

**NATURAL RESOURCES CONSERVATION SERVICE  
INTERIM CONSERVATION PRACTICE STANDARD**

**AGRICHEMICAL MIXING FACILITY**

(Ea.)

CODE 702

**DEFINITION**

An environmentally safe site for the collection and retention of chemicals (insecticides, herbicides, fungicides, fertilizer, etc.) used in the filling, mixing, and rinsing activities related to spraying operations on cropland, orchards, vineyards and other vegetated areas.

**PURPOSE**

To provide an agrichemical mixing area where chemicals can be properly handled without harmful effects to the environment. It does not apply to the storage of bulk chemicals.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies where:

- the lack of adequate facilities for the mixing of chemicals creates significant potential for pollution of surface and/or groundwater.
- a water supply is adequate for filling the spray equipment tank(s), rinsing the sprayer(s) and rinsing chemical containers.
- soils and topography are suitable for construction.
- the practice is in compliance with state and local laws, rules and regulations.

**CRITERIA**

**General**

The agrichemical mixing facility shall include those components necessary to properly manage the chemical materials and prevent pollution of the environment. Components of a chemical mixing facility shall include the following:

1. A sealed concrete pad to collect and retain spills from mixing and filling activities.
2. A collection sump, pump, and safety devices.
3. Adequate water supply for mixing chemicals, rinsing chemical containers and tanks, and rinsing the chemical mixing and filling pad.
4. Water supply pump, pipeline, and back flow prevention devices, as needed.
5. Water hoses or nozzles for filling tanks, rinsing of chemical containers and concrete mixing pad, and emergency washing.
6. Tank(s) for storage of rinse water for later use as a diluent for agrichemical mixtures.
7. Piping and pump(s) shall be designed to facilitate drainage for winter shutdown.
8. Emergency washing area.

The planning, design and construction shall insure that the facility is sound and constructed of durable materials commensurate with the anticipated service life, initial and replacement costs, and safety and environmental considerations. A minimum 10-year life shall be used for design.

**Location.** The agrichemical mixing and filling facility shall be located:

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service or download the standard from the [electronic Field Office Technical Guide](#) for Missouri.

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1. Adjacent to or near the chemical storage building (whenever possible).
2. A minimum distance of 100 feet from streams, ponds, lakes, and wetlands.
3. A minimum distance of 300 feet from wells and known sinkholes.
4. So that it is isolated from residences or buildings used to store feed, seed, petroleum products, or livestock and should be located downwind (predominant summer wind) of these buildings.
5. As a minimum above the 25 year flood plain elevation. The facility shall be elevated above the surrounding ground to prevent runoff from entering the facility.
6. At sites that have not been previously used as stationary mixing/loading sites in the past.

**Size and capacity.** The size of the concrete pad used for agrichemical mixing shall be as needed to accommodate the length, width, and capacity of the largest sprayer using the facility.

The entrance to the chemical mixing pad shall be graveled, paved, or otherwise treated to provide a suitable entrance for the equipment and to prevent erosion and the tracking of soil onto the chemical mixing pad.

**Water supply, pump, and pipe.** A permanent water supply shall be provided for filling the sprayers and rinsing the chemical containers, spray tanks, and chemical mixing pad. A pump and pipeline shall be installed for conveyance of water from the water supply to the chemical mixing center. Back flow preventers, antisiphon devices or a minimum 2-inch air gap shall be installed on all water supply lines for mixing and loading operations from a well or other potable water source. The pump and well shall be located a minimum of 300 feet away from the chemical mixing pad.

Portable water nurse tanks may be used to fill or refill sprayer tanks. No chemicals shall be placed in the nurse tank and a 2-inch air gap shall be maintained between the fill hose and sprayer tank.

**Emergency washing area.** A faucet or other washing component shall be installed in the water supply line or other clean water container at the agrichemical mixing center. The emergency washing components shall be conveniently located for use when the applicator's skin is exposed to chemicals.

**Rinsate storage tank(s).** Rinsate storage tank(s) shall be provided to temporarily store rinsates resulting from cleaning of the agrichemical mixing pad, containers, or sprayer. The tank(s) shall be labeled with type of chemicals. Tanks shall be fiberglass, polyethylene, or other durable material and have the capacity to meet the requirements of the operation plan. The rinsate tanks shall be located on or adjacent to the chemical mixing pad.

