

USDA
NATURAL RESOURCES
CONSERVATION SERVICE

MARYLAND CONSERVATION
PRACTICE STANDARD

**CLOSURE OF WASTE
IMPOUNDMENTS**

CODE 360
(Reported by No.)

CONSIDERATIONS

Reduce pumping effort to empty waste impoundments where the surface is covered by a dense mat of floating vegetation by first applying herbicide to the vegetation and then burning the residue. Appropriate permits must be obtained before burning.

Alternative methods of sludge removal may be required where the impoundments contain large amounts of limestone, sand, soil, or other debris.

Minimize the impact of odors associated with emptying and land applying wastewater and sludge from a waste impoundment by using an incorporation application method at a time when the humidity is low, when winds are calm, and when wind direction is away from populated areas.

Soil to fill excavated ponds should not come from important farmlands (prime, statewide, local, and/or unique).

Breached embankments may detract from the overall esthetics of the operation. Consider removing embankments and returning the site to its original grade.

Keep sludge left in place and covered with water to prevent its aerobic decomposition with potential release of nutrients to surface and ground water.

Disassembled structural facilities may be suitable for assembly at another site. Care should be taken during closure to minimize damage to the pieces of the facility, particularly coatings that prevent corrosion of metal pieces.

CRITERIA

General Criteria Applicable to All Purposes

The closure shall comply with all Federal, State, and local laws, rules, and regulations including pollutant discharge elimination system requirements.

Mark and record the location of a closed impoundment and manure transfer system on the conservation plan map for future reference. The construction of buildings or other facilities should not be considered in the area of the impoundment closure without a geotechnical inves-

DEFINITION

The closure of waste impoundments (treatment lagoons and waste storage ponds), that are no longer used for their intended purpose, in an environmentally safe manner.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following purposes.

1. To protect the quality of surface water and groundwater resources.
2. To eliminate a safety hazard for humans and livestock
3. To safeguard the public health.

**CONDITIONS WHERE PRACTICE
APPLIES**

This practice applies to agricultural waste impoundments that are no longer needed as a part of a waste management system and are to be permanently closed or converted.

Where these impoundments are to be converted to fresh water storage and the original impoundment was not constructed to Maryland standards, this practice will only apply where the investigation, as required in National Engineering Manual (NEM) 501.23, shows structural integrity.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

tigation.

The scope of the closure procedure shall be based on a risk assessment including an evaluation of any existing seepage control liner, the proximity of groundwater to the waste impoundment, and the intended future use. A properly functioning seepage control liner shall be left in place, unless complete removal of contaminants can be reasonably accomplished.

All pipes and structures used to convey waste to waste impoundments and from waste impoundments to distribution systems shall be removed and replaced with compacted earth material or otherwise rendered unable to convey waste.

Liquid and slurry wastes shall be agitated and pumped to the extent conventional pumping will allow. Clean water shall be added as necessary to facilitate the agitation and pumping. The wastewater shall be utilized in accordance with NRCS Conservation Practice Standard, Waste Utilization, Code 633. The sludge remaining on the bottom and the sides of the waste treatment lagoon or waste storage facility may remain in place if it will not pose a threat to the environment.

Waste Disposal

If leaving the sludge and waste in place would pose a threat, it shall be removed from a lagoon or waste storage facility to the fullest extent practical and utilized in accordance with Maryland Conservation Practice Standards, Nutrient Management (Code 590), and Waste Utilization, Code 633 specifications in the Field Office Technical Guide.

Land Reclamation

Impoundments converted to fresh water storage or other appropriate uses shall be constructed in accordance with applicable Maryland Conservation Practices Standards.

Restoration of waste impoundment sites for both embankment and excavated impoundments shall be restored to the elevations and contours necessary so that surface water can drain freely from the entire site. Waste impoundments with water impounded against the embankment are considered embankment structures if the depth of water is three feet or more above natural ground.

1. **Embankment Impoundments** - Embankments may be breached or the storage volume filled with clean soil so that they will no longer impound water. Waste shall be removed from the site before the embankment is breached. The slopes and bottom of the breach shall be stable for the soil material involved, however the side slopes shall be no steeper than three horizontal to one vertical (3:1).
2. **Excavated Impoundments** - Excavated impoundments that will not be converted to fresh water storage shall be backfilled so that these areas may be reclaimed for other uses. The backfill height shall exceed the design finished grade by 5 percent to allow for settlement. The finished surface shall be constructed of the most clayey material available and mounded to shed rainfall runoff. Incorporate available topsoil where feasible to aid establishment of vegetation.

