NATURAL RESOURCES CONSERVATION SERVICE

VIRGINIA CONSERVATION PRACTICE STANDARD

CLOSURE OF WASTE IMPOUNDMENTS

(NO.)

CODE 360

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:

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

CONDITIONS WHERE PRACTICE APPLIES

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

CRITERIA

GENERAL CRITERIA

All planned work shall comply with all Federal, state, and local laws and regulations. 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. Details and specifications for items such as silt fences, diversions, waterways, sediment basins, bale barriers, temporary vegetation, permanent vegetation, and mulching may be needed.

CLOSURE PLAN

A closure plan shall be developed to define the actions required to close the structure and make any desired conversions. The closure activities shall be complete within 6 months after the last date on which animal waste is placed in the waste facility. If the facility is required to have a Virginia Pollution Abatement (VPA) permit, a nutrient management plan approved by the Virginia Department of Conservation and Recreation is required.

All structures used to convey waste to lagoons or waste storage ponds shall be removed and replaced with compacted earth, or closed in an approved manner to control or eliminate the escape of uncontrolled leachate, surface runoff, or waste decomposition products moving to the ground water, surface water, or to the atmosphere.

WASTE REMOVAL

All wastes shall be removed from the structure. Clean water may be added as necessary to facilitate the agitation and pumping. Removal of the contents of a

waste impoundment by agitation and chopper pumping generally does not require construction measures.

The wastewater and all animal waste residue to include the sludge shall be removed and utilized at the rates detailed in the *Virginia Nutrient Management Standards and Criteria* (Revised November 1995*)* and, if required by a VPA permit, in accordance with the nutrient management plan approved by the Virginia Department of Conservation and Recreation. The waste may also be disposed of as a solid waste according to the requirements of the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 etc. seq.

STOCKPILING

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.

LAND RECLAMATION

Impoundments with embankments may be breached or filled so that they will no longer impound water and these areas may be reclaimed for other uses. The slopes and bottom of the breach or fill shall be stable for the soil material involved with the side slopes no steeper than three horizontal to one vertical (3:1).

When the structure will be filled with soil, clay liners on the interior side slope shall be removed using earth-moving equipment or destroyed using sub-soiling equipment. Synthetic liners may be disposed in legal landfills or rolled/folded and placed in the bottom of the structure prior to filling. The synthetic liner shall be removed from the top of the embankment to the higher in elevation of three feet from the structure bottom or the groundwater elevation at the time of closure.

The storage facility shall be filled with uncontaminated soil material. The soil shall be placed in maximum 12-inch lifts with each layer being compacted using two passes of heavy equipment. Soil moisture content shall be maintained to ensure adequate compaction of the material.

The backfill height shall exceed the design finished grade by 5 percent to allow for settlement.

Apply at least 4 inches of topsoil material, smooth and vegetate the area according to the vegetation plan. The final surface must be maintained in the case of settlement, erosion, or standing water. The final surface shall be graded to prevent standing surface water. Potential runoff from above the closed waste impoundment shall be diverted or passed across or through the area in a stable and non-erosive manner.

CONVERSION TO FRESH WATER STORAGE

When the facility will be converted to a fresh water storage (pond), the structural condition of the embankment will be evaluated and needed repairs made.

Geomembrane liners shall be removed from structures converted to ponds or reservoirs.

The converted impoundment shall meet the requirements of the appropriate Virginia Conservation Practice Standards for the intended purpose [*e.g.*. *Pond (Code 378)*, *Irrigation Pit or Regulating Reservoir (Code 552A*), or *Irrigation Storage Reservoir (Code 436)*]. This will require an investigation of the structural integrity of the impoundment, according to NEM 501.23, if not originally constructed with NRCS technical assistance. The same investigation, report of findings, and report of required corrective actions with estimated costs, shall be completed for structures completed with NRCS technical assistance.

PROTECTION

All disturbed areas not returned to crop production shall be vegetated in accordance with Virginia Conservation Practice Standard *Critical Area Planting (Code 342).* Measures shall be taken during closure to minimize erosion and pollution of downstream water resources. This may include details and specifications for such items as silt fences, hay bale barriers, temporary vegetation, mulching, etc.

POLLUTION CONTROL

Waste removal, land application of the waste or wastewater, and all construction activities are to be conducted in a manner to minimized pollution. All wastes shall be applied and utilized at the rates detailed in the *Virginia Nutrient Management Standards and Criteria* (Revised November 1995). Best Management Practices (BMPs) shall be utilized whenever possible.

CONSIDERATIONS

If the surface of the waste impoundment is covered with a floating mat and a dense stand of vegetation, it may be necessary to apply a herbicide to the vegetation and then burn the residue if the material is to be removed by pumping. Appropriate burning permits should be obtained.

Sludge from poultry lagoons can contain large quantities of ground oyster shells. Other waste impoundments receiving runoff from cattle washing areas and open lots can contain excessive amounts of soil and other debris. These types of sludge will be difficult to remove by agitation and pumping.

When converting waste treatment lagoons and waste storage ponds to fresh water ponds, the effects on the water budget should be considered. A pond will reduce surface runoff, trap sediment, and reduce nutrients and pesticides leaving the land.

Consideration of climatic factors such as humidity, wind speed, and wind direction should be considered to determine the timing and method of applying the wastewater and sludge from the lagoon or waste storage pond.

If livestock will have access to a closed waste impoundment converted to a fresh water pond, consideration should be given to fencing, installation of a watering ramp, or gravity fed trough where needed for safety or water quality considerations.

PLANS AND 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.

DESIGN AND CHECK DATA REQUIREMENTS

Design Data

Record on appropriate forms or field book:

1. Closure plan to include plans of the existing facility or a description and location of the facility
2. Vegetative plan
3. Nutrient management plan

4. Volume of earth fill or excavation if required

5. Design data required by practice desired from conversion

Check Data

Record on Closure Plan or in field book:

1. Indicate items of Closure Plan completed or any variation from the plan

2. Copy of the nutrient management plan

3. Check data required by practice resulting from any conversion

4. Signed and dated statement that the waste disposal and conversion have been satisfactorily completed

OPERATION AND MAINTENANCE

The proper closure of a waste treatment lagoon or waste storage pond should require little or no operation and maintenance. If it is converted to another use, such as a fresh water pond, operation and maintenance will be in accordance with the applicable NRCS Conservation Practice Standard.

REFERENCES

1. Virginia Department of Environmental Quality.

2. Virginia Nutrient Management Handbook, Virginia Department of Conservation and Recreation.

3. Local Zoning Ordinance.

4. Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 etc. seq.

5. NEM 501.23.

6. *Virginia Nutrient Management Standards and Criteria* (Revised November 1995).

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Approved Practice Narratives

(NO.)

CODE 360

360 D1 Closure of Waste Impoundments: Close a waste impoundment that is no longer used for the intended purpose by filling with earth and/or removal of berms.

360 D2 Closure of Waste Impoundments: Close a waste impoundment that is no longer used for the intended purpose and convert the impoundment to a fresh water storage structure.