

Facility Operation and Management

1. Check backfill areas around facilities often for excessive settlement. Determine if settlement is caused by consolidation, piping or failure of the structure walls or floor. Necessary repairs must be made. Refer to safety items.
2. Check walls and floor often for cracks and/or separations and make needed repairs. Check earth berms and embankments for sloughing, erosion or settlement. Maintain embankment and backfill elevations as specified in the design. Check a minimum of two times a year and when the facility is empty. Maintain design elevation of berms and fill.
3. Outlets of foundation drains should be checked frequently and kept open. The outflow from these drains should be checked periodically when the storage facility is being used to determine if there is leakage from the facility into these drains. Leakage may be detected by the color and smell of the outflowing liquid, by lush dark green growth of vegetation around the outlet, by the growth of algae in the surface ditch or by the vegetation being killed by the outflowing liquid. If leakage is detected, repairs should be planned and made to prevent the possible contamination of groundwater. Refer to safety items when planning and making repairs. Quarterly samples should be collected from foundation drains as required by the Livestock Management Facilities Act.
4. Divert surface water away from the storage facility. Check the channels and berms of the clean water diversions around the barnyard, buildings and storage facility frequently. Channels must be protected from erosion and berms must be maintained at proper height so the diversion channels have adequate capacity. These channels and berms should not be used as haul roads unless they were designed and constructed as haul roads.
5. Check frequently for burrowing animals around buildings, structures, berms and backfill. Remove them and repair any damage.
6. Inspect haul roads and approaches to and from the storage facility frequently to determine the need for stone, gravel or other stabilizing material.
7. Do not allow runoff from loading areas and/or spills to flow into streams or road ditches.

8. Install and maintain a marking or gauge post that clearly shows the design, one-half, and full levels of the facility.
9. Repair or replace any rusted or damaged metal and paint.
10. A good vegetative cover of recommended grasses should be maintained on earth berms and embankments. If the vegetative cover is damaged, it should be reseeded as soon as possible. The vegetative cover should be mowed at least twice a year to control weeds, encourage vigorous growth and discourage rodent activity.
11. Immediately repair any vandalism, vehicular or livestock damage to the facility, the surrounding area, or any appurtenances.
12. Pump-out shall commence when the deep pit facilities are approximately 1' from the bottom of the slats and should continue until the depth is reduced to approximately 1'.

Earthen Storage/Lagoon – Operation & Maintenance

1. Earthen slopes shall be checked for rills and gullies. Seeding shall be as necessary to maintain a grass cover. Weeds shall be controlled. The top of dam and outside slopes shall be mowed annually to discourage weed growth and allow closer examination of the earth embankment. Quickly remove woody vegetation that begins to grow on the embankment to prevent root establishment.
2. Earthen slopes shall be checked for soft or damp/wet areas that may be a sign of potential leakage. Burrowing animals in the slopes shall be controlled. Animals shall be immediately removed and the burrow holes filled.
3. Fencing/gates shall be maintained around the structure to exclude animals and humans at all times.
4. Safety equipment (life buoys, ropes) and warning signs shall be maintained and checked periodically for wear.
5. High traffic areas, such as pump access areas, should be lined with aggregate or concrete if vegetative cover cannot be maintained.
6. Where dedicated agitation areas are established, inspect the bottom for scour holes. Where holes develop, fill with compacted clay, and line the surface with concrete to prevent further scouring. If this does occur, please contact the local NRCS office or a licensed professional engineer for assistance.
7. The maximum operating level in the facility is 2 feet below the low point in the existing embankment that contains the manure and runoff. When this elevation is reached, pump-out should commence as long as soil conditions exist that will allow for infiltration of the manure liquids. Pump-out is not to occur in December, January, or February. Pump-out should not be scheduled if severe or wet weather is a threat. The elevation at which pump-out is to occur shall be marked with a post or other suitable device.
8. If possible, thoroughly agitate the storage facility one hour before pump-out and during pump-out to ensure uniform distribution of nutrients in manure.
9. Domestic and industrial waste from toilets shall not be discharged into the storage facility (s).
10. In the event of closure or shutdown, where there is no longer a need to manage manure and runoff from this operation, follow a closure plan according to state regulations. Contact the local NRCS office or a licensed professional engineer for assistance.

Nutrient Application Equipment Calibration

Commercial Fertilizer Application Equipment Calibration:

The nitrogen applicator, the commercial broadcast spreaders, and corn planter will be set per the manufacturers recommendations then filled with a known amount and checked over known acreage. Adjustments will be made to achieve the planned rates.

Manure Spreader/Tanker Calibration

There are several methods that can be used to calibrate the application rate of a manure spreader. The two best methods are the load-area method and the plastic sheet method. It is desirable to repeat the calibration procedure 2 to 3 times and average the results to establish a more accurate calibration.

Before calibrating a manure spreader, the spreader settings such as splash plates should be adjusted so that the spread is uniform. Most spreaders tend to deposit more manure near the spreader than at the edge of the spread pattern. Overlapping can make the overall application more uniform. Calibrating application rates when overlapping is involved requires measuring the width of two spreads and dividing by two to get the effective spread width.

Calibration should take place annually or whenever manure is being applied from a different source or consistency.

Load-Area Method

The load-area method is the most accurate and can be used for most types of manure handling. This method consists of determining the amount (volume or weight) of manure in a spreader and the total area over which it is applied. The most accurate method to determine the amount of manure in a spreader is to weigh the spreader when it is full of manure and again when it is empty (portable pad scales work well for this). The difference is the quantity of manure applied over the area covered. Spreader capacities listed by the manufacturers can be used to determine the amount of manure in the spreader. However care must be taken when using manufactures spreader capacities. Heaped loads, loading methods and manure type may vary considerably from what is listed by manufacturers of box and side delivery manure spreaders. Spreader capacities for liquid tankers are accurate provided the tanker is filled to the manufactures recommended levels, and no foam is present in the tank.

The area of spread is determined from measuring the length and width of the spread pattern. Measuring can be done with a measuring wheel, measuring tape or by pacing.

The application rate is calculated using the following formula:

$$\frac{\text{Spreader capacity (tons or gallons)} \times 43560 \text{ sq. ft/acre}}{\text{Application Rate tons or Gallons/Acre Distance traveled} \times \text{Spreading width}}$$

Plastic Sheet Method

The plastic sheet method can only be used with solid or semi-solid manure. This method of calibrating spreader application rates involves 1) cutting a plastic sheet to the specified dimensions (56 inches X 56 inches), 2) weighing the clean plastic sheet, 3) laying out the plastic sheet on the ground and driving the manure spreader (applying manure at a recorded speed and spreader setting) over the sheet, 4) weighing the plastic sheet with the manure on it, and 4) determine the net weight of the manure on the sheet (weight of manure and sheet - weight of the clean sheet), and 5) the net pounds of manure equals tons per acre applied.

When calibrating manure spreaders, all details regarding tractor speed and manure spreader settings and date(s) of each calibration should be recorded with manure application information, and directly on the equipment. Mark equipment to ensure a known application rate is applied each time the referenced tractor speed and spreader settings are used. Manure spreader settings can include such things as: fast and slow settings on some box spreaders, gate position on side delivery spreaders and splash plate position and fill levels on liquid tankers.

Chemical Storage and Handling

In accordance with Special Condition 4.e.viii. and 40 CFR 122.42 (e)(1)(v), facility has practices in place that ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system.

This facility currently stores only industry standard chemicals and supplies. These may consist of but are not necessarily limited to disinfectants, cleaning solutions, veterinary approved medicines, small container lawn tractor fuel storage, etc. All of these items are stored inside the facility buildings. None are exposed to precipitation.

Waste water from sinks and bathrooms are not discharged into the waste handling system at the facility. Waste from these systems are disposed of through an onsite septic system.

The following measures are to be taken to ensure the proper storage and handling of facility chemicals and supplies.

- All chemicals are stored in proper containers.
- Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations.
- Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
- Chemical storage areas are within the building and behind locked doors.
- Emergency procedures and equipment, if necessary, are in place to contain and clean up chemical spills.
- Chemical handling and equipment wash areas, if necessary, are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.