

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

CLOSURE OF WASTE IMPOUNDMENTS

(No.)

CODE 360

DEFINITION

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

PURPOSE

- Protect the quality of surface water and groundwater resources.
- Eliminate a safety hazard for humans and livestock
- 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 NRCS standards, this practice will only apply where the investigation, as required in National Engineering Manual (NEM) 501.23, shows structural integrity.

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.

All structures used to convey waste to waste impoundments or to provide drainage from the impoundment area 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.

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The wastewater shall be utilized in accordance with NRCS Conservation Practice Standard, Waste Utilization, Code 633. The sludge remaining on the bottom and sides of the waste treatment lagoon or waste storage facility may remain in place if it will not pose a threat to the environment. If leaving the sludge in place would pose a threat, it shall be removed to the fullest extent practical and utilized in accordance with NRCS Conservation Practice Standard, Waste Utilization, Code 633.

Sludge may remain in place, and covered with soil per the land reclamation criteria in this standard if as-built documentation is available showing that the facility was built to meet permeability criteria in AWMFH Appendix 10-D; and this documentation will be included in the design folder. Otherwise all sludge will be removed to the extent that parent soil is exposed on the bottom and sides of the facility.

Land Reclamation. Impoundments with embankments may be breached so that they will no longer impound water, and excavated impoundments may be backfilled so that these areas may be reclaimed for other uses. Waste impoundments that have 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. 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. The backfill height shall exceed the design finished grade by 5 percent to allow for settlement. The top one foot of the backfill 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 shall be buried on-site or moved off-site to locations designated by state or local officials. If buried on-site, the materials are to be covered with soil to a settled depth of one foot, and the backfill be sufficiently mounded such that runoff will be diverted from the site after the backfill settles.

Conversion to Fresh Water Storage. The converted impoundment shall meet the requirements as set forth in the appropriate NRCS practice standard for the intended purpose. Sludge will be removed prior to conversion of the facility to fresh water storage.

Safety. When sludge is not removed from a waste impoundment, the location of the facility will be documented on an as-built drawing, and the following statement will be clearly stated on the drawings: "Sludge remaining in place during the closure of this manure storage/treatment facility poses a potential for the development of combustible gases, no structure

that would interfere with the free release of these gases to the atmosphere should be built on this site.”

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

Protection. All disturbed areas shall be re-vegetated or other suitable measures used to control erosion and restore the esthetic value of the site. Sites not suitable for re-vegetation through normal cropping practices shall be vegetated using NRCS Conservation Practice Standard, Critical Area Planting, Code 342.

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.

Facility Closure Plan. Facility closure, usually due to abandonment, requires a site-specific closure and inspection plan. Obtain all required permits prior to the closure operation. Address or include the following items in the closure plan.

- A copy of the facility's "As Built Plans".
- A copy of the facility's geological exploration.
- Removal and utilization of solids and liquids as per NRCS Field Office Technical Guide, Section IV, Ohio Conservation Practice Standard 633, Waste Utilization.
- Contaminated soil removal and utilization.
- Method of disposal or burial of fabricated structures, liners, covers, and other appurtenances.
- Removal or plugging of all transfer systems.
- The type of material and method of filling the facility.
- The grading plan and erosion control measures.
- If applicable, conversion of the facility or facilities for other purposes.
- The timing and amount of inspection required.
- Any tests required for closure.

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.

Drainage from areas formerly entering the facility should be diverted away from the restored facility area to prevent surface water ponding.

Burial of sludge should only be considered as a last resort because of the difficulty & expense associated with constructability and future land use limitations of the site

Alternative methods of sludge removal may be required where the impoundments contain large amounts of 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).

Breeched embankments may detract from the overall esthetics of the operation. Embankments should be removed and the site returned to its original grade.

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.

PLANS AND SPECIFICATIONS

Plans and specifications for closure of abandoned waste treatment lagoons and waste storage facilities 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 facility 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 the appropriate NRCS conservation practice standard for the intended purpose.