



On-Farm Chemical Containment and Loading Facilities Checklist

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Use the following checklist to assess the environmental integrity and operation of your pesticide and fertilizer mixing and loading facility. A thorough analysis using this checklist will assist in responsible environmental stewardship. You may identify areas of your existing facility that require updating and improvement, or you may decide that a new facility is needed. The following are not law, but should be considered the best management practices for environmental stewardship.

Housekeeping

The appearance of your operation is a direct reflection of your professional business management to customers, neighbors, the general public and regulatory officials. Good housekeeping creates a positive impression, while a disorganized, unclean or generally sloppy appearance may indicate potential problem areas. Use the following practices:

- Clean mixing/loading and storage areas daily or after each use.
- Use collection containers to catch drips when connecting or disconnecting hoses.
- Inspect tanks regularly for cracks, leaks, sludge and rust.
- Clean up pesticide leaks and spills immediately.
- Keep sumps covered when not in use to keep out trash, dirt and debris.
- Use collected storm water as makeup water or dispose of properly.
- Keep a spill cleanup kit near the mixing/loading area for quick, efficient cleanup of spills.
- Use dry break connectors on hoses that are connected frequently.
- Mix only the amount of pesticide that will be used.
- Segregate rinse water by crop commodity or label restrictions so it can be used as diluent in future loads.
- Store triple-rinsed empty containers neatly in a secured dry area before disposal.
- Rinse container caps and outside of containers to remove pesticide residues.
- Do not allow rainwater to run off containers onto the ground—there may be some undesirable residuals washed off.

Storage and Handling

Prevention of air, surface and groundwater contamination should be a top priority in the operation of your facility. This should be accomplished while enhancing the overall efficiency of the facility.

- Store pesticides and fertilizers in separate containments.
- Properly ventilate storage areas using explosion-proof electrical control wiring and fan motors with at least six air exchanges per hour.
- Display appropriate warning and hazard signs on storage facilities.
- Place appropriate fire extinguishers outside near storage entrances.
- Store dry pesticides above liquid pesticides or in a separate area.
- Use corrosion-proof metal shelving with a retainer lip at the front of each shelf.
- Maintain an inventory of type and quantity of each chemical at the local fire department. This should be updated when there are significant changes in quantity and/or type of chemical.
- Manually operate all containment sump pumps unless authorized otherwise by state regulation.
- Place each small volume container (up to 5 gallons) in a separate 'rubber tub' containment.
- File a detailed diagram of inventory storage locations with appropriate local emergency police and fire-fighting personnel.
- Use tarps, plastic sheeting or catch pans under fertilizer conveyor transfer points to contain leaks and spills.
- Keep all pesticide containers closed.
- Use closed transfer handling of pesticides for worker safety.

Dry Fertilizer

By law, fertilizers and pesticides must be stored in separate containments. Fertilizer containment overflows may drain into pesticide containment, but pesticide containment overflows cannot drain into fertilizer containments.

- Store all dry fertilizer products under roof.
- Divert rainwater away from the fertilizer storage area.
- Collect contaminated rainwater and apply as product.
- Recover and use any spilled product immediately.
- Contain and use fugitive dust from storage and transfer areas.
- Use containment diking in dry fertilizer handling areas.
- Clean storage areas daily or after each use.

Liquid Fertilizer

- Liquid fertilizer tanks should have secondary containment. Containment sizes should be the same as outlined in the pesticides section below.
- Lock tank outlets.
- Fence storage areas with controlled access.
- Keep tank bottoms dry if possible. This may be accomplished by placing the tank on 6 inches of loose pea gravel in a containment ring and then keeping the main floor pumped dry.

Pesticides

Store all pesticides in a separate, isolated area to prevent possible contamination of animal feed, grain, fertilizer or other materials.

- Keep flammable/combustible materials segregated from all ignition sources.
- Store all bulk chemicals inside a diked containment area under roof.
- Store collected rainwater from diked areas for use in future application blends or mixes, or pump it out if it is clean and is allowable by regulations in your area.
- Pesticide secondary containment tanks under roof should hold a containment volume of at least 110 percent of the largest tank in the containment area, including the displacement volume of all tanks and equipment in the area.
- For a containment area not under roof, the containment volume should hold 125 percent of the volume of the largest tank in the containment area, including the displaced volume of all tanks in the area, plus freeboard (6 inches is typical), plus rainfall amounts as prescribed by your state regulations, usually a 25-year storm (see MWPS-37 Handbook for 25-year storm graph for your region of the United States).
- If the pesticide containment area is outside, consider plans to roof the pad to eliminate storm– water accumulation.
- Locate all transfer pumps, pipes, hoses and valves within a containment structure above the highest anticipated flood or spill level for easy inspection and operation.
- Make routine inspections of the storage area to check for leaks and spills daily during the application season, then weekly or biweekly.

- Document primary inspection factors (time, date, place, conditions, etc.) in a logbook.
- Repair leaks and clean up contaminated pad area immediately.
- Clean up spills immediately and properly dispose of the waste.
- Equip the containment area with a spill collection sump, sump pump or transfer pump suction hose and holding tank. A transfer suction pump dedicated to each product type may be useful when product cross-contamination is a concern.
- Store all pesticide mini-bulk tanks in a pesticide storage containment area to avoid accidental runoff or drainage into streams, ditches or wellheads.
- Use stored rinsate and storm water immediately in suitable product mixes – one part rinsate to four parts clean water. Check state regulations regarding rinsate concentrations allowed.
- Keep packaged chemicals inside a secure building designed with at least 6 inch depth internal containment to hold water or other chemicals used in fire extinguishing.

Mixing-Loading Areas

- Properly ventilate inside mixing areas with at least six air changes per hour for pesticide handling.
- Prominently display appropriate warning signs regarding hazardous chemicals and nonsmoking areas at all entrances and exits to a building.
- Properly label all product and rinsate storage by content.
- Locate mixing and transfer tanks and pump systems within a containment area capable of holding 110 percent of its contents if under roof or 125 percent if not roofed.
- Design the load pad containment system to handle 110 percent of the volume of the largest transport truck or applicator vehicle if under roof or 125 percent if not roofed.
- Conduct all product loading over a containment load pad with a collection sump.
- Handle pesticide and fertilizer products using mix/load equipment in a common containment area, but store them in separate containments.

Rinsate Handling and Reuse

- Rinse hopper, plumbing and boom equipment over the application site if possible. Apply rinsate to the target while at the site to avoid rinsing at the facility after returning from the field.
- If spray equipment is rinsed at the facility, collect rinsate and segregate in holding tanks dedicated/ marked according to crop for reuse to avoid pesticide cross-contamination damage.
- Thoroughly clean rinsate tanks used for different crops and/or chemicals that are not compatible.

- ❑ Wash down exterior equipment on a clean mix/load pad. Collect the rinsate and spray on an approved target even though external rinse water has been defined as nonhazardous. Clean pad thoroughly after washing down.
- ❑ Apply the liquid collected from the mix/load pad sump immediately to an approved target (for the job the rinsate was generated from if practical) or temporarily store it in an aboveground tank for a short time until it can be used on another job requiring that chemical. Underground storage may not be allowed. Follow tank size and time allowances in your state.

Fuel Storage

- ❑ Locate all on-site fuel tanks aboveground in a secondary containment, or use tanks with built-in secondary containment.
- ❑ Register all underground storage tanks. Maintain appropriate procedures and records according to state and federal laws.
- ❑ Equip all new underground petroleum tanks with leak detection and corrosion protection systems. The design specifications and periodic fuel volume reconciliation must be documented and maintained in a permanent file according to state and federal regulations.
- ❑ Protect fuel and chemical product tanks and piping from vehicle collision damage.
- ❑ Post appropriate NFPA Fuel Warning and No Smoking placards at fuel storage facilities.
- ❑ Instruct employees not to smoke or eat while handling pesticides or fuels.
- ❑ Post Material Safety Data Sheets (MSDS) for all hazardous materials (pesticides, ammonia or acids) used at the facility for worker access.

Site Security

Good security measures are your best insurance against problems resulting from accidental or intentional damage by unauthorized personnel at your facility. A modest investment of resources and effort can prevent a substantial loss to your operation.

- ❑ Install a security fence, locked storage building and other means of preventing unauthorized public access to your property.
- ❑ Post a sign at the main entrance to the facility indicating that all persons must check in at the main office immediately upon arrival. This will allow you to know who is on the site and to provide proper assistance.
- ❑ Lock all gates and doors when your facility is unattended.
- ❑ Secure all valves on bulk product tanks with locks.
- ❑ Equip sight gauges on bulk storage tanks with bottom valves that are normally turned off and locked.
- ❑ Lock all sump pumps from containment areas.

- ❑ Park application equipment containing product that is stored overnight on a rinse pad, secured and equipped with locked discharge valves.
- ❑ Install adequate lighting in all product storage and handling areas.
- ❑ Seal or eliminate containment drain lines. Septic systems with leach fields should never be used for disposal of any liquid that may contain agricultural contaminants.
- ❑ Provide automatic proximity sensor activated security lights for worker protection and to minimize vandalism at containment and mix/load facilities. These proximity sensors may also be used to trigger some type of alarm if needed.

