

**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

Construction operations are to be carried out in such a manner that erosion, air, water, and noise pollution will be minimized and held within legal limits established by State regulations.

All planned work must comply with all Federal, state, and local laws and regulations.

**CLOSURE PLAN**

All animal waste systems shall include a closure plan including an estimated cost for closure of the waste disposal system.

Closure plans shall be in compliance with Arkansas Department of Environmental Quality (ADEQ) Regulations, which includes The Arkansas Pollution Control and Ecology (ADPC&E) Commission Regulation 5.

A closure plan shall be prepared prior to any removal, closure or abandonment of any waste storage or treatment facility containing waste or residuals from confined animals facilities, processing plants or other specified wastes.

NRCS will provide certification to the landowner after all closure activities are complete and that potential environmental hazard has been eliminated. Permittee will be responsible for submitting closure certification to ADEQ.

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 and all animal waste residues including sludge will be removed and utilized in accordance with Arkansas Conservation Practice Standard, Nutrient Management,

**NRCS, AR**

**April, 2008**

Code 590 or Waste Utilization Conservation Standard, 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.

**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, concrete excluded, 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.

**Safety.** Waste impoundments that are being converted to fresh water storage 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

The basic methods for preparing waste impoundments for closure include removing the wastes by: (1) agitating and transferring to the land with irrigation equipment or with liquid manure spreaders; (2) dredging, stockpiling, draining, and spreading; or (3) a combination of pumping and/or agitating then dredging. The process of agitation and pumping can remove most of the waste impoundment contents. However, there may be a thick layer of nutrient rich sludge left in the bottom of the waste impoundment that is unpumpable. Ideally, this layer can be tested for nutrient content, scraped from the bottom and sides of the waste impoundment, and applied to the land according to the comprehensive nutrient

**NRCS AR**

**April, 2008**

management plan. Sludge can be left in place and covered with suitable material, provided the following conditions can be met:

- If removal of sludge would compromise the integrity of earthen liner.
- The earth liner under the sludge can be reasonably assumed to have a specific discharge of 10-6 cm/sec or less.
- The finishing surface will be mounded to provide positive surface drainage.
- The final compacted layer on the finished surface will be constructed of clayey (SC, CL, or CH) material and will have a compacted thickness of at least 12 inches.
- At least 4 inches of topsoil will be added to the surface to facilitate vegetation establishment.
- Any upslope rainfall runoff will be diverted away from the closure.
- Agitation and pumping: To effectively remove liquid and solid wastes with this method, the waste impoundment shall be agitated completely before and during pump out.
- Sludge that is removed with sludge pumps or excavation equipment may be directly land applied per the nutrient management plan or temporarily stockpiled for drying near the waste impoundment. The stockpile area shall slope slightly toward the waste impoundment or positively confine the wastes. A drainage fence or filtering device may be necessary to prevent solids from reentering the waste impoundment. If positive drainage toward the waste impoundment cannot be obtained, a sump pump system may be required to return the liquid drainage to the waste impoundment. If the existing soils at the stockpile location are not adequate to prevent seepage from entering the groundwater, a 6-inch compacted clay pad or other

approved impermeable barrier is required beneath the stockpile. The perimeter of the stockpiled material shall be protected as needed with an earthen berm or other approved structure to exclude uncontaminated runoff and to ensure drainage from the dredged material returns to either the waste impoundment or a sump pump. The stockpiled material should be allowed to dry, tested for nutrient content, and then land applied at recommended rates. After land application of the dried material, the temporary stockpile area shall be smoothed and vegetated according to the vegetation plan.

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 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 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

**NRCS AR**

**April, 2008**

damage to the pieces of the facility, particularly coatings that prevent corrosion of metal pieces.

## **PLANS AND SPECIFICATIONS**

Details and specifications for items such as silt fences, diversions, waterways, sediment basins, bale barriers, temporary vegetations, permanent vegetation, mulching may be needed.

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.