Closed waste storage structures shall be demolished or disassembled or otherwise altered to such an extent that no water can be impounded. Disassembled materials such as pieces of metal shall be temporarily stored until their final disposition in such a manner that they do not pose a hazard to animals or humans.

Demolished materials may be buried on-site or moved off-site to legal disposal areas. If buried on-site, the materials are to be covered with soil to a minimum settled depth of one foot, and the backfill be sufficiently mounded such that runoff will be diverted from the site after backfill settles.

Conversion to Fresh Water Storage

The converted impoundment shall meet the requirements as set forth in the appropriate Maryland Conservation Practice Standard for the intended purpose.

Safety

Water quality shall be tested to verify that it meets the local Health Department requirements for the intended purpose.

When sludge is not removed from a waste impoundment that is being converted to fresh water

storage, the impoundment shall not be used for fish production, swimming, or livestock watering until water quality is adequate for these purposes. Provide warning signs and fencing to ensure that the facility is not used for purposes incompatible with the current quality of water.

Personnel shall not enter an enclosed waste impoundment without breathing apparatus or taking other appropriate measures.

Protection

All disturbed areas not returned to crop production shall be vegetated in accordance with Maryland Conservation Practice Standard, Critical Area Planting (Code 342) or other applicable Conservation Practice.

Measures shall be taken during construction to minimize site erosion and pollution of downstream water resources. This may include such items as silt fences, hay bale barriers, temporary vegetation, and mulching.

SPECIFICATIONS

Plans and specifications for closure of abandoned waste treatment lagoons and waste storage ponds shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. The plans and specifications shall also be consistent with the requirements of that standard.

OPERATION AND MAINTENANCE

The proper closure of a waste treatment lagoon or waste storage pond should require little or no operation and maintenance; however, if it is converted to another use, such as a fresh water facility, operation and maintenance shall be in accordance with the needs as set forth in Maryland conservation practice standard for the intended purpose. The operation and maintenance plan for the new practice shall include an acknowledgement of the on-site waste storage history.

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SUPPORTING DATA AND DOCUMENTATION

Field Data and Survey Notes

1. Record in a field survey book the impoundment surface area, the number of cells, structures and pipes in the impoundment, depth of the impoundment, dimensions of the berm and any other information that is necessary for the design and cost estimate. Note any streams or ditches in the vicinity of the impoundment area.
2. Locate the borrow area
3. Perform a soil investigation; log the soil and the water table depth.
4. Locate site on a vicinity map and draw a plan view sketch of the project area in relationship to other buildings on the property.
5. Document the site visit, date, who was there, discussions and decisions made with the landowner in the Conservation 6 notes.

Design Data

Record on appropriate engineering paper. For guidance on the preparation of engineering plans see chapter 5 of the EFH, Part 650. The following is a list of the minimum required design data:

1. Plan view of the waste impoundment with location map.
2. Location and description of structures to be removed.
3. Soil borings indicating location of seasonal high water table.
4. Construction sequence.
5. Specifications for the removal of the wastes stored in the impoundment.
6. Quantity of waste to be removed and instructions to utilize waste based on a Nutrient Management Plan (590) and Waste Utilization (633).
7. Detail of embankment breach (if needed).
8. Erosion and sediment control requirements.
9. Locations of spoil and borrow areas.

10. Final grading plan for site.
11. Planting plan. This must meet the criteria, specifications, and documentation requirements of the Maryland conservation practice standard for Critical Area Planting, code 342. Show on plan.

Construction Check Data/As Built

Record on survey notepaper, SCS-ENG-28, or other appropriate engineering paper. Survey data will be plotted on plans in red. The following is a list of minimum data needed for As-builts:

1. A copy of the "As-Built" plans.
2. Documentation of site visits on CPA-6. The documentation shall include the date, who performed the inspection, specifics as to what was inspected, all alternatives discussed, and decisions made and by whom.
3. Statement on seeding.
4. Final quantities and documentation for quantity changes. Materials certification.
5. Sign and date checknotes and plans by someone with appropriate approval authority. Include statement that practice meets or exceeds plans and NRCS practice Standards.

REFERENCES

1. Maryland Department of Environment, 1994 Maryland Standard and Specifications for Soil Erosion and Sediment Control.
2. USDA, Natural Resources Conservation Service, Maryland Field Office Technical Guide, Section IV, Standards and Specifications.
3. USDA Natural Resources Conservation Service, *National Handbook of Conservation Practices*.
4. USDA, Natural Resources Conservation Service, *National Engineering Manual 501.23*, July 1980.
5. Video on "How to Abandon an Earthen Manure Storage Facility", 1993 produced by Baron County Land Conservation Department, Wisconsin.