

b. **Planned Service Requirements.**

(1) Program Manager:

- Administrative point of contact for contract administation.
- Senior policy and technical oversight and coordination.
- Senior-level coordination with Project Sponsor(s), environmental regulators and resource agencies.
- Planning for all aspects of facility operation and maintenance.
- Planning for facility improvements.
- Project staffing.
- Program-level supervision of supporting professional and technical staffs.

(2) Project Manager:

- Manage project per OPLAN and contract requirements and regulatory criteria applicable to facility under the supervision of the Program Manager.
- Project-level coordination with Project Sponsor(s).
- Develop project budgets.

- Supervise field staff and assigned professional and technical staff.
- Manage engineering technical and geotechnical monitoring services.
- Manage capital improvements program approved by Project Sponsor(s).
- Prepare and report project summary reports for MPA-sponsored Dredging Needs and Placement Options Program.
- Oversee performance of safety and health program for project.
- Other project management tasks coordinated with Project Sponsor(s).

(3) Environmental Scientist:

- Provide scientific support and review for environmental monitoring, documentation and reporting in coordination with the Project Manager.
- Provide professional oversight of environmental staff services for the project.
- Provide scientific support to project.

(4) Environmental Specialist:

- Perform environmental documentation for facility operation and compliance reporting in coordination with the Site Manager and under the professional supervision of the Enviromental Scientist.
- Plan and conduct environmental inspector training and technical oversight.
- Provide environmental monitoring technical support.
- Perform phragmites control.
- Coordinate and provide pest control.
- Conduct mitigation site environmental monitoring.
- Maintain environmental monitoring and field laboratory equipment.
- Perform field laboratory analysis.

(5) Safety and Health Officer:

- Establish and update safety and health program for project.
- Conduct periodic safety inspections and program review.
- Coordinate safety and health training.
- Provide technical support for safety and health monitoring and reporting.

(6) Engineering Technician:

- Coordinate and perform engineering monitoring and prepare documentation.
- Maintain engineering and maintenance records and documentation in coordination with Project Manager, Site Manager and Senior Equipment Operator.
- Perform surveying and engineering field tasks per OPLAN requirements.
- Provide general CADD services for project.
- Maintain surveying and other engineering equipment at the facility.

(7) Other: As determined in coordination with Project Sponsor(s).

3. FACILITY MANAGEMENT

a. **Planned Field Staffing Requirements**.

(1) Site Manager/Field Operations Supervisor - 100%

(2) Senior Environmental Inspector - 100%

(3) Senior Equipment Operator - 100%

(4) Environmental Inspectors/Equipment Operators (3) - 100%

(5) Temporary/Part-time Inspectors - as necessary to maintain 24-hour operations during placement. For planning purpose, two temporary inspectors are anticipated for each six-month placement period.

(2) **Planned Field Service Requirements**.

(1) Site Manager/Field Operations Supervisor.

- Perform daily site management per OPLAN and contractual requirements under the supervision of the Project Manager.
- Conduct placement and effluent discharge in accordance with the OPLAN, contractual requirements and applicable regulatory criteria.
- Serve as Field Operations Supervisor for facility operations and maintenance and for crust management.
- Coordinate provision of maintenance and repair of equipment.
- Coordinate equipment refueling.
- Manage on-site implementation of the facility safety and health program.
- Serve as first-line supervisor for senior environmental inspector and senior equipment operator.
- Coordinate and provide on-site training for facility staff.
- Coordinate field-level procurement actions for services, equipment and supplies.

(2) Senior Environmental Inspector.

- Coordinate and supervise effluent discharge and mitigation site environmental monitoring and documentation.
- Supervise and provide on-the-job training for environmental inspectors.
- Serve as Site Manager during the absence of the assigned Site Manager.
- Assist Site Manager in managing the facility.
- Operate watercraft assigned to facility.

- Assist the Environmental Specialist in maintaining environmental monitoring and field laboratory equipment.

(3) Senior Equipment Operator.

- Operate assigned equipment.
- Coordinate on-site equipment maintenance checks.
- Supervise equipment fueling.
- Maintain equipment operation and maintenance records in coordination with the Engineering Technician.
- Supervise and provide on-the-job training for equipment operators.
- Serve as Site Manager during the absence of the assigned Site Manager and Senior Environmental Inspector.
- Assist Site Manager in planning and managing operations and maintenance of the facility, crust management, and maintenance of co-located mitigation sites.
- Operate watercraft assigned to facility.

(4) Environmental Inspectors/Equipment Operators (3).

- Perform environmental inspection year-round for effluent discharge.
- Operate spillways per this OPLAN and in compliance with regulatory criteria for effluent discharge.
- Operate specialized dredged material management equipment.
- Operate other equipment as available, performing duties as assigned.
- Operate watercraft assigned to facility.

(5) Temporary/Part-time Inspectors:

- Provide environmental inspection as necessary to maintain 24-hour operations during placement.
- Perform other duties as assigned.

4. SUBCONTRACTED LABOR AND SERVICES

a. **Subcontracting**. Subcontracted labor may be used to supplement resources available at the facility. Subcontracting practices and procedures will be reflected in the contractual arrangements between the Project Sponsor(s) and the Facility Operator.

b. **Potential Service Areas for Subcontracting.** The Facility Operator may arrange for subcontracted services in the following non-inclusive list of service areas subject to contractual requirements with the Project Sponsor(s). The Project Sonsor(s) and Facility Operator will consider the cost-effectiveness of operation and the availability and appropriateness of dedicated facility resources in determining the need for subcontracted services.

- Equipment maintenance and repair.
- Fueling.
- Geotechnical monitoring and analysis.
- Surveying (aerial and/or ground)
- Earth moving services and equipment for crust management and facility maintenance.
- Laboratory analysis (e.g. toxicity).
- Toe dike hydrographic survey (on 3-year schedule).
- Phragmites control.
- Pest control.
- Maintenance of co-located mitigation sites.
- Boat services.

APPENDIX H

EQUIPMENT CAPABILITY AND MAINTENANCE REQUIREMENTS

1. **Facility Operator RESPONSIBILITIES**. The Facility Operator is required to provide and maintain operational capabilities specified by the Project Sponsor(s) in pertinent contractual documents, including the specialized capabilities specified in this appendix.

2. **MINIMUM CAPABILITY REQUIREMENTS**. The following minimum specialized capabilities are required to be provided and maintained for the operation of the Cox Creek DMCF. The Facility Operator shall provide and maintain this equipment at the site during the periods indicated. Alternative equipment is not authorized. Exception: The Project Sponsor(s), at sponsor discretion and consistent with contractual and budgetary arrangements, may provide equipment that deviates to limited extent from the below listed capabilities for use by the Facility Operator.

   a. Amphibious Long-Reach Excavator. Full-time availability on site (less an allowance for maintenance and repairs) of a self-propelled amphibious long-reach excavator capable of being operated independently by an single operator without assistance in all forms of hydraulically placed dredged material from initial slurry through and including dried crust. The amphibious excavator shall be capable of:

      - propelling and/or pulling itself through slurry and consolidating dredged material to create surface depressions;
      - maintaining sumps around spillways from the interior of the containment cell;
      - digging perimeter trenches to a depth of not less than six feet;
      - scraping crust at a distance of not less than 50 feet and to a depth of not less than 12 inches;
      - transporting a surveryor within the cell for topographic surveys.

   b. Amphibious Trenching Machine. Selective on-site availability during the crust management phase of the planned annual dredged material placement cycle of an amphibious trencher capable of being operated independently by a single operator without assistance on crust composed of drying dredged material that cannot support ground pressure in excess of 1.0 pounds per square inch. The trencher shall be available to commence placement of trenches not later than 90 days following completion of hydraulic inflow. The trencher must be capable of digging 1,000 linear feet of trench per hour to a depth of not less than 2 feet and a width of approximately 2 feet.

   c. Winch Vehicle. Selective on-site availability of a winch vehicle with cable of sufficient length and strength to haul the amphibious trenching machine across the length of the cell in the event that the trencher breaks through the crust.

d. Low-Ground-Pressure Tractor, Discing Unit, and Roller. Selective availability during the final 4 to 8 weeks of annual crust management of a low-ground-pressure tractor, swamp buggy or other suitable vehicle capable of being operated independently by a single operator without assistance on a firm crust of dredged material and capable of pulling independently a discing unit or harrow plow and, upon completoing of discing, a sheepsfoot or other suitable roller across a crust cabable of supporting this equipment.

e. Other Earth Moving Equipment. Selective availability of bulldozers, low-ground-pressure bulldozers, loaders and other earth moving equipment as required to conduct dredged material management and facility maintenance.

f. Special Within-Cell Transport Unit. Full-time on-site availability during all periods during which the dredged material within the cell cannot support the weight of a surveyor walking on the surface a specialized motorized unit, such as a hovercraft, capable of independently transporting two surveyors across unconsolidated dredged material.

g. Watercraft.

(1) Full-time availability at the facility of a shallow draft watercraft capable of independent all-season operation under normal operating conditions and of transporting a two-person crew and environmental monitoring equipment to and from monitoring stations in the water area immediately offshore of the facility. The watercraft shall provide sufficient shelter for the crew and monitoring equipment. The Facility Operator may request that the Project Sponsor(s) authorize subcontract boat services in lieu of a dedicated watercraft if justified by the circumstances of facility operation and/or cost effectiveness.