## CONSIDERATIONS

**Water quantity.** The agrichemical mixing center may cause an increase in water use at the site from the mixing of chemicals and rinsing of chemical sprayers, containers and chemical mixing pad, this will be of minor concern due to the low volumes of water used.

**Water quality.** The quality of water runoff and groundwater will be improved due to the capture and treatment of agricultural chemicals during mixing and rinsing operations.

## PLANS AND SPECIFICATIONS

Plans and Specifications for chemical mixing facility shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

## OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan (attached) shall be prepared and used at the center and the methods proposed for handling of sediment, rinsate, and potential spills. An emergency response plan shall be part of the O&M plan. A copy of the O&M plan shall be located at the agrichemical mixing center and include the Department of Natural Resources Environmental Emergency Response Office, (573) 634-2436. These telephone numbers shall be posted at an easily visible location near the mixing center and next to the nearest telephone.

The facility should be inspected periodically to insure back flow prevention devices are operating satisfactory. Check chemical mixing pad and sump for leaks and cracks and repair immediately. Check rinsate storage tanks to insure proper labeling and methods for applying rinsate back to the land are being followed.

Operation and maintenance shall be in accordance with the Missouri Department of Agriculture and in keeping in conformance with all local, state, and federal laws and regulations. Required records for chemicals, locations and dates applied shall be kept.

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**NATURAL RESOURCES CONSERVATION SERVICE  
OPERATION AND MAINTENANCE PLAN**

**AGRICHEMICAL MIXING FACILITY**

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**A. MIXING AND APPLICATION**

- 1) Mix only the amount of chemical needed for the planned treatment. Mixing operations shall be under the supervision of a person holding an appropriate and current applicator's license.
- 2) Apply all chemicals at or below the specified label rates. Small amounts of excess chemical in the spray tank may be disposed of by applying in the same manner on designated areas in the target field. Larger quantities are to be brought back to the mixing center and transferred from the spray tank to the designated rinsate storage tank for later use.
- 3) Always wear protective clothing including skin, eye and respiratory protection when mixing chemicals.
- 4) A record of chemical use will be kept and will include the chemical name, rate, date, and locations of applications.

**B. CLEAN UP OF SPRAY EQUIPMENT AND CONTAINERS**

- 1) Triple rinse all empty containers. Add all rinsate from containers into the spray tank and apply on the target field. Store cleaned containers until properly disposed.
- 2) Rinse spray tank with clean water. Small amounts of the rinsate may be applied to designated areas in the same manner as application on target field. For larger amounts of rinsate, flush tanks and lines with sprayer over herbicide mixing pad. Close sump valve and catch rinsate. Transfer rinsate from sump to proper rinsate tank for future use. See MU Guide Sheet #G4852 titled Cleaning Field Sprayers to Avoid Crop Injury.

- 3) Wash down the mixing pad before changing to a different chemical or at the end of the day.

**C. STORAGE TANKS**

- 1) Rinsate storage tank(s) will be labeled with the type of chemical and target crops. Rinsate tanks will be kept on the chemical mixing pad.

**D. SUMP SEDIMENT**

- 1) Sediments consisting of dirt, gravel and dust accumulate on the pad and get washed into the sump. Sediment from the sump is considered to be contaminated if any spills occurred on the pad. The amount of sediment in the sump should be controlled to reduce a large buildup. The sediment should be removed periodically with proper precautions taken to reduce exposure of the worker to any potential contaminants in the sediment. This sediment should be land applied to the target field at a rate below the label recommendation. The sediment should be removed when changing spray material from one crop to another (i.e., from corn to soybeans).

**E. TRACKING OF MUD AND CHEMICALS OFF PAD**

- 1) Tracking of chemical from the pad by wheel traffic onto surrounding area will be prevented by properly washing down the equipment and pad if a spill occurs and transferring the rinsate to the storage tank.

**F. CLEANUP OF SPILLS**

- 1) The Private Applicators Training Manual will be consulted to determine the best method for cleaning up a spill. To determine if the spill needs to be reported contact the Missouri Department of Natural Resources,

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Environmental Emergency Response Office at  
(573) 634-2436.

