

Section 1. Background and Site Information

1.1. General Description of Operation

KJMM Farms operates the Range swine finishing facility near Marissa in St. Clair County, Illinois.

The farm currently consists of sixteen (16) barns used to finish swine. Barns use under building pits for manure storage. The following illustrates the barns currently used at the KJMM Range Facility

- Barn one (1), measures 220' x 40' with an 8' deep under building pit. This barn is used to house a maximum of 1,200 head of finisher pigs.
- Barn two (2), measures 220' x 40' with an 8' deep under building pit. This barn is used to house a maximum of 1,200 head of finisher pigs.
- Barn three (3), measures 220' x 40' with an 8' deep under building pit. This barn is used to house a maximum of 1,200 head of finisher pigs.
- Barn four (4), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn five (5), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn six (6), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn seven (7), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn eight (8), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn nine (9), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn ten (10), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn eleven (11), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn twelve (12), measures 100' x 40' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs
- Barn thirteen (13) or the White Barn is a partial slat barn. The pit measures 30' x 15' with a 6' deep under building pit. This barn is used to house a maximum of 100 head of finisher pigs
- Barn fourteen (14) or the Brown Barn is a partial slat barn. The pit measures 75' x 10' with a 6' deep under building pit. This barn is used to house a maximum of 300 head of finisher pigs
- Barn fifteen (15) or the House Barn is a partial slat barn. The pit measures 75' x 16' with a 6' deep under building pit. This barn is used to house a maximum of 400 head of finisher pigs
- Barn sixteen (16) or the Cable Vey Barn is a partial slat barn. The pit measures 140' x 12' with a 6' deep under building pit. This barn is used to house a maximum of 500 head of finisher pigs

In addition to the waste storage under the buildings the facility has 3 onsite earthen holding ponds. The manure is pumped from the barns to the holding pond for additional storage days. The facility currently contains all waste adequately by using the under building storage and the earthen holding

ponds. Manure is pumped to holding pond one (1) and gravity drains to holding pond two (2) and three (3). The manure from the facility is applied via drag hose.

The facility utilizes composting for mortality management. The composting is currently done on a concrete pad, however the concrete pad does not have roof. Producer is aware of the need to update the composting facility and plans on installing roof over the existing composter.

Approximately 1,131 acres in a continuous corn and corn-soybean rotation are available for waste utilization. Soil test values for Phosphorus and Potassium are included with the individual basic field information. Some of the fields need to have soil tests updated. Guidelines regarding soil testing can be found in section 2 and 6 of this CNMP. Risk assessments for Phosphorus and Nitrogen are included in section 5. Recommended manure application rates are found in section 6 and comply with all provisions of NRCS IL 590 Standard.

The farmstead itself is located in Section 11 of Township 3S, Range 6W in St Clair County Illinois.

1.2. Sampling, Calibration and Other Statements

Soil Sampling

Soil samples for soil tests should not represent more than 2.5 acres per sample and should be done at least every 3-4 years. Any field not sampled at 2.5 acre frequency should be re-sampled at 2.5 acres grids on the next scheduled soil testing cycle.

Proper soil sampling depth for pH, phosphorus, and potassium is 7 inches. Illinois fertilizer recommendation system is based on crop response to fertility levels in the tops 7 inches of the soil profile. In addition to the regular 7 inch depth sampling if nitrogen or limestone is surface applied and not incorporated (such as in a no till system) it is important to monitor surface pH. Samples should be taken to a depth of 2 inch in at least 3 locations within a 40 acre field. These locations should represent the low, medium, and high ground of the field.

Soil samples shall be collected and prepared according to The Illinois Agronomy Handbook. Soil samples should be taken prior to manure or fertilizer applications. Since manure will typically be applied to soybean stubble during the fall previous to planting corn in the spring, soil tests should be taken in soybean stubble prior to manure application. Wait 9 months after manure or fertilizer applications before soil testing so that unabsorbed nutrients do not affect the results.

The minimum soil analysis for CNMP's should include the following parameters:

- soil pH,
- phosphorus (P as indicated by Bray P1 test)
- potassium, (K)

In addition, Cation Exchange Capacity (CEC), and soil organic matter should be tested to help determine liming and fertilizer recommendations. Soil testing should include analysis for any nutrients for which specific information is needed to develop the nutrient plan.

Manure Sampling

When collecting a manure sample from a storage facility, the most important thing to keep in mind is to collect a sample representative of what will be land applied to the crop. If a livestock operation has more than one storage facility (e.g., a holding pond and a drystack) each unit should be sampled separately (e.g., the producer will need to collect two samples, one to represent each manure type, liquid sample, and a solid sample).

Manure tests for liquid manure should be taken every time manure is removed from each type of storage until average nutrient values can be determined.

Manure Tests for solid manure should be taken before each major spreading time such as spring and fall until average nutrient values can be determined.

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 manufacturers 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 manufacturers 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:

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

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.

Storm Water Management Plan

Site Location

The facility is located in Section 11 of Township 3S, Range 6W in St Clair County Illinois. This is approximately a 30 acre site consisting of Swine finishing barns. This facility is located in a rural agricultural area where row crops are grown.

Storm Water Management

Storm water should be directed away from the facility buildings and facilities. The finished man-made and surrounding natural topography should allow all surface water to flow away from the facility in a southerly direction. The buildings are on a relatively level portion of land. The surrounding topography and the gravel allow the storm water to disperse away from individual buildings and the sites.

Facility Access

The facility is accessible through one private gravel drive. Only facility employees, feed/animal transportation vehicles or facility service personnel are permitted at the facility for reasons of bio-security. All animal transportation vehicles are required to enter the site clean and free of animal waste or other debris. No vehicles entering the site will be permitted to clean, wash, or empty excess materials onto the ground of the site.

Facility Commodity Management

The products utilized at the facility consist of feed for facility livestock. All feedstuffs are stored under roof or in bins.

Facility Mortality Management

On the rare occasion in which mortalities occur the facility utilizes composting.

Litter Management

A proper number of dumpsters will be provided on site to handle debris and litter associated with the facility. The litter will be disposed of in an appropriate and timely manner.

Hazardous Waste

There is no and will be no hazardous waste generated at this site.

Maintenance/Inspection Procedures

Facility roads, commodity storage areas, etc., will be inspected at least once a month. A maintenance inspection report will be recorded following each inspection. A copy of the inspection form is provided on the following pages and in the Producer Activity Document.

Storm Water Best Management Practices

Grounds:

- Maintain sufficient surface drainage away from buildings.
- Permanent vegetation will be maintained across the facility.
- Divert rain water away from areas where it could pond.
- Maintain proper gravel cover and landscape gradient so that water does not stand in access roads and around the production facility.
- Remove any spilled feed promptly.

**Stormwater Management
Inspection Report Form
To Be Complete Every Month**

Inspector: _____ Date: _____

Inspector's Qualifications: _____

Days Since Last Rainfall: _____ Amount of Last Rainfall: _____

Area	Date of Last Inspection	Date of Next Inspection	Stabilized Yes/No	Condition of Vegetation	Visible Erosion
Facility Structures					
Access Drive/Areas					
Vegetated Areas					
Materials Handling Areas (not livestock waste)					
Refuse Sites					
Mortality Areas					
Materials Handling Equipment Storage Areas					
Shipping/Receiving Areas					

Comments: _____

Action(s) Required: _____

To Be Performed By: _____ On or Before: _____

Odor and Pathogen Management

It may not be practical or feasible to eliminate all odor emissions from the operation, but it is possible to manage or mitigate the odor. Some variables that affect odor are:

- Type of operation
- Ventilation method
- Animal diets
- Season
- Management skill or effort
- Building design
- Animal numbers
- Manure treatment system
- Topography

A. Animal Cleanliness

Clean, dry, and healthy animals are less odorous. Dirty, manure-covered animals promote accelerated bacterial growth and the production of odorous gases.

Animal stress can also be correlated to an increase in odor production. Ventilation and environmental controls for the buildings must be properly designed and maintained to keep the animals healthy.

B. Minimize Dust

It has been established that there is a correlation between dust and odor emission. Dust particles adsorb and concentrate odorous compounds. As the dust particles are carried by the wind, so is the odor.

Therefore, minimizing dust will reduce odor. Most farm dust comes from feed, fecal matter and, in the case of poultry, from feathers and litter. Dust also comes from animal skin, insects, and other sources.

Buildings should be cleaned of all dust between batches of animals (including fans, shutters, and screens).

C. Waste Storage Facility

To reduce emissions of greenhouse gases, ammonia, volatile organic compounds, and odor:

If odors from the facility become a concern, consideration can be given to alternatives and additional practices including but not limited to covered anaerobic digesters, and composting facilities.

Adjusting pH below 7 may reduce ammonia emissions from the waste storage facility but may increase odor when waste is surface applied.

Consideration should also be given to the separation of the solids from the waste mixture. This will dilute the liquid waste product being treated in the lagoon and cause less odor. The solid separated material can be composted and sold or land applied.

D. Animal diets

Diets can also be manipulated to produce less manure production and odors from the manure. Much of the odors from manure are from nitrogen, sulfur and carbohydrate containing volatile compounds. Balancing the diet with the proper amounts and forms of protein and reducing excess protein in the diet will reduce nitrogen excretion and odor emissions from the manure.

E. Proper Disposal of Mortality

See section 2.5 in this CNMP

F. Good Fly and Rodent Control Programs

These programs must be a continuous process on the farm. When feed and waste products are properly handled, these problems are minimized. Fly and rodent bait stations and/or boxes should also be utilized to control populations. Check all bait stations regularly and replace when necessary.

Future Wells

When installing new wells, springs or other potable water sources, due consideration must be given to the distance, grade and location of the waste storage facility to the new water source. The Department of Health, Department of Agriculture and/or Natural Resources Conservation Service should be consulted as to installing new potable water supplies in relation to the waste storage facility.

Winter Application of Manure

Application to frozen or snow-covered soils is not recommended. However, if manure application is necessary, only small amounts shall be applied that adequately address waste storage concerns until non-frozