



# Extension FactSheet

AEX-594.2-04

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## New Requirements for On-Farm Storage of Bulk Fertilizers

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ODA issued regulations for bulk fertilizer storage for on-farm storage. Prior to January 2002, agrichemical storage facilities on private farms were not subject to commercial facility regulations. However, with an increasingly large number of producers installing their own bulk storage facilities, there is an increased need for environmentally responsible and economically reasonable containment requirements.

### Who Is Affected by These Regulations?

Farmers who currently have tanks and store bulk fertilizers more than 30 days on their farm are affected by the regulations. All on-farm fertilizer storage tanks in place before January 2002 must have secondary containment dikes by January 1, 2007. After this date, the grace period ends and all bulk fertilizer rules will be effective for all storage facilities.

Farmers who build new fertilizer storage facilities over 5,000 gallons or make additions to their current storage tanks (like adding manifold tanks that increase total capacity greater than 5,000 gallons) and store bulk fertilizers for more than 30 days must adhere to the regulations immediately. This includes on-site tanks that have been dismantled and reconstructed at a different site. There is no grace period for newly constructed facilities and the new site must comply with applicable zoning regulations, building standards, and fire codes. Additional written approval for construction and inspection is needed by the Ohio Department of Agriculture.

### Regulations for On-Farm Storage Facilities

#### 1. Storage tank requirements

—Tanks must be constructed according to manufacturer standards in accordance with engineering principles for liquid storage; taking into account hydrostatic head pressure, pressure buildup from pumps and compressors, and other mechanical stresses to

which the storage tank may be subject to in the course of operation.

—Tanks must be equipped with a lockable liquid level gauging device.

—Tanks must be properly secured to prevent floatation.

—Tanks must display the contents and capacity in stenciled letters no less than four inches in height, on a visible side of the tank.

—Tanks must be equipped with a lockable shutoff valve.

#### 2. Appurtenances (plumbing, pumps, valves, gauges, fittings, etc.) requirements

—Appurtenances must be constructed with materials recommended by the manufacturer for use with specified liquid.

—With the exception of hoses used for loading and unloading, all appurtenances must be contained in the dike area, otherwise they must have a separate means of containment.

—All hoses used for loading and unloading must be equipped with a shut-off valve at each end.

—All pipes and hoses must be properly supported to prevent sagging; and should be protected against vehicle contact while loading or unloading.

#### 3. Secondary containment requirements

—Dikes and surface area must be constructed of materials compatible with the liquids they are to contain; capable of withstanding a full hydrostatic head of liquid discharge; capable of restricting vertical and horizontal liquid movements at a rate not to exceed thirty-five hundredths of an inch per day; and contain no open drains.

—Containment dikes must have 10% more volumetric capacity than the largest storage tank located within the containment area.

—Any storage tank over 15 feet tall shall be placed no less than 4 feet from the inside base of the secondary containment facility dike.

### Required Maintenance and Inspections

Owners of bulk fertilizer storage facilities must perform regular inspections. The chart will assist farmers with inspection responsibility.

Owners of bulk fertilizer storage facilities must provide regular maintenance to the tanks, secondary containment dikes, and appurtenances so that they are free of rust, corrosion, galling, cracking, or other structural defects affecting the strength and integrity of the facility. All valves, pumps, and other mechanical appurtenances should be maintained in working order.

For tanks on concrete foundations, farmers should ensure a moisture barrier exists by sealing the interface between the tank floor and the concrete foundation. All permanent foundations should be regularly graded, and drains checked, to insure moisture and debris do not accumulate at the base of the tanks.

All welded repairs, including the materials used in repairs, shall conform to the storage tank's original design specifications. If the specs are not available, then repairs should follow API standard 653.

### Required Records for Bulk Storage Facilities

Owners of bulk fertilizer storage facilities are required to maintain three types of records. Such information should be kept on-site for a period of five years, and be available for inspection by the Department of Agriculture upon their request. The three types of records include:

1. A record of all repairs and maintenance work performed on each tank and/or secondary containment area; this includes the date of repair, the type of repair performed, or the type of maintenance performed.
2. Weekly inventory records of liquid levels for each permanent tank in the facility.
3. A record of any accidental discharge outside of the containment area; this includes the date and time of the discharge, type of bulk fertilizer, the amount of discharge, the action taken to recover the discharge, and the method of disposal of any recovered discharge. All spills outside of the containment area should be telephoned to the National Response Center (1-800-424-8802) and the Ohio Environmental Protection agency of emergency management (1-800-282-9378).

In relation to discharge control, every owner of a bulk fertilizer tank shall have a written response plan to cover accidental discharges. This plan should be kept near the storage facility and available for inspection by the Department of Agriculture. The plan should include:

- a. The identity and telephone number of the persons or agencies who should be contacted in the event of an

emergency, including the person responsible for the stored fertilizer.

- b. A map of the physical layout of the storage facility that includes the identification of each type of bulk fertilizer and the location of each tank stored at the facility.
- c. The process for responding to the discharge, including all the steps in controlling and recovering the spill.
- d. The procedures for disposing of any recovered discharge.

In addition to the written plan, each facility should have ready access to pumps and recovery containers of sufficient size and capacity to recover any discharges. Likewise, a sufficient quantity of absorbent materials should be available for control and cleanup of smaller discharges.

Trainings should be conducted and documented for each facility storing bulk fertilizer. Employees should be trained in discharge response procedures and their names and phone numbers listed on the contact sheet of the facility's written plan.

### Operations

During the operations involving mixing and transferring of liquid fertilizer at the storage facility, several actions shall be taken.

1. A person familiar with the facility's mechanical appurtenances as well as the response procedures for discharge recovery should be present every time transfer or mixing occurs.
2. A suitable collection system of collection pans, pads, and dikes should be in place for any valve, coupling, or pump located outside of the secondary containment dike.
3. All operations shall be stopped in the event of a discharge, and should not resume until the cause is corrected and any accidental discharge is recovered.
4. All water around the storage facility, including rainwater collected in the dike area and wash water or rinsates from equipment cleaning, should be collected and tested before released through any field tile, sewer, or any other watercourse.
5. Tanks should only be filled with liquid fertilizers compatible with the tank design, and not filled beyond their capacity (including the accommodation for thermal expansion).
6. Non-pressurized nurse tanks are not to be used for permanent storage of fertilizers beyond 30 consecutive days.
7. If a permanent tank is scheduled to be out of service for more than six months due to deteriorations or leaks, it should be thoroughly cleaned, with the hatches left open, and valves and connections severed and sealed. If a tank is expected to be out of service for more than two years, it automatically requires cleaning with hatches left open and the valve connections severed and sealed.

	Adequate	Needs Adjustment
<b>Weekly Inspection:</b>		
Liquid level gauging equipment functions properly		
Check roof drains for obstructions		
Check vents and pressure-relief devices for obstructions		
Check electrical grounding lines and connections for integrity		
Visually inspect containment dike for erosion, crack, or deterioration		
<b>Monthly Inspection:</b>		
Visually inspect all exterior surfaces, welds, rivets/bolts, and foundations of each tank		
Inventory equipment used for spills or emergency response		
<b>Yearly Inspection:</b>		
Exterior inspection of tanks using an API 653 checklist		
<b>5 Year Inspection:</b>		
Interior inspection of tanks using an API 653 checklist		

## Dry Fertilizer Facilities

If the farm stores dry fertilizer materials or any non-liquid fertilizer for more than 30 days, the materials should be housed in a water impermeable structure. The storage unit shall have a roof, sidewalls, and base sufficient to prevent contact with precipitation and surface water.

If on-farm storage for dry fertilizers is needed for less than 30 days, the product can be stored outdoors. However, the fertilizer should be placed on a surface that is impermeable to precipitation and surface water. A water-proof tarpaulin, such as treated canvas, should also be used as a cover to protect from moisture.

## Conclusion

Even though bulk fertilizer storage facilities represent greater potential for large fertilizer spills, the small spills and equipment leaks can contribute just as much damage to the groundwater if precautions are not taken. This fact

sheet has outlined the bulk fertilizer storage requirements as described in the Ohio Revised Code, Chapter 901: 5-2. By implementing these requirements, the farmstead owner will be taking steps to reduce risk for contamination, while protecting the drinking water and property value of the farm.

## References

Bulk Fertilizer, Ohio Department of Agriculture, Division of Plant Industry–Feed and Fertilizer Section, Reynoldsburg Ohio, effective January 1, 2002.

## Reviewers

William B. Goodman and Dick Beidelschies, Ohio Department of Agriculture, Division of Plant Industry–Feed and Fertilizer Section.

Harold Watters, Ohio State University Extension, Miami County.

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