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

Utilities and Permits. The landowner shall be responsible for locating all buried utilities in the project area, including drainage tile and other structural measures.

The landowner shall obtain all necessary permissions from regulatory agencies, including the Illinois Department of Agriculture, US Army Corps of Engineers, US Environmental Protection Agency, Illinois Environmental Protection Agency and Illinois Department of Natural Resources – Office of Water Resources, or document that no permits are required.

Laws. The closure shall comply with all Federal, State, and local laws, rules, and regulations including pollutant discharge elimination system requirements and the Illinois Department of Agriculture Livestock Management Facilities Act.

Waste Transfer Structures. 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.

Waste Material Removal. 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 sides of the waste treatment lagoon or waste storage facility may remain in place if it will not pose a threat to the environment and if permitted by the Illinois Livestock Management Facilities Act. If leaving the sludge in place would pose a threat, or if required by law, the sludge 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.

- 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).
- Excavated Impoundments. The backfill height shall exceed the design finished grade by at least 5 percent to allow for settlement. The top one foot of the compacted backfill shall be constructed of the most clayey material available and mounded to shed rainfall runoff. If the final surface is to be vegetated, apply at least 4 inches of topsoil material, smooth, and vegetate the area according to the vegetation plan.

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.

Safety. 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. 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 aesthetic 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

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 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 impoundments should be obtained from areas other than important farmlands (prime, statewide, local, and/or unique).

Breached embankments may detract from the overall aesthetics 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.

NATURAL RESOURCES CONSERVATION SERVICE
ILLINOIS CONSTRUCTION SPECIFICATION
CLOSURE OF WASTE IMPOUNDMENTS

Scope
This item shall consist of the measures necessary to close a waste impoundment that is no longer in service, including proper removal and disposal of the contents of a waste impoundment, as required by the closure plan.

Waste Removal – Agitation and Pumping
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.

Waste Removal – Dredging
Sludge that is removed with excavation equipment may be temporarily stockpiled near the waste impoundment. If possible, the stockpile area shall slope slightly toward the waste impoundment. Uncontaminated rainfall runoff shall be diverted from the waste impoundment. A drainage fence or filtering device may be necessary to prevent solids from reentering the waste impoundment. In topographical locations where positive drainage toward the waste impoundment cannot be obtained, a sump pump system may be required to return the liquid drainage from the temporary sludge pile to the waste impoundment. If the sludge has minimum drainage associated with the dredged material, a grass filter can be designed to treat the liquid in lieu of the sump pump system.

If the existing soils at the stockpile location are not adequate to prevent seepage from entering the groundwater, a 6-inch thick compacted clay pad or other equally impermeable liner 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 of the dredged material returns to the waste impoundment, a sump pump, or an appropriate grass filter.

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.

Waste Impoundment Closure
Agitate and pump the waste impoundment contents and remove the unpumpable material in the bottom of the waste impoundment according to the closure plan.

If the waste impoundment is to be closed by filling with soil, the soil shall be placed in maximum 9-inch thick layers with each layer being compacted using two passes of the earthmoving equipment. Soil moisture content shall be maintained to ensure adequate compaction of the material. The filling process shall continue until the waste impoundment is overfilled at least 5 percent to allow for settlement. The final compacted layer shall have at least a 12-inch compacted thickness and be made with the most clayey material on site. The final surface shall be mounded so that any surface water will not collect. Potential rainfall runoff water upslope from the closed waste impoundment shall be diverted from the closure. If the final surface is to be vegetated, apply at least 4 inches of topsoil material, smooth, and vegetate the area according to the vegetation plan.

Waste Disposal
All land application of wastes shall be according to guidelines in the closure plan and the requirements of NRCS Practice Standard Waste Utilization, Code 633.

Utilities
The landowner shall be responsible for locating all buried utilities in the project area, including drainage tile and other structural measures.