Operation and Maintenance of CAFO Production Facilities

Presented by
Water Resources Engineers of the DNR Agricultural Runoff Program

CAFO Workshops
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Introduction

- CAFO operators are required by NR 243.17 to operate and maintain facilities according to their operation and maintenance plan.
- Operation and Maintenance plan requirements are described in the appropriate NRCS Standard.
- Facilities and systems are to be operated and maintained so as to not create a surface water discharge or exceed groundwater quality standards.
- Inadequate maintenance could lead to an evaluation being required and possible subsequent reconstruction.
Types of Facilities Covered

- Waste Storage
- Feed Storage and Runoff Collection
- Vegetated Treatment Areas
- Waste Conveyance
Concrete Liners

• May exist for a lagoon, tank, manure stacking pad, processing building, feed storage or animal lot.
  – Cracks? Repair with caulking or sawcutting and grouting depending on severity.
  – Slabs out of alignment? May need removal and replacement.
  – Surface spalled (deteriorated)? May need repair or replacement.
Concrete Liner Crack
Core through a concrete crack
Clay/In-Place Earth Liners

• Scour protection?
  – Embankments may be scoured out at pipe outfalls. Replenish liner material and place concrete splash pad.
  – If sand bedding is used, scraping or scooping equipment may have removed liner material. May need to line with concrete and/or replenish liner material.
  – Clay/earth may be lost due to agitation. May need concrete liner or replace liner material.
  – Steep inside embankment walls are a common sign that liner material has been lost from the lower portion.
  – On the inside of the embankment, above the manure level, can you see clay? If not, that’s a problem.
No Scour Protection
In place earth liner with not enough fines.
Feed Storage and Runoff Collection

- Cracks in bunker walls and floor slabs allowing uncollected leakage.
- Non-functioning conveyance to collection (poorly sloped concrete gutters/curbs, blocked perimeter tile, etc.)
- Piled feed or snowbanks blocking flow to collection system.
- Malfunctioning pump systems (freezing, thawing, programmable timers, manual switches, etc.).
- Clogged collection tank grates.
Feed Bunker Leakage
Vegetated Treatment Areas (VTA)

- Spreader bar malfunctioning (settling, clogging, pros and cons of gravel spreaders vs. concrete curb w/slots).
- VTA problems – Gullying, poorly vegetated, burned out vegetation.
- Gravel spreaders – need for regrading and cleaning.
VTA Concentrated Flow
Waste Conveyance

- Clogging of pipelines – cleaning out with pigs, flushing etc. Do not exceed rated capacity of pipe. Need for cleanouts.
- Monitor pressure while operating pressurized pipelines. Do not exceed working pressure – 72% of pipeline rated capacity. Also monitor for pressure drops – sign of leakage.
- Visually inspect visible joints for loosening/leaks.
- Severe service pipelines, recommend regular pressure testing per NRCS Spec. 634.
Questions / Discussion