

**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. The wastewater shall be analyzed and applied to crops at agronomic rates based on Realistic Yield Expectation (RYE) in accordance with NRCS Conservation Practice Standards Waste Utilization, Code 633 and/or Nutrient Management, Code 590.

All sludge will be removed to the maximum extent practicable. If the bottom of the lagoon or structure is above the water table at the time of closure and will support earth-moving equipment, it must be scraped. A qualified technical specialist must determine the soil stability for earth moving equipment. For lagoons or structures that are not to be scraped and those with bottoms documented to be below the water table at the time of closure, the depth of "agitated" waste material remaining in the lagoon or structure at the time of closure may not exceed a maximum depth of one (1) foot.

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.

If a lagoon or structure is to be breached, the liquid must be pumped out and the remaining waste material scraped. Reasonable efforts must be made to

remove all waste materials prior to closure. 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, state rules and regulations are to be followed, and the materials are to be covered with soil to a settled, minimum, depth of one foot, and the backfill be sufficiently mounded such that runoff will be diverted from the site after the backfill settles.

Alternate Method of Closure:

There are existing impoundments that may be closed by the following alternate method.

This alternative closure process consists of vacuum dredging the sludge and leaving the liquid.

Impoundments which have a liquid waste analysis of more than 40 parts per million of total N before sludge removal cannot be closed by this alternate method.

Locations on the lagoon bottom where sludge is 0.2 foot or greater must be dredged. Where the sludge is less than 0.2 foot in depth, dredging is not required.

Sludge must be removed to the fullest extent practical on the slopes, but in no case shall there be more than 0.2 ft. of sludge in the bottom when finished.

The impoundment must be converted to fresh water storage. Spillways, if required under this standard, must meet the requirements of the Pond Conservation Practice Standard (Code 378).

Required documentation for the above criteria includes:

A liquid waste analysis performed by the NCDA&CS or other accredited lab. The sample shall be taken by Division of Soil and Water Conservation (DSWC) staff, Division of Water Quality (DWQ) staff, or NRCS staff with a WUP designation as a technical specialist.

A survey of the lagoon showing the bottom elevation and depth of sludge before and after dredging using a "sludge judge" or other measuring device made for this purpose, on a 25 foot grid, or closer, if needed to show true size and volume of sludge. The survey and volume computations shall be signed by a technical specialist with the SD or SI designation.

A representative from DWQ, DSWC, or an NRCS Engineer or Civil Engineering Technician must verify that the sludge has been satisfactorily removed.

Lagoons which have a liquid waste analysis of more than 40 parts per million of total N before sludge removal can not be closed by this alternate method.

Conversion to Fresh Water Storage. All abandoned impoundments that are not breached or filled that have an embankment of 3 feet or more, shall have a principal spillway and an emergency spillway installed that meets the requirements of Conservation Practice Standard Pond, Code 378...

Safety. When a waste impoundment 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. Precautions (fencing and warning signs) shall be used 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 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.

CONSIDERATIONS

Alternative methods of sludge removal may be required where the impoundments contain large amounts of oyster shells, 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 and/or applying 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.

Keep sludge left in place covered with water to prevent its aerobic decomposition with the 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.

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.