**G. EMERGENCY WASH AREA**

- 1) Emergency wash area will be designated and available for emergency washing in case the applicator's skin is exposed to chemicals.
- 2) Keep access to the emergency wash area open.
- 3) Material Safety Data Sheets (MSDS) for each chemical mixed at the site shall be kept at the emergency wash area.

**H. INSPECTION**

- 1) The facility shall be inspected periodically to insure that the safety devices, such as back flow prevention, are operating satisfactorily.
- 2) Check chemical mixing pad and sump weekly for leaks and cracks and repair as soon as possible.
- 3) Check rinsate storage tank(s) to insure that they are properly labeled.

**I. END OF SEASON CLEANUP**

- 1) End of season cleanup and decontamination of the mixing pad can be done by a pressure washer and detergent. Rinsate shall be loaded onto the sprayer and applied to appropriate crop area designated by chemical use.

A copy of this Operation and Maintenance Plan will be kept at the agrichemical mixing pad. For advice and assistance with emergency spills, contact Missouri Department of Natural Resources, Environmental Emergency Response Office at (573) 634-2436. The poison Control Center for Missouri is (601) 354-7660. Cardinal Glennon Children's Hospital in St. Louis, MO, is 1-800-222-1222. These numbers will be posted at an easily visible location near the mixing center and next to the nearest phone.

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**NATURAL RESOURCES CONSERVATION SERVICE  
CONSTRUCTION SPECIFICATION**

**AGRICHEMICAL MIXING FACILITY**

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**GENERAL**

Construction operations shall be carried out in such manner and sequence that erosion and air and water pollution will be minimized and held within tolerable limits.

The completed job shall present a workman like appearance and shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.

All operations shall be carried out in a safe and skillful manner. Safety and health regulations shall be observed and appropriate safety measures used.

**Size and Capacity.** The size of the concrete pad used for chemical mixing shall accommodate the length, width and height of the largest sprayer or apparatus with adequate space for maneuvering and equipment access. Additional space shall be included as necessary to accommodate worker access, tanks, pumps, hoses and other necessary equipment.

The chemical mixing pad shall be sloped to allow for the drainage of water and agrichemical spills to a collection sump. The chemical mixing pad shall be sloped a minimum of 2% (1/4 inch per foot) toward the sump.

The chemical mixing pad shall be curbed for providing storage of chemical spills.

**Foundation Preparation.** All top soil, organic matter, and debris shall be removed from the construction site. The concrete slab and granular subbase shall be situated on firm, uniform foundation material. The subgrade surface shall be compacted prior to placement of the granular subbase.

**Structural Design.** Minimum structural requirements for agrichemical mixing facilities are specified as

follows:

1. A minimum of 4 inches of well compacted granular subbase shall be placed prior to concrete placement.
2. The minimum concrete thickness of slabs shall be 5 inches.
3. A watertight concrete design shall be used to avoid leakage from the sump and chemical mixing pad. Concrete pad shall be coated with a water proofer (sealant). The sump shall be covered with an impervious sealant for protection from the chemicals. The sump coating material selected shall remain flexible after curing, aging, cold weather, and exposure to agrichemicals.
4. The slab and sump shall be poured in one pour without expansion joints or openings.
5. The minimum reinforcement for slabs shall be #4 bars (ASTM A-615, Grade 60) on 18 in. spacing in each direction.
6. Installation and materials for concrete shall conform to Construction Specification for Reinforced Concrete (750).

**Equipment.** The sump pump, hoses, pipes, valves, connectors, filters, tanks, etc. must be compatible with chemicals being handled.

All piping and controls for handling agrichemicals shall be installed such that leaks can be easily detected and repairs or maintenance can be easily performed.

**Sump pump.** The sump pump shall be a submersible pump and should create a minimum of turbulence within the sump. A filter / strainer shall be installed between the sump pump and sprayer or rinsate tank(s). All electrical components shall be waterproof. The pump shall be manually activated.

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**Vegetation.** All disturbed areas shall be graded and reseeded. Topsoil shall be added, if needed, to establish vegetation. The sump pipe will drain to a vegetated area.

**Additional Details**

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