Regulation Compliance Documentation

Written documentation of environmental and safety regulation compliance actions and activities is proof that you are obeying regulations. File and maintain these documents carefully. Make sure all proper permits have been applied for and approved. On-site inspector approval may be required.

- ❑ File construction, environmental and other permits for easy retrieval.
- ❑ Use bold placards for safety and identification of specific areas.
- ❑ Review permit conditions routinely for compliance.
- ❑ File and maintain for easy retrieval underground storage tank registration, certification and leak test results.
- ❑ Make sure all required pesticide licenses are current.
- ❑ Develop a schedule for reregistering or renewing permits, licenses and other documents on time and keep current.
- ❑ Document and maintain records of safety training, safety and professional education (CEU) meeting subjects and attendance and emergency response drills.
- ❑ Have your employees sign the appropriate form indicating they have attended hazardous material training sessions and understand all applicable Material Safety Data Sheets.
- ❑ Document training exercises with photographs and/or videos where appropriate.
- ❑ Develop and use a written emergency action plan that includes storage building contents and storage patterns, site plans, emergency and accident procedure plans, hazardous communications plans, emergency phone numbers, special fire-fighting procedures, fire-fighting water runoff control and locations of external utility shut-offs.

Personal Safety

- ❑ Provide proper personal protective equipment at each site for each employee as required by the Worker Protection Standard(s).

- Adequately train all employees in the use of appropriate protective gear and equipment for handling products.
- Proper use of safety equipment and clothing and laundry practices will protect you, your employees and families involved. Use washer and dryer at site to prevent transporting possible contaminated clothing home and mixing with family laundry. Changing clothes before leaving work is suggested.
- Use closed mixing/transfer systems for pesticide handling safety.
- Use a separate washer and dryer. Do not mix pesticide-contaminated clothing with family clothing.
- Hang clothing outside in direct sunlight and wind to dry when possible.
- Use strong detergents and hot water for washing.
- Run empty washer with detergent and hot water cycle to clean after washing contaminated clothing.
- Provide and use appropriate face shields or goggles, rubber aprons, long-sleeved shirts, rubber gloves and boots when loading and mixing pesticides.
- Provide office or non-storage areas with separate exit doors from pesticide storage rooms.
- Ventilate storage areas using explosion-proof electrical control wiring and fan motors with at least six air exchanges per hour.
- Provide easy access to emergency shower and eye flush fountains. These should only be used for emergencies, and should trigger an alarm when used.
- Install a telephone near pesticide storage buildings with a list of appropriate emergency phone numbers.
- Do not store pesticides higher than 66 inches from floor level.

SARA Title III Reporting

- Maintain accurate inventory and production records.
- Organize and label product storage to facilitate SARA Title III Documentation.
- File all notifications required under SARA Title III with the appropriate agencies (check with your state pesticide coordinator for details if you are unsure of all requirements).
- Check to see if you are subject to Section 311 reporting and if you are required to submit an Emergency and Hazardous Chemical Inventory Form (Tier I, Tier II form) by October 17 of each year.
- Maintain copies of all required reports at the facility.

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2443

March 2000

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Water Supply

Regardless of the source of water at your facility, take specific measures to protect your water supply from inadvertent accidental contamination. You should also be aware of and protect the potential vulnerability of your neighbors' water supplies.

- Do not mix/load chemicals within 50 feet of a water well. This minimum distance may need to be adjusted farther away depending on the terrain and variables involved with each site.
- If possible upgrade all water sources to avoid potential spillage contamination.
- Protect water sources against back-siphoning by use of air gaps, approved back flow double check valves or other approved safety mechanisms. These may require a licensed plumber to install and to provide annual inspections. Keep accurate records of part numbers, installation inspection dates, etc.
- Protect on-site wells against back-siphoning.
- Elevate or curb wellheads to prevent spills or surface runoff from entering the wells.
- Analyze on-site water well samples each year for the type of chemicals handled at your facility.
- Know the location of all private and public water supply wells near your facility (at least within 1 mile). Check requirements for your state. An up-to-date topographic map, to scale, is a very useful tool when trying to determine locations of specific concerns around your facility.
- Know the depth to groundwater, soil permeability and the general direction of groundwater flow beneath your facility.

Much of this information is common sense. However, this checklist should make you more aware of your responsibilities and should help protect you from risk and legal actions. This publication is **not** intended to be a **complete** listing of everything that must or should be done or completed.

Many of these items may have already been completed; however, the items not completed plus those you may wish to add to this list should be incorporated into your future business operations plan. A well-prepared business and operational plan may mean the difference in your business viability. This checklist is especially important with respect to documentation. Often good and complete documentation spells the difference between a violation, a warning or praise. The authors hope this list will be useful in the evaluation of existing or the development of future facilities and operating procedures.