(2) If the environmental monitoring requirement for the facility does not require sampling in the water area, then the Facility Operator may request that the Project Sponsor(s) waive the requirement for a dedicated watercraft.

3. **EQUIPMENT MAINTENANCE REQUIREMENTS**. [TO BE DEVELOPED]

APPENDIX I

LIST OF AVAILABLE EQUIPMENT

TO BE DEVELOPED

APPENDIX J

FACILITY HEALTH AND SAFETY REQUIREMENTS

1. The facility will be operated in conformance with applicable State of Maryland and Federal safety and health requirements.

2. The safety and health requirements specified in the *U.S. Army Corps of Engineers Safety and Health Requirements Manual* (USACE, 1996) will be applicable to all activities at this facility upon joint sponsorship of the project by the Army Corps of Engineers.

3. The plans listed in this appendix and any additional plans required by cognizant authority will be provided, maintained and implemented by the Facility Operator. These plans will be compiled into a Safety and Health Plan. A copy of the plan will be provided to the Project Sponsor(s). A copy of the plan will be maintained at the facility. The plan will be incorporated into the facility's training program. The Facility Operator will provide a copy of the applicable sections of the plan to subcontractors who will be responsible for complying with these provisions while providing contracted services.

4. Required Plans:

   a. [TO BE DEVELOPED]

APPENDIX K

EMERGENCY PROCEDURES

TO BE DEVELOPED

APPENDIX L

PHYSICAL SECURITY

TO BE DEVELOPED

APPENDIX M

COMMUNICATIONS

TO BE DEVELOPED

APPENDIX N

POLLUTION PREVENTION AND CONTROL

TO BE DEVELOPED

APPENDIX O

GROUNDWATER PROTECTION

4. BACKGROUND.

a. A groundwater modeling study and report was compiled for the CSX/Cox Creek DMCF in December 1996 by the U. S. Army Corps of Engineers, Baltimore District in association with the *Baltimore Harbor Anchorages and Channels, Maryland and Virginia Integrated Feasibility Report and Environmental Impact Statement*, March 1997.

b. The study reported that, based on groundwater modeling, expansion of the DMCF will not affect flow direction or quality of groundwater. Groundwater flow in the Lower Patapsco Aquifer (the area drinking water aquifer) was not affected. Model results indicated that extremely low groundwater flow will occur in the surface clay from the DMCF into the Swan Creek wetlands to the Southwest. The flow rates were measured at ± one vertical or horizontal foot every 100 years.

5. SUMMARY.

Based on the study results, groundwater monitoring is not indicated for the Cox Creek DMCF.

APPENDIX P

RECYCLING

RESERVED FOR FUTURE DEVELOPMENT

APPENDIX Q

WATERCRAFT OPERATIONS

TO BE DEVELOPED

APPENDIX R

PEST CONTROL

1. **Summary.** The primary pest control associated with the facility will be mosquitos in areas that provide mosquito breeding habitat. Other pests will be addressed as situations arise.

2. **Mosquito Control**.

   a. Dredged material placement sites typically provide habitat for mosquito larvae. Various control measures can be implemented to control infestations. The Facility Operator will subcontract with a mosquito control agency, such as the Maryland Department of Agriculture, to establish and maintain an effective, environmentally safe mosquito control program for the Cox Creek DMCF.

   b. The Facility Operator will work with the mosquito control agency shall develop a mosquito management plan for the area. Arrangements will be made for an entomologist to perform mosquito surveillance and control operations. The mosquito control agency will obtain permits to apply mosquito control insecticides and will obtain necessary approvals for FAA congested area, low-level, flights over Cox Creek DMCF for aerial applications of insecticide.

3. **Public and Media Inquires**. All questions from the public and news media regarding mosquitoes and mosquito control at Cox Creek will be referred to by the Project Sponsor(s). If requested by the Project Sponsor(s), the Facility Operator and mosquito control agency may respond to such requests.

4. **Documentation**.

   a. The Facility Operator shall prepare reports of pest surveillance and control activities on a schedule coordinated with the Project Sponsor(s). For planning purposes, this report will be prepared on a bi-weekly schedule during the periods of peak mosquito infestations.

   b. Subcontracted control agencies will provide reports of their services on a schedule to be determined in consultation with the Facility Operator and Project Sponsor(s).

5. **Budget**. The Facility Operator will include the cost of pest control in annual budget estimates to the Project Sponsor(s).

APPENDIX S

REGULATORY CRITERIA FOR EFFLUENT DISCHARGE

TO BE DEVELOPED

NOTE 1: Effluent requirements have not yet been developed by MDE for this facility.

NOTE 2: Effluent requirements for this facility may be developed using both technology-based requirements and water quality-based requirements. Discharges from dredged material containment facilities are exempted from Section 402 permitting; therefore, EPA has not developed national discharge requirements for discharges associated with these facilities. Therefore, technical guidance published by the USACE Waterways Experiment Station is anticipated to be a primary source that MDE may draw upon to develop effluent requirements.

APPENDIX T

ENVIRONMENTAL MONITORING

1. REQUIREMENTS.

a. Summary. Monitoring will be performed to provide the data needed to operate the facility in accordance with the effluent discharge criteria specified in Appendix S, to satisfy regulatory requirements, and to provide the observations needed to guide maintenance of mitigation sites associated with the facility.

b. General Monitoring Protocols. Monitoring shall be performed as prescribed in this appendix.

NOTE 1: As of the date this Appendix was prepared, MDE had not yet issued draft or final state effluent discharge regulatory requirements for this facility. These requirements will be included in Appendix S when available. Therefore, the specific requirements for environmental monitoring are undetermined. It is anticipated that environmental monitoring may include some or all of the following elements:

- Effluent water quality
- Ambient water quality
- Biomonitoring
- Toxicity reduction evaluation
- Exterior
- Groundwater
- Soil quality
- Mitigation sites
- Air quality (USACE requirement if federally sponsored)

c. Laboratory Requirements. TO BE DETERMINED

2. EFFLUENT WATER QUALITY

a. Parameters. TO BE DETERMINED.

NOTE 2: Regulatory requirements are anticipated to include monitoring the effluent discharge on a daily and quarterly basis for flow, total suspended solids (TSS), pH, metals, and nutrients.

b. Monitoring Protocols. TO BE DETERMINED

c. Frequency. TO BE DETERMINED

d. Procedures. TO BE DETERMINED

e. Documentation and Reporting. TO BE DETERMINED

3. AMBIENT WATER QUALITY

a. Parameters. TO BE DETERMINED.

NOTE 3: Regulatory requirements for monitoring ambient water quality conditions in the receiving water body (Patapsco River) on a periodic basis are anticipated for BOD, COD, TOC, TSS, metals, and nutrients. The ambient monitoring samples may be required to be collected at surface, mid-depth, and bottom layers in the receiving water body. Frequency would be determined through the regulatory instrument applied to the facility.

b. Monitoring Protocols. TO BE DETERMINED.

c. Frequency. TO BE DETERMINED

d. Procedures. TO BE DETERMINED

e. Documentation and Reporting. TO BE DETERMINED

4. BIOMONITORING

a. Parameters.

NOTE 4: Regulatory requirements may include periodic biomonitoring of the effluent discharge, utilizing acute and chronic testing of approved species (one vertebrate and one invertebrate species).

(1) Acute toxicity testing would be conducted utilizing two appropriate species, e.g., fathead minnow and daphnid.

(2) Chronic toxicity testing would be conducted using two appropriate species and tests, e.g., daphnid survival and reproduction, and fathead minnow larval survival and growth . Other appropriate species include sheepshead minnow, silverside, and mysid shrimp.

b. Monitoring Protocols. Biomonitoring tests will be conducted according to the following documents:

- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters

to Freshwater and Marine Organisms, August 1993, EPA/600/4-90/027F.

- Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, July 1994, EPA/600/4-91/003.

- Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, July 1994, EPA/600/4-91/002.

c. **Frequency**. Biomonitoring, if required, is anticipated to be performed on a quarterly basis for a period of at least one year. In the event that acute or chronic toxicity is detected, additional testing may be indicated.

d. **Procedures**. TO BE DEVELOPED

e. **Documentation and Reporting**. TO BE DEVELOPED

5. TOXICITY REDUCTION EVALUATION

a. Parameters.

(1) If toxicity exceeding acceptable limits were is detected in effluent samples from the facility, a Toxicity Reduction Evaluation (TRE) may be required to identify the causative agents of effluent toxicity, isolate the source(s) of toxicity, determine the effectiveness of possible control options, allow implementation of control measures, and confirm the reduction in toxicity.

(2) The Facility Operator will prepare and, after coordination with the Project Sponsor(s) for concurrence, submit a TRE plan of study and schedule within 90 days notification that a TRE is required. The TRE will follow the framework presented in Generalized Methods for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070).

b. **Monitoring Protocols**. TO BE DEVELOPED

c. **Frequency.** TO BE DEVELOPED

d. **Procedures.** TO BE DEVELOPED

e. **Documentation and Reporting**. TO BE DEVELOPED

6. EXTERIOR MONITORING. TO BE DEVELOPED

NOTE 5: As of the date of the appendix, MDE has not determined whether or not exterior monitoring of benthic populations and sediment conditions in the receiving water body adjacent to the facility

has not been determined will be needed to assess effects of facility operation on local benthic communities or alteration of existing sediment constituent concentrations. If an exterior monitoring requirement were imposed, it would most likely be conducted on a quarterly or semi-annual frequency for the first year to establish a baseline and then at a reduced frequency in subsequent years.

7. **GROUNDWATER**. TO BE DEVELOPED

Note 6: There is no indication of groundwater flow through the existing dike system into the Patapsco River. Groundwater movement is not anticipated as a result of planned dike system renovation. However, if a groundwater monitoring requirement is established, it is anticipated that groundwater monitoring wells would be placed in the dike at several locations around the facility and that groundwater elevation would be recorded and samples collected for analysis of the same suite of constituents as measured in the effluent discharge. It is anticipated that the Facility Operator would be required to develop a monitoring and installation plan in coordination with the Project Sponsor(s) for subsequent submission.

8. **SOIL QUALITY**.

a. **Parameters**. Soil quality monitoring will be conducted to observe potential changes in soil quality during crust management in order to assist with the management of cell water.

b. **Monitoring Protocols**. Surface and shallow subsurface soil samples will be collected at several locations in the facility on a monthly basis, and analyzed for agricultural soil parameters, including pH. High pH soil amendments may be applied to the soil if necessary to establish chemical conditions that would enable the discharge of cell water.

c. **Frequency**. Testing will be conducted monthly basis during the crust management period.

d. **Procedures**. TO BE DEVELOPED

e. **Documentation and Reporting**. TO BE DEVELOPED

9. **MITIGATION SITES**.

a. **Parameters**. The Facility Operator will monitor the mitigation plantings in the storm water management pond site, forest mitigation plantings, and performance of co-located mitigation sites in conjunction with facility operations.

b. **Monitoring Protocols**. TO BE DEVELOPED

c. **Frequency**. TO BE DEVELOPED

d. **Procedures**. TO BE DEVELOPED

e. **Documentation and Reporting**. TO BE DEVELOPED

10. **BUDGET**. The Facility Operator will include the cost of environmental monitoring in annual budget submissions to the Project Sponsor(s).

APPENDIX U

EFFLUENT DISCHARGE BEST MANAGEMENT PRACTICES

1. **REQUIREMENTS**. The Facility Operator will use best management practices for the operation of the Cox Creek DMCF.

2. **SPILLWAY OPERATIONAL PROCEDURES.** Spillway operational procedures are discussed in three sections, corresponding to the seasonal changes in operations at the facility: beginning of inflow; end of inflow, and crust management.

   a. Beginning of Inflow.

   (1) Prior to the scheduled commencement of inflow, the Facility Operator will verify that all necessary preparations have been made to receive dredged material in the upcoming inflow cycle. The perimeter trenches and spillway sumps will have been filled in with material previously excavated from the cell. The spillway and weir pipes shall be boarded up with weir boards. New weir crest elevations shall be established at least three feet above the existing cell surface.

   (2) As inflow begins, the dredging contractor will hydraulically pump material into the cell. The spillway will be closed at this time. The cell will gradually fill and the pond elevation shall rise to the established weir crest elevation. If acceptable water quality has not been accomplished by the time the pond level nears the weir crest elevation, another row of weir boards shall be added to the spillway. The weir crest elevations should always be maintained above an unstable pond. This will prevent sediments from entering the spillway.

   (3) Water Quality and Pond Management.

      (a) Once the pond has stabilized and water quality standards are achieved, the spillway may be opened. If the pond elevation is at the middle or below the middle of a row of boards, that row can be removed. If the pond elevation is above the mid point of a weir board, the row above the board should be removed. This will allow the pond to rise to the weir crest and gradually form an HOW. Avoid a large HOW when the spillway is first opened. Although water quality may be good, the pond conditions are unknown and unpredictable at this point.

      (b) IC will be used at the spillway when HOW conditions are impractical. A deep HOW will cause TSS to rise. Utilizing less than the entire weir length may not adequately diminish flow. Inlet control may be the only way to keep the spillway open. An IC spillway will be operated with the intention of raising or lowering the pond elevation to a desired HOW elevation. The intention of IC is to keep a spillway open while gaining control of TSS in the

pond.

(c) The pond elevation will need to be maintained within specified range. A pond which is too large will threaten the integrity of the containment dikes. A pond which is too small will have unstable water quality. Small ponds are prone to sudden and dramatic rises in TSS. Once a desirable pond elevation has been reached the inspection staff shall take all necessary steps to maintain that elevation. This can be achieved by altering flow rates and opening or closing the spillway. Flow rates are available from the contractor. Keeping an accurate account of water coming into the facility will give the inspection staff a general idea of how much water to release to maintain an equilibrium.

(d) Water quality shall be monitored prior to effluent discharge and at all times during discharge.

- A spillway shall not be open if pH and TSS standards are not met.
- The inspector will remain at the spillway for a sufficient period after opening the spillway to insure that the pH of the discharge is stable. If there is a trend upward or downward in pH levels that if continued might result in a water qualify discharge violation within 1 hour, the inspector will remain at the spillway in order to close it before a violation occurs.
- A spillway which is open shall be closed once pH or TSS fall outside the permit allowance.
- An open spillway shall be visited on an hourly basis. On each visit to an open spillway the turbidity shall be tested and the results documented. A visual inspection shall be made of the pond and effluent conditions.
- If oil, floating solids or persistent foam are present, the spillway must be closed and correction action taken.

(e) Wind conditions should be closely monitored. Any increase in wind speed or change in the wind direction may cause TSS to in the pond to rise. Strong winds will cause wave action and this turbulence will raise TSS levels. There is no spillway management technique to lower TSS levels under these conditions. Once the TSS rises above the permit allowance the spillway is closed.

(4) Spillway Procedures.

(a) All changes in spillway flow will be documented. These changes include: spillway being opened or closed, changes in pond elevation, and any weir crest alterations. The type of flow (IC or HOW) will also be recorded. The

amount of flow through the spillway shall be documented. The following information is needed to estimate the amount of water being released back into the receiving water body.

- For IC conditions, record the number of gates and the number of complete turns each gate is open.

- For HOW situations, record the depth of water flowing over the weir crest and length of weir utilized.

(b) The Isco automated sampler is activated at midnight or when the spillway is opened for the first time in a 24 hour day. This unit should be checked regularly. This is to insure that the eight hour daily composite sample is being taken. If the spillway is closed before the eight hour sample is complete, the Isco unit shall be placed in stand by mode. The unit must be set to resume sampling if the spillway is re-opened before midnight.

(c) After the spillway has been closed due to poor water quality, consistent monitoring will continue. High TSS levels or unacceptable pH must be routinely monitored. Once water quality is reestablished, the spillway amy be reopened.

b. End of Inflow.

(1) When the dredging contractor has completed the dredging projects for the season, the first priority of the inspection staff is to discharge the settlement pond. Exposing surfaces to the air, wind and sun is the first step in consolidating the newly deposited material. Maintenance of acceptable water quality in the effluent discharge is the main objective of the inspection staff. Water quality will determine how quickly the settlement pond can be released.

(2) The settlement pond is managed throughout the inflow process. A discharge rate will have been established. This discharge rate balances the amount of water entering the cell from the hydraulic unloading process, with a maintainable pond size needed for water quality. Once inflow has stopped the pond size will naturally reduce itself as long as the spillway remains open. Control of discharge is described below.

(a) *Weir Board Removal.*

- Once the pond has been lowered to an elevation were the head over weir (HOW) is sufficiently diminished, weir boards may be removed. By removing weir boards, a new weir crest elevation is created. One weir board represents 0.46' in elevation. If the pond level is the same elevation as the weir crest and the entire row of boards is removed, flow into the spillway will be increased by approximately 550,000

gallons per hour. The volume of water flowing into the spillway will directly affect water quality. Total suspended solids (TSS) will often rise when large volumes of water are discharged. 550,000 gallons (or 0.46' HOW over 21 linear feet) would be considered a large volume of water. With a relatively deep pond, the TSS is more likely to remain below the limits of the regulatory criteria when discharging large volume HOW. But as the pond becomes shallower, water movement over the settled material becomes amplified. The result may approach the upper threshold of acceptable limits for TSS. A lower velocity flow may be required.

- Water quality can be maintained when removing weir boards by not removing an entire row at once. One entire row of weir boards (0.46' x 21') will represent an HOW of approximately 550,000 gallons of water per hour. In comparison, one weir board (0.46' x 3.5') will represent approximately 92,000 gallons of water per hour. By removing one or two boards at a time the pond will diminish at a slower rate and water quality can be maintained more effectively.

- Under certain conditions, using less than all of the available weir length may not be realistic. A restricted weir length such as 3.5' (one board) or 7.0' (2 boards) may result in isolated, more concentrated currents . The resulting currents will likely resuspend material and cause TSS to rise. This will more likely occur when a shallow pond is involved. If adding boards to reestablish a uniform weir length will only stop flow altogether, switching from HOW to an inlet controlled spillway will be necessary.

(b) *Inlet Control.*

- Inlet control (IC) is achieved by limiting the amount of water leaving a spillway. With each turn a spillway gate is closed, less of the sluice pipe is available for water to exit through. Once the spillway gate (or gates) have been closed to the point where more water enters the sump then leaves, inlet control has been achieved. The inspector can now adjust the flow of a spillway incrementally to maintain optimal water quality.

- If the draw from a spillway is too strong and TSS begins to rise, the gates will be partially closed sufficiently so as to diminish the flow. This should reestablish the pond's stability. Flow volumes can be accurately calculated by keeping track of how many turns each gate is open.

- A uniform weir crest elevation should be maintained near the surface of the pond when IC is used. This will draw water into the spillway from the surface of the pond and preserve water quality.

b. Crust Management.

(1) Once the inflow settlement pond has been discharged, the entire containment area will be exposed to the air. The surface crust will continue to form through evaporative drying. At this stage it becomes essential to release rain water as quickly as possible to avoid re-saturation of the material. TSS will rise during a rain event due to runoff. Best management techniques should always be observed to maintain water quality. Rain water will always have a pH well below 6.0. Typically pH levels will be too low to discharge during and shortly after a rain event. The material in the cell will act as a buffer, eventually raising rain water to levels above 6.0. When the spillway is open and water with a pH near the 6.0 limit is being discharged, extra monitoring care should be taken. Effluent pH can quickly fall below acceptable levels when rain water is involved.

(2) As the surface of the cell dries, the material will begin to solidify. At this point the perimeter trench and spillway sumps are established. Rain water will now flow off the surface of the cell and collect in the perimeter trench. The perimeter trench and spillway sumps will act as a storm water management pond. This will allow sediments to fall out and pH to adjust to reasonable levels. Water in the perimeter trench should be released as soon as water quality reaches acceptable levels.

(3) There are several reasons for removing water quickly from the perimeter trench. Keeping the trenches dry will allow them to stabilize for better water quality in the future. The equipment operators can maintain and deepen a dry trench more efficiently. During a heavy rain event water will quickly flow through an unoccupied trench and by force of erosion help cut a path to the spillway sump areas. This will help improve water flow to the spillway. During this phase of crust management, the weir crest elevations of the spillway and riser pipes should be maintained above the surface of the material in the cell. Once weir boards have been removed to access water at the lowest possible elevation from the perimeter trench, the weir boards should be replaced. This will prevent material from washing into the spillway in the event of an unexpected storm.

(4) Prior to the scheduled commencement of inflow, preparations must be made to receive dredged material in the up coming inflow season. The perimeter trenches and spillway sumps will be filled in with material previously excavated from the cell. The spillway and weir pipes shall be boarded up with weir boards. New weir crest elevations shall be established at least three feet above the existing cell surface.

APPENDIX V

SEDIMENT EROSION AND CONTROL

1. REQUIREMENTS.

a. The Facility Operator will undertake the sediment erosion and control measures specified in this appendix for General Operations.

b. The requirements specified for construction activity associated with the stabilizing berm and phased rasing of the dike shall be the responsibility of the contractor performing the work. If berm and dike raising is performed in conjunction with operation of the facility, then the Facility Operator will be responsible for performing these sediment erosion and control activities.

2. GENERAL OPERATIONS.

a. The most recent *Maryland Standards and Specifications for Soil Erosion and Sediment Control* shall be followed at all times on this site.

b. All exterior slopes shall be kept stabilized with vegetation. If weather does not permit the growing of vegetation, other approved means of stabilization are to be utilized.

c. If erosion rills are discovered in the exterior dike or berm slopes during daily inspections, the Facility Operator shall use a tracked piece of equipment such as a bulldozer to fill in the rills and track the slope parallel with the contours. These areas are to be stabilized with vegetation when possible. Temporary mulching of these areas will be allowed outside of the growing season.

d. Where possible, interior slopes shall be maintained as vegetated in order to minimize erosion due to scour and precipitation during inflow, dewatering, and crust management activities.

2. DIKE AND STABILIZING BERM PHASED OR INCREMENTAL CONSTRUCTION.

a. Silt fence and super silt fence will be placed each time the berm/dikes are raised. (Theoretically, this would occur every second year following the completion of Phase I construction.) Super silt fence is to be used directly between construction and any wetlands or waterways.

b. During raising of the berm, super silt fence is to be placed along the top of the armor stone until geotextile and new underlayer/armor stone is placed or until the exterior slope is stabilized with vegetation.

c. During raising of the dikes, silt fence is to be placed along the exterior dike slope at the base of the new construction except in areas to the north and southwest where super silt fence will be used to protect existing wetlands.

d. When slope stabilization is dependent upon the growth of vegetation, super silt and silt fencing are to be maintained until the vegetation takes hold.

e. If waterside construction is necessary, the contractor shall utilize turbidity curtains as was required during Phase I construction. The contractor shall reference the *Soil Erosion & Sediment Control Plan* and *Specifications* developed for Phase I construction activities.

APPENDIX W

ENGINEERING INSTRUMENTATION

1. **Summary**. Engineering instrumentation will be installed at the CSX/Cox Creek DMCF by the Project Sponsor(s) to monitor foundation conditions for the purpose of determining when and to what extent dike raising can be accomplished within engineering factors of safety specified in the geotechnical design report for the facility (E2SI, 1998).

2. **Requirements**. The Facility Operator is required to maintain engineering instrumentation in conjunction with operation and maintenance of the facility.

3. **Geotechnical Instrumentation**. The number and location of instruments will be as detailed in the geotechnical report for the facility (E2Si, 1998), as summarized below.

   a. **Piezometers**. Pneumatic piezometers will be installed in Stratum II [gray/black silt clay with sand pockets] under the berm to enable monitoring of the dissipation of pore pressure. The piezometers are planned for installation in the center of the square area formed by the wick drains.

   b. **Slope Indicators**. Slope indicators will be installed to monitor stress-strain characteristics. Extreme care shall be taken to ensure that the instrumentation is not damaged during incremental or phased dike raising.

   c. **Monitoring Wells**. Monitoring wells will be installed adjacent to slope indicators to observe the development of the phreatic surface across the dike. The bottom of the well points should be at El.

4. **Other Engineering Instrumentation**. To be determined.

5. **Documentation**. The Facility Operator will maintain installation and maintenance records for installed engineering instrumentation.

6. **Budget**. The Facility Operator will include the cost of maintaining engineering instrumentation in annual budget estimates to the Project Sponsor(s).

APPENDIX X

STORM WATER MANAGEMENT POND MAINTENANCE

1. SUMMARY.

a. A storm water management pond exists at the base of the north dike.

b. The storm water management pond is required to be maintained in accordance with the applicable permit (see Attachment 1).

2. REQUIREMENTS.

a. The Facility Operator is responsible for maintenance of the storm water management pond.

b. The Facility Operator will include the cost of maintaining the storm water management pond in annual budget requests to the project sponsor(s).

3. MAINTENANCE PROCEDURES.

a. Sediments are to be excavated and removed from this pond on a periodic basis when the sediments reach elevation 0.0 feet MLW or as directed by the project sponsor(s).

b. Excavation grading shall be to the original design contours as shown in the plans dated December 1998 (CITE).

c. Excavated material is to be disposed of in the DMCF cell unless otherwise indicated by the project sponsor(s).

d. All disturbed areas adjacent to the pond are to be revegetated with wetland grasses as directed by the project sponsor(s).

APPENDIX Y

CO-LOCATED MITIGATION SITES

1. SUMMARY.

a. Various mitigation projects have been established on the adjacent upland properties.

b. The mitigation projects are required to be maintained in accordance with the applicable permits (see Attachment 1).

2. REQUIREMENTS.

a. The Facility Operator is responsible (unless otherwise specified) for maintenance of the mitigation sites that are co-located on the adjacent MPA-owned upland properties for the time period applicable to these sites by regulation. For planning purposes, maintenance will be programmed for the service life of the facility if longer than the required mitigation maintenance requirement.

b. The Facility Operator will include the cost of maintaining the mitigation projects in annual budget requests to the project sponsor(s).

c. The general maintenance requirements listed in this appendix will apply.

3. STORM WATER QUALITY MANAGEMENT STRUCTURES - NON-TIDAL WETLAND

a. **Location**. This mitigation site is located directly to the north of the facility at the base of the northern dike.

b. The Facility Operator is responsible for inspecting this area on a weekly basis and following rain events. Any trash that is deposited in this area shall be collected by hand and removed. Woody debris shall be removed on a periodic basis at the discretion of the project sponsor(s).

C. Any storm damage to the area is to be reported to the project sponsor(s) within 24-hours.

d. The condition of the area and any actions taken are to be reported in the weekly operations report and included in semi-annual operations reports to the project sponsor(s).

e. The Facility Operator will contract with a qualified subcontractor to conduct annual inspection of the mitigation site project and produce a report for submission through the Maryland Port Administration to the Maryland Department on the Environment. The Facility Operator is required to cooperate with this contractor in inspecting the site and

obtaining any necessary information regarding the project area. These annual inspections will be conducted for a minimum of five years from the start of operations.

4. FOREST MITIGATION PROJECT - STORM DRAIN IMPACTS

a. Location. The mitigation site is located at the Hawkins Point Hazardous Waste Landfill off of Quarantine Road, approximately one mile north of the facility.

b. Project Maintenance. The project site will be maintained by the Maryland Port Administration using contracted services for the duration of the guarantee period, by the contractor who planted the mitigation site. Following the guarantee period, the MPA-contracted service will be responsible for all project maintenance. Any mitigation tree that dies within a three year period of being planted shall be replaced.

5. TIDAL WETLANDS MITIGATION - DMCF RENOVATIONS IMPACTS

a. Location. This site is planned to be located to the southeast and southwest of the DMCF in the Swan Creek tidal wetland.

b. Inspections and General Maintenance.

(1) Periodic Inspections.

(a) The Facility Operator is required to inspect the designated area quarterly during the first year of the mitigation project and then twice per year thereafter. More frequent inspections may be scheduled if indicated by the condition of the project.

(b) The Facility Operator will remove any trash or garbage found during these inspections.

(2) Annual Inspection. The Facility Operator will contract with a qualified subcontractor to conduct annual inspection of the mitigation site project and produce a report for submission through the Maryland Port Administration to the Maryland Department on the Environment. The Facility Operator is required to cooperate with this contractor in inspecting the site and obtaining any necessary information regarding the project area. These annual inspections will be conducted for a minimum of five years from the start of operations.

(3) Inspection Criteria. Inspections will be performed to observe and record performance criteria developed for the project by cognizant authority.

c. Documentation.

(1) The condition of the area and the actions taken shall be documented by the operator in the appropriate weekly operations reports and included in semi-annual operations

reports to the project sponsor(s).

(2) The annual inspection report will be prepared as described above.

6. FOREST MITIGATION PROJECT - DMCF RENOVATIONS IMPACTS.

a. Location. To be determined.

b. Project Maintenance. The project site will be maintained by the Maryland Port Administration using contracted services for the duration of the guarantee period, by the contractor who planted the mitigation site. Following the guarantee period, the MPA-contracted service will be responsible for all project maintenance. Any mitigation tree that dies within a three year period of being planted shall be replaced.

APPENDIX Z

GEOTECHNICAL MONITORING

1. **Summary**. Geotechnical monitoring will be performed at the CSX/Cox Creek DMCF for the purpose of assessing geotechnical conditions to determine when and to what extent dike raising can be accomplished within engineering factors of safety specified in the geotechnical design report for the facility (E2SI, 1998).

2. **Requirements**. The Facility Operator is required to performing geotechnical monitoring using a qualified geotechnical consultant.

3. **Geotechncial Monitoring**.

   a. **Geotechnical Situation**.

      (1) Stratum II [gray/black silt clay with sand pockets] will gain strength with time under the crest of the dike, berm, and slope. The gain in shear strength of the foundation materials will be a function of the degree of consolidation (or dissipation of pore pressure) achieved under the applied load of the new dike. Vane shear tests and Cone Penetrometer Tests (CPT) are needed to corroborate the design assumptions and to determine the gain in strength predicted in geotechnical design documents to support increasing of the dike height to its final elevation of El. +36. If the rate of gain of shear strength is inadequate, then steps can be taken to either increase it or modify the dike raising plan

      (2) The stress-strain characteristics of the existing dike are different from those of the dredged fill and the incremental dike. Although lateral movement associated with differences in stress-strain levels is not predicted, monitoring will be conducted to verify this expectation and to identify any corrective action that might be indicated.

   b. **Monitoring Requirements**.

      (1) **Shear Strength.** In-situ vane shear tests and Cone Penetrometer Tests will be conducted in the Stratum II clay (from El. -5 to El. -20), starting from the time the berm reaches El. +6. Testing will be conducted at six month intervals in order to yield enough data to determine the increase in shear strength with time. The CPT's and vane shear tests will be performed along the centerline of the berm.

      (2) **Pore Pressure**. Pneumatic piezometers will be monitored monthly to determine the dissipation of pore pressure and associated consolidation during the incremental dike raising.

      (3) **Stress-Strain Characteristics**. Monitoring of the potential for lateral movement using slope indicators will be performed monthly. In addition, should the sensor not be able to transit down the slope indicator casing, the situation will be

investigated immediately to ascertain whether or not such a condition indicates a thin failure plane.

(4) **Phreatic Surface**. Monitoring wells will be sampled and collected data analyzed monthly to observe the phreatic surface over the life of the facility.

4. Documentation.

a. All collected data will be archived and maintained by the Facility Operator with copies to the Project Sponsor(s).

b. The Facility Operator will provide quarterly reports of observed geotechnical conditions to the Project Sponsor(s).

5. Budget. The Facility Operator will include the cost of performing geotechnical monitoring in annual budget estimates and requests to the Project Sponsor(s).

COX CREEK DREDGED MATERIAL CONTAINMENT FACILITY

PERMITS AND CERTIFICATIONS

TO BE DEVELOPED

COX CREEK DREDGED MATERIAL CONTAINMENT FACILITY

RULES AND REGULATIONS

(draft) August 8, 1999

1.0 STATEMENT OF PURPOSE

1.1 Operating Authority. The Maryland Department of Transportation, Maryland Port Administration (MPA), is the owner-operator of the Cox Creek Dredged Material Containment Facility (Facility), with full authority to determine priorities among placement operations competing for the use of the Facility, and to issue permits for such use. The MPA has contracted with the Facility Operator (Operator) for the operation and maintenance of this Facility, including the establishment of certain rules and regulations to provide for the safe and efficient use of the Facility.

1.2 Applicability. These rules and regulations shall be applied, on a case by case basis, to all applications for permit to place dredged material at the facility. Upon issuance of a permit, these rules and regulations will be attached thereto and become a part thereof, with full and binding effect upon the permittee, permittee's agents, contractors and representatives all collectively referred to in these rules and regulations as the Permittee.

2.0 GENERAL PROVISIONS

2.1. Application for Permit. The applicant shall apply to the MPA for approval to place dredged material at the Facility, and shall use such application forms and procedures as provided by the MPA or in the Cox Creek DMCF Operations and Maintenance Plan (OPLAN). The applicant shall simultaneously file with the Operator the request for Authorization to Proceed form which shall be included in the package of forms and procedures as provided by the MPA.

2.2. Permits. The Applicant shall obtain all necessary federal, state and local permits, and shall submit copies of these permits to the MPA.

2.3 Liability. Permittee shall indemnify and hold the MPA and the Operator harmless from and against any and all claims, actions, causes of action, demands, rights, damages, and costs whatsoever arising from Permittee's use or occupation of the Facility and site or their use, or arising from any breach or default in the performance of any obligation on Permittee's part to be performed under the terms of this Permit, or arising from any negligence of Permittee or any of its agents, contractors or employees, and from and against all costs, attorney's fees, expenses, and liabilities incurred in the defense of any such claims, causes of action, demands, rights, damages, and costs whatsoever of any action or proceeding brought thereon.

2.4 Placement Operations Plan. Prior to any operation at the Facility, the Permittee shall submit a ***Placement Operations Plan*** for materials handling and placement. The Placement

Operations Plan shall include:

- the proposed commencement and completion dates of placement,
- hours of operation,
- material unloading and handling equipment,
- production rates,
- storage requirements,
- berthing and mooring requirements,
- equipment and vehicles to be used on site,
- key personnel name and telephone numbers,
- pipeline routing,
- water recirculation procedure (if used or required),
- pollution prevention and response plan, and
- other pertinent procedures relating to material unloading, transportation and placement.

Authorization to Proceed will not be granted until the Placement Operations Plan has been approved.

2.5 Inspections. The work to be conducted by the Permittee at the Facility shall be under the general direction of the Operator and shall be subject to inspection by the Site Supervisor assigned by the Operator, or his designated inspectors, to insure strict compliance with the regulations and the operating criteria of the Facility. Material handling and unloading equipment, scows, pipelines, and all other pertinent features of the operation are subject to inspection by the Site Supervisor or his designated inspectors. Adequate lighting for thorough inspection of unloading, material discharge, and internal weirs shall be provided by the Permittee for night operations.

2.6 Revocations. The MPA may revoke the MPA Permit to place at the Cox Creek Facility in the event the Permittee refuses or fails to comply with operating requirements of the Facility. A written notice of revocation will be delivered to the Permittee by the MPA.

2.7 Suspension. The Site Supervisor assigned by the Operator, or his designated inspector, can direct suspension of any unit of placement activities where the Permittee, upon request, does not correct a safety hazard or a violation of the regulations and the operating criteria of the Facility which, in the opinion of the Operator, may endanger life, limb, or property, or cause serious damage to the Facility or its surrounding waters.

2.8 Order to Suspend Operations.

2.8.1 The Operator shall deliver a written order to suspend operations to the Permittee's on-site representative, who shall be designated in writing by the Permittee. The Order will cite the hazard or violation by the Permittee, his agents or representatives, which has drawn the Order to suspend operations. Such suspension shall remain in effect until such time as the Permittee, at the discretion of the Operator, has made satisfactory progress towards correcting the hazard or violation which was cited in the Order to suspend operations.

2.8.2 When the Operator is satisfied that sufficient progress has been made towards correction of such hazard or violation, the Operator will issue a written notice to the Permittee's designated on-site representative rescinding the Order to Suspend Operation. Refusal or failure by the Permittee to respond to the Order to suspend operations by initiating corrective measures within 48 hours of suspension may result in revocation by the MPA of the Permittee's MPA Permit to place material at the Facility.

2.9 Quality Control System. The Permittee shall maintain an adequate quality control system and employ such measures as will assure that the work performed is in full accordance with the operating requirements of the Facility.

2.10 Vegetation. The Permittee shall preserve and protect all existing vegetation at the Facility, such as trees, grass and the like, which is not to be removed and which does not unreasonably interfere with the construction work. Care will be taken to avoid damage to vegetation which remains in place.

2.11 Existing Structures and Utilities. The Permittee shall protect from damage all existing improvements or utilities at or near the site of the work and will repair or restore any damage to such facilities resulting from failure to comply with the requirements of this contract or the failure to exercise reasonable care in the performance of the work. If the Permittee fails or refuses to repair any such damage promptly, the Operator may have the necessary work performed and charge the cost thereof to the Permittee.

2.12 Areas of Operations. All operations of the Permittee (including storage of materials) at the Facility shall be confined to areas authorized or approved by the Operator.

2.13 Temporary Buildings. Storage sheds, shops, offices, and other temporary buildings may be erected by the Permittee only with the approval of the Operator, and shall be built with labor and materials furnished by the Permittee without expense to the Operator or the MPA. Such temporary buildings and utilities shall remain the property of the Permittee, or Permittee's agents or representatives and shall be removed by him at his expense upon the completion of the work unless, with the written consent of the MPA, such buildings and utilities are abandoned to become the property of the MPA.

2.14 Roadways. The Permittee shall use only established roadways, or shall construct and use such temporary roadways as may be authorized by the Operator. Where materials are transported in the prosecution of the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by the Operator.

2.15 Site Appearance. The Permittee shall at all times keep the construction area, including storage areas used by him, free from accumulations of waste material or rubbish and shall, prior to completion of the work, remove from the Facility any rubbish, all tools, scaffolding, equipment, materials and other property of the Permittee. During and upon completion of the construction, the Permittee shall leave the work and premises in a clean, neat and workmanlike condition satisfactory to

the Operator.

2.16 Safety. In order to provide safety controls for protection to the life and health of employees and other persons; for prevention of damage to property, material, supplies, and equipment; and for avoidance of work interruptions in the performance of this contract, the Permittee shall comply with all pertinent provisions of Corps of Engineers Manual, EM 385-1-1, dated 3 September 1996, revised October 1984, entitled "Safety and Health Requirement Manual", and in the Cox Creek DMCF Operations Plan, and shall also take or cause to be taken such additional measures as the Operator may determine to be reasonably necessary for this purpose.

2.17 Joint Survey. When the facilities are being used by a Permittee, a joint survey shall be taken with the Operator prior to the start-up of operations. All damaged structures or deficiencies shall be noted. At the termination of the Permittee's operation, a joint survey shall be taken with the Operator to ascertain damage. Any damage attributed to the Permittee's operation shall be repaired by the Permittee. If repairs are not performed in a timely manner, Operator shall cause the repairs to made at the Permittee's expense.

3.0 AUTHORIZATION TO PROCEED

3.1 Written Permit Required. No Contractor may place dredged material at the Facility prior to receipt of a written permit from the MPA and a written Authorization to Proceed from the Operator.

3.2 Authorization Period. The Authorization to Proceed shall be contingent upon the agreement of the Contractor to comply with these rules and regulations and any special conditions required by the Operator for the particular placement operations of the Contractor.

4.0 UNLOADING OPERATIONS

4.1 General.

4.1.1 *Environmental Constraints*. The water area surrounding the Facility is shallow, providing limited access for dredging equipment. Further, the water area surrounding the Facility is a rafting area for canvasback ducks during the period from November 15 until April 30 each year. Restrictions on Marine traffic through the area and noise generation may be specified by the Maryland Department of Natural Resources (MDNR). Additionally, MDNR has specified that hydraulic unloaders must be positioned at least 3,000 feet offshore of the Facility. Therefore, the Facility has been configured to receive hydraulically placed dredged material.

4.1.2 The Permittee shall supply all equipment and labor for the placement of the excavated material.

4.1.3 Direct pumping by hydraulic dredge or hopper dredge into the diked placement area will be permitted if specifically provided for in the permit.

4.1.4 The Permittee shall identify a prospective loading area that is acceptable to the MPA and MDNR that is outside of the rafting area for canvasback ducks when conducting hydraulic unloading during the winter rafting period. The Permittee shall obtain all necessary permits and approvals for using the unloading area.

4.1.5 Material must be brought to the approved unloading area in barges or scows; dump scows shall have their pockets provided with proper doors or appliances to prevent leakage of material, as no dumping outside the Facility will be allowed.

4.1.6 Only scows and barges acceptable to the MPA will be permitted to haul dredged material to the placement site. The Operator will inspect the Permittee's scows and barges prior to their use and report any observed discrepancies that could impair placement operations or potentially result in environmental effects to the MPA for corrective action as appropriate.

4.1.7 The overflow of material from the scows is prohibited, as is any leakage or spillage of material in the unloading area. One foot (1') of freeboard on scow and barge combings is required. The Operator will report any observed deficiencies to the MPA for coordination with the dredging contracting authority (if not the MPA) as appropriate.

4.2 **Barge Unloading**. The MPA and Operator anticipates that the barges will be unloaded hydraulically. However, mechanical unloading may be permissible and will require approval of the MPA in accordance with the restrictions listed below.

4.3 **Interference With Other Contractors**. The Permittee is advised that multiple contracts may be in effect and that the use of unloading areas, facility or upland Operator areas will be as assigned in the Permit, or scheduled by the Operator when not specified in the Permit. The Operator does not guarantee that such cooperation will be extended, especially at the time which would be most convenient to the Contractor.

4.4 **Coordination With the Operator**. All operations conducted within the boundaries of the Facility or the designated unloading areas shall be coordinated with the Operator. The Permittee shall attend pre-construction and progress meetings with the Site Supervisor appointed by the Operator and shall keep the Site Supervisor fully appraised of the Permittee's activity. When the Permittee elects to work on Sundays, holidays, or nights, notice of his intention to do so shall be given to the Site Supervisor within a reasonable time in advance thereof.

4.5 **Inflow Point**. The designated point or points of material inflow shall be established by the MPA Permit for all placement operations. The Permittee shall be responsible for advancing or relocating the inflow point(s) as required to prevent the settled material from accumulating to an excessive elevation exceeding permit requirements. The inflow point(s) may require relocation due to their affects on effluent quality or other special circumstances as determined by the Operator. Relocation of inflow point(s) shall be achieved within 48 hours notification by the Operator. Any material that is placed in areas other than those designated or approved by the Operator shall be removed by the Permittee at the Permittee's expense.

4.6 Debris. Debris and non-pumpable materials that are excavated as a normal part of the dredging work may not be placed in the facility. The Permittee may, at the Permittee's option, place debris off-site at his expense.

4.7 Shoaling. The Permittee shall be limited to the unloading area specified by the Permit. In the Permittee's Placement Operations Plan, the Permittee shall specify a location in the unloading area for his unloading plant. Before and after a Permittee uses the unloading site(s), a hydrographic survey shall be taken at the Permittee's expense to determine if any spillage occurred during the unloading period. If any spillage is found, the material will be dredged by the Permittee and placed in the containment area. The survey will be conducted by the Permittee under the oversight of the Operator.

5.0 HYDRAULIC BARGE UNLOADING

5.1 Pipelines. Pipelines from the unloading plant must cross into the diked placement area at the designated inflow point(s), and may not unduly restrict access by others to the diked placement area or the stabilizing berm that extends into the Patapsco River from the exterior toe of the perimeter dike. Only sound, leak-free piping shall be used; pipes worn thin or otherwise subject to leaks or failure shall not be allowed.

5.1.1 The Permittee may lay pipelines within the easement areas as stipulated by the Permit. The Permittee shall be required to restore areas used in laying and maintaining pipeline to the same or as good condition as existed prior to commencement of work.

5.1.2 The pipeline will be placed so that there is no interference with traffic on the existing roadway, stabilizing berm, roadway markers, wells, bench marks, piezometers or other instrumentation. No part of the portion of the line paralleling the roadway shall be within three feet (3') of the edge of the road surface.

5.1.3 The pipeline will be placed so that there is no damage to the stabilizing berm. Trenching or excavation of the stabilizing berm is not allowed.

5.2 Leaks. In the event that a leak occurs anywhere in the line, the Permittee shall be required to immediately discontinue using the line until the leaking section or sections of the pipe are removed and replaced with sections of good pipe and the leaks stopped. The Permittee shall be required to recover at no cost to the Operator, any material improperly placed because of a leak or leaks in the pipe.

5.3 Road Crossings. Road crossings may be accomplished by limited trenching and backfilling along with construction of suitable ramps. A minimum separation of 24" shall be maintained between any electric Operator line and any piping installation. Prior to commencing trenching, the Permittee must contact the Operator's representative on the site at least 48 hours in advance to coordinate the interruption of traffic and to ascertain the location of any utilities or obstructions. The Permittee shall be responsible for any damages caused by his operations and shall be required to make

any necessary repairs immediately. Ramps shall be constructed, maintained and properly marked by the Permittee for safe day and night passage of the normal traffic in the area until the completion of work and subsequent removal of the ramps. The ramps shall be constructed with a minimum width of road surface conforming to the width of the existing roadway. A minimum 20-foot wide flat berm will be centered at the pipeline crossing. The slope approaches to the ramp berm will be no steeper than one vertical on 20 horizontal. When dredge pipe crossings are removed after completion of work, the crossing areas will be restored to the condition existing prior to pipe installation and ramp construction.

6.0 MECHANICAL BARGE UNLOADING

6.1 General. The water surrounding the Facility is shallow and provides limited waterside access for dredging equipment. Therefore, the Facility has not been configured to support mechanical offloading of barges, unloading barges of debris and non-pumpable material, or for on-site rehandling of material for mechanical placement.

6.2 The Permittee may request authorization to establish a mechanical placement operation utilizing Permittee-provided offloading and rehandling resources. In order to be considered, the plan must be acceptable to the MPA and must assure that:

- material is placed at the designated point of discharge;
- roadways are maintained in satisfactory condition;
- spillage of material is prevented both in the unloading area and on the roadway;
- interference with traffic and other placement area operations is kept to a minimum; and
- disturbance to wildlife is minimized and will remain within limits specified by the Maryland Department of Natural Resources.

6.3 Perimeter Roadway. The Permittee is advised that the perimeter roadway may require extensive maintenance or reconstruction if subjected to heavy traffic loads. The roadway is to be maintained in satisfactory condition at all times and the Permittee shall promptly repair any damage caused by his operation.

6.4 Spills. Dredged material that falls onto offloading platforms shall be removed by mechanical means, or by washing down the deck with a hose. The Contract shall provide a deck scupper, drain pipe and holding tank to collect the washings as directed by the Operator. The Permittee shall pump the material and sediment laden water from the holding tank into the diked containment area. In the event that any dredged material being rehandled by mechanical means spills into the waters of the Patapsco River or on the exterior face of the dike or on the dike roadway, the Permittee shall immediately take steps to prevent further occurrence, including shut down of operation if such spillage was due to the need to repair or modify his equipment to prevent such spillage. The Permittee shall recover and place the material into the designated location in the placement area at no cost to the Operator or the MPA.

7.0 DEBRIS

7.1 Debris may not be placed in the facility.

7.2 The Permittee may, at the Permittee's option, place debris off-site at the Permittee's expense.

8.0 ACCESS, STORAGE, WORK AREAS

8.1 The Permittee will be required to confine operations at the placement area to those areas as specified by Permit. The Permittee shall be allowed to place only equipment necessary for the work on the site. The Permittee shall not be allowed to store pipe or equipment on the crown or slopes of the dikes or the stabilizing berm, unless authorized by the Operator.

8.2 As approved by the Operator, the Permittee may be allowed to utilize areas built up with suitable fill as storage, provided such storage does not interfere with traffic or other operations.

8.3 The Permittee may be allowed to utilize the stabilizing berm for staging, but shall be responsible for any costs for damages resulting from the Permittee's operations and shall promptly restore the facilities to their prior condition in the event of damage.

8.4 Storage space and work areas will be in use by other contractors; the Permittee shall include the Permittee's requirements for storage space in the Placement Operations Plan and shall be assigned space by the Operator to the extent that space is available.

9.0 DIKES

9.1 All dikes will be inspected daily by the Operator for any signs of erosion on the slopes. If the erosion has been caused by the Permittee, the Permittee shall be informed and the damaged area shall be repaired by the Permittee. The Permittee shall be obligated to provide suitable and sufficient equipment to protect the dikes and work areas. The cause of the erosion shall be ascertained and corrective measures shall be made in the operation. If repairs are not performed in a timely manner, the Operator shall cause the repairs to be made at the Permittee's expense.

9.2 If the dike(s) are eroding due to natural causes, the damaged area will be repaired by the Operator.

10.0 UNEXPLODED ORDNANCE

10.1 The permittee is required to instruct its employees, representatives, subcontractors, and any other individuals performing services in conjunction with placement at the facility or providing services at the facility regarding the potential for unexploded ordnance (UXO) in dredged material, UXO recognition, and precautions to be taken in the event that UXO is observed.

10.2 The permittee is required to notify the Facility Operator immediately if UXO is observed in dredged material that is being delivered to the facility, observed in dredged material once placed in the facility, or detected in dredging equipment providing service to or at the facility.

COX CREEK DREDGED MATERIAL CONTAINMENT FACILITY

UNEXPLODED ORDNANCE POLICIES AND PROCEDURES

1. PURPOSE.

a. **Objective**. To provide guidance with respect to the identification and disposition of unexploded ordnance.

b. **Effective Date**. This document is effective immediately and supercedes prior division-level

2. BACKGROUND

a. **Historical Conditions.**

(1) The upper Chesapeake Bay, approaches to Baltimore Harbor, and the Curtis Bay areas potentially may contain unexploded ordnance (UXO) as the result of historical military and naval activities, and in the case of Aberdeen Proving Ground (APG), recent and ongoing military missions.

(2) The upper Chesapeake Bay area in vicinity of the APG inside and immediately outside of the APG boundary is known to contain substantial quantities of UXO of various calibers and includes both high explosive and chemical munitions.

(3) The area from APG southward towards the Chesapeake Bay Bridge was used as a firing range for large caliber projectiles. Thus, the area may potentially contain UXO.

b. **UXO Incidents at the Hart-Miller Island Dredged Material Containment Facility.**

(1) Dredged material placed at the Maryland Port Administration's (MPA) Hart-Miller Island (HMI) Dredged Material Containment Facility has historically come from channels which have had very limited or incidental exposure to ordnance.

(2) There have been a few occasions in which UXO was inadvertently dredged, transported to the Hart-Miller Island Dredged Material Containment Facility, and then deposited through normal placement activities in the immediate vicinity of inflow pipe outlets.

c. **Potential for UXO at Cox Creek DMCF.**

(1) The Cox Creek DMCF is scheduled to receive dredged material from channels, anchorages and berths in the Patapsco River west of the line between North Point and Rock Point.

(2) There is a potential for UXO from harbor areas.

(3) The Cox Creek facility may eventually receive materials from channels in the main stem of the Bay upon establishment and extended full scale operation of an innovative beneficial use system at the DMCF.

3. UXO SAFETY AND MANAGEMENT PROCEDURES

a. **Precautionary Procedures.**

(1) In the event that an object or objects suspected of being UXO are observed at the facility, the watchword is safety.

(2) Although UXO incidents are infrequent, all personnel must nevertheless be alert to the potential for UXO and be prepared to take appropriate protective and corrective action. Even a small-scale explosion could result in injury, maiming, or death.

(3) The visible condition of UXO may not be a good indicator of the condition of an object or its contents. In particular, explosives may have become unstable and firing mechanisms may have deteriorated.

(4) In order to minimize or avoid the potential exposure of personnel to objects that could potentially be UXO, activity in the vicinity of inflow points is strictly limited to work requirements.

(5) Occasionally, historical or other artifacts may be within dredged material and may come our the end of the inflow pipe. Scavenging for artifacts is not authorized. Any artifacts that are recovered, for example, in conjunction with work at a facility, shall be delivered to the site manager for referral to cognizant State authorities for evaluation as to historical value and safekeeping.

b. **UXO Detection.**

(1) The presence of UXO at the facility or other placement facilities in the upper Bay region would be directly related to dredged material placement activities unless the

location were previously used for military mission activities.

(2) All personnel at the facility, in conjunction with normal activities, shall be alert to the potential for UXO and shall immediately report any objects suspected of being UXO to the site manager or senior employee present.

(3) Personnel performing environmental operations, inspection and monitoring will, in conjunction with these activities, visually check inflow points for objects that potentially could be UXO.

(4) The Facility Operator's project manager will request, through the Project Sponsor(s) that dredging contractors monitor material transported for placement and inflow points and immediately report any objects that potentially could be UXO.

c. **Initial Response**.

(1) Any individual observing an object suspected of being UXO will take immediate action to vacate and secure the area to protect personnel, and secondarily, to protect equipment.

(2) *Immediate action upon discovery of suspected UXO.*

(a) Under no circumstances should any person other than qualified explosives ordnance disposal (EOD) personnel handle an object that is suspected of being UXO.

(b) In the event that an object or objects suspected of being UXO is observed discharging from inflow pipes or at the inflow points, the individual making the observation will immediately alert all other personnel in the immediate vicinity. The on-site representative of the dredging contracting authority (U.S. Army Corps of Engineers [USACE] if placement is a federal project) and the dredging contractor will alerted to the situation. All individuals will immediately vacate the area.

(c) Upon receiving an alert the UXO is in the area, the USACE representative (if a federal placement project) and dredging contractor will be requested to take immediate action to help stabilize the situation. The Facility Operator's project manager, project engineer, site manager, senior environmental inspector, or senior facility employee, in that order of precedence, that is present at the site, shall, in consultation with the representative of the dredging contracting authority (USACE if a federal placement) and the dredging contractor, assess whether or not inflow at that inflow point can be temporarily discontinued or redirected to another inflow point until the UXO situation can be evaluated.

Every reasonable effort shall be made to avoid jeopardizing or impairing the evaluation, identification, neutralization, removal, destruction, or disposal of suspected UXO.

(d) In the event that an object suspected of being UXO is uncovered or struck by equipment, the equipment operator will immediately deactivate or turn off the equipment, if this can be done without endangering the operator. Until such time that the UXO danger is passed, further movement of the equipment is to be avoided to minimize the potential that vibrations could cause a detonation. The operator will immediately vacate the area on foot. If physical conditions preclude the operator walking out, the operator should signal for assistance. However, radio transmissions should be avoided in the immediate vicinity of suspected UXO. Upon vacating the area, the operator will immediately alert all other personnel in the immediate vicinity and advise them to also vacate the area.

(3) The individual observing suspected UXO shall immediately notify or cause the notification of the site manager or senior employee present on site regarding the situation.

(4) The Facility Operator's site manager or senior employee present will insure that all personnel have vacated the area to a safe distance and will establish a safety and security perimeter of sufficient size to avoid endangering personnel in the event that UXO were to explode.

(5) The Facility Operator's site manager or senior employee present shall notify the Facility Operator's project manager who in turn is responsible for notifying officials of the parent organization and the designated representative of the Project Sponsor(s). If the situation permits, this notification will be made prior to arranging for explosive ordnance demolition (EOD) support.

(6) The Facility Operator's site manager or senior employee present shall contact the organization that provides EOD services at the location and request support.

(a) In the case of Cox Creek DMCF, the _____ Bomb Squad shall be contacted for assistance. MES will provide transportation support for access to and travel about the facility. The bomb squad will be requested to identify and remove or dispose of the suspected UXO.

(b) If the bomb squad is not available or requires military EOD support, the Facility Operator will work with the bomb squad and other pertinent authorities to coordinate the necessary services.

d. **UXO Neutralization, On-Site Destruction, Removal and Disposal.**

(a) The decision as to whether suspected UXO can be neutralized/rendered safe/disarmed and removed, or blown in place is at the discretion of qualified EOD authorities. Blown-in-place is acceptable provided that collateral damage can be avoided. This approach would minimize the potential exposure of employees, vehicles and equipment. In the event that blown-in-place is determined to be essential by qualified EOD personnel and there would be a risk of collateral damage, a designated official from the Facility Operator's parent organization shall be immediately notified by the Facility Operator's project manager, site manager or senior employee present at the site, in that order of precedence, for consultation and decision making with senior officials and safety officer from the parent organization and the Project Sponsor's

(b) The Facility Operator's project manager, assisted by the site manager, shall notify the parent organization and the Project Sponsor(s) project manager as soon as practicable once immediate actions have been taken to stabilize the situation.

(c) Conditions at the facility or the location of UXO may necessitate transportation assistance to EOD personnel. The Facility Operator will provide transportation as may be necessary for effective response as indicated below..

(1) Facility vessels or equipment may be used to transport equipment and EOD supplies, including demolition munitions. No passengers other than response personnel are authorized during such transport.

(2) Use of facility-maintained or operated vessels or specialized equipment for transport of UXO is not authorized at the field level.

(3) All requests for transport of UXO by facility vessel or specialized equipment shall be referred to a designated official of the Facility Operator's parent organization for consultation with the Facility Operator's project manager and the Project Sponsor(s). Requests must include sufficient information to enable decision making including a field-level EOD risk assessment regarding the potential for an explosion. However, UXO may not be transported aboard vessels or specialized equipment unless the UXO has been rendered safe by qualified EOD personnel.

(4) In the event that transport of UXO aboard facility-maintained or operated vessels or specialized equipment is authorized by the parent organization of the Facility Operator in coordination with the Project Sponsor(s), only essential operators, crew and EOD team personnel will be allowed aboard the vessel or specialized equipment.

(d) Transportation for EOD personnel will be provided by the Facility Operator insofar as practicable.

(1) Facility vehicles may be used to transport equipment and EOD supplies, including demolition munitions. No passengers other than response personnel are authorized during such transport. If the project or site manager determines that a danger would exist to facility personnel serving as a driver, a suitable facility-maintained light truck may be provided for use by the EOD team.

(2) The use of facility-maintained vehicles or equipment to transport UXO is not authorized at the field level.

(3) All requests for use of facility vehicles to transport of UXO shall be referred to a designated official of the Facility Operator's parent organization for consultation with the Facility Operator's project manager and the Project Sponsor(s). Requests must include sufficient information to enable decision making including a field-level EOD risk assessment regarding the potential for an explosion. However, UXO may not be transported aboard facility vehicles or equipment unless the UXO has been rendered safe by qualified EOD personnel.

(4) In the event that use of facility-maintained vehicles or equipment to transport UXO is authorized by the parent organization of the Facility Operator, only essential vehicle or equipment operators and EOD team personnel will be allowed in the vehicle or equipment.

4. RESPONSIBILITY, DOCUMENTATION AND REPORTING

a. The policy guidance contained in this document is applicable at all times to facility personnel and other individuals at the facility. The Facility Operator's project manager shall insure that a copy of the current UXO fact sheet is provided to each assigned employee and shall post the first page of the fact sheet at the facility.

b. This policy shall be incorporated as an attachment to the Operations Plan and the Rules and Regulations for the facility, subject to coordination with and the agreement of the Project Sponsor(s).

c. In the event that neither the Facility Operator's project manager or site manager are present at the site, the senior environmental inspector, crust management foreman, and senior employee, in that order of precedence, are responsible for making the required notifications and initiating appropriate action under these guidelines

d. An incident report shall be prepared and filed by the site manager and filed with Facility Operator's parent organization within 24 hours.

e. The facility owner and sponsors of placement activities shall be notified of UXO incidents by the Facility Operator's project manager as soon as practicable and kept posted on developments until the situation is resolved.

5. TRAINING

a. The Facility Operator's project manager shall incorporate UXO training into facility safety and training programs.

b. The facility site manager will schedule and conduct UXO identification, safety and incident procedure training at least annually prior to the commencement of inflow, taking advantage of such external resources as may be reasonably available.

Attachment: UXO Fact Sheet

MARYLAND ENVIRONMENTAL SERVICE
ENVIRONMENTAL DREDGING DIVISION

UNEXPLODED ORDNANCE FACT SHEET

WHAT IS UXO?

- Explosive ordnance is any munition, weapon delivery system, or ordnance items that contain explosives, propellants, and/or chemical agents.
- UXO consists of these same items:
  - After they are armed or otherwise prepared for action.
  - Are launched, placed, fired, or released in any way that they cause hazards.
  - Remain unexploded either through malfunction or design.
- UXO may appear in parts or in fragments. All UXO, whether intact or in parts, presents a potential hazard.
- UXO may be encountered as an isolated munition or as one of many in a given area. If you see any UXO, assume that other UXO is present.

WHAT SHOULD YOU DO IF YOU SEE A UXO?

- DO NOT continue to move toward a suspected UXO. Some UXO are sensitive to motion and could explode even if you come too near.
- DO NOT move or disturb UXO. It could explode, resulting in injury or death.
- DO NOT move any object on or near UXO. UXO could become unstable over time and detonate with any motion.
- Note the location. Note the direction, any landmarks, or other features that would aid in locating the UXO.
- Leave the UXO hazard area. If you see UXO, leave the area immediately - other UXO may be present.
- Report the UXO immediately to the Site Manager. If the Site Manager is not available, report the UXO to the senior MES employee present. Assist the Site Manager or senior MES employee present in taking appropriate action as required by the UXO policy guidance for the facility.
- Stay away from areas of known or suspected UXO. Do not enter fenced areas or areas with posted UXO warnings. This is the best way to prevent injury.

WHAT TYPES OF UXO HAVE BEEN USED FOR WEAPONS SYSTEMS TESTING AND MILITARY TRAINING?

All shapes, sizes and types of explosive ordnance may have been used in the Chesapeake Bay region, potentially including the types described below, and may potentially be encountered during the dredging of channels and anchorages. Small UXO including hand grenades and projectiles have been occasionally deposited by hydraulic placement at containment facilities and are referred to explosive ordnance disposal authorities for response.

- **Small arms munitions** - These munitions contain projectiles 0.5 inches or less in caliber and no longer than 4 inches. They are fired from various sizes of weapons, such as pistols, carbines, rifles, automatic rifles, shotguns, and machine guns.

- **Hand grenades** - These are small explosive - or chemical - type munitions that are designed to be thrown at short range. All grenades have three main parts: a body, a fuze with a pull ring and safety clip assembly, and a filler.

- **Rockets** - A rocket uses gas pressure from rapidly burning material (propellant) to transport a payload 9warhead) to a desired location. Rockets can range from 1.5 inches to more than 15 inches in diameter and 1 foot to 9 feet in length. All rockets contain a warhead section, a motor section, and a fuze. They are unguided after launch and stabilized during flight by canted nozzles or fins attached to the motor. Fuzing may be time-delay, impact, or proximity types.

- **Guided Missiles** - These missiles are similar to rockets; however, guided missiles are guided to their targets by systems using radar, video, or wire guides. These missiles are usually stabilized by fins controlled by internal electronics.

- **Projectiles** - Projectiles range from 1 inch to 16 inches in diameter and 2 inches to 4 feet in length. Projectile fuzes can be located in the nose or in the base. Like rockets, projectiles may be stabilized during flight by fins or bands fixed around the circumference of the projectile.

- **Mortars** - These range from 1 inch to 11 inches in diameter and can contain explosives, toxic chemicals, white phosphorus, or illumination flares. Mortars have thinner metal casing than projectiles, but use the same types of fuzing and stabilization.

- **Projected Grenades** - Contain high explosives and use a variety of fuzes, including some of the most sensitive impact fuzing systems. The most common and dangerous projected grenade is the 40 millimeter grenade, which can explode if moved or handled.

- **Rifle Grenades** - Rifle grenades are similar in appearance to mortars and range from 9 to 17 inches in length. They may contain high explosives, white phosphorus, riot-control agent, illumination flares, or chemicals that produce colored screening smoke. Rifle grenades are fired from standard infantry rifles and rely on impact fuzing.

- **Submunitions** - Include bomblets, grenades, and mines filled with explosives or chemical agent. Submunitions are spread over a large area by dispensers, missiles, rockets, or projectiles. Activation can occur by various methods including pressure, impact, or movement. Some submunitions may contain a self-destruct fuze. Stabilization can be provided by an arming ribbon, parachute, or fin assembly.

- **Bombs** - Bombs range from 1 to 3,000 pounds in weight and 3 to 10 feet in length. All bombs generally have the following components: a metal container, a fuze, and a stabilizing device. The metal container holds the explosive or chemical filler.

- **Sea Mines, Torpedoes, and Depth Charges** - Naval munitions of various sizes, shapes and fuzing which may be impact, proximity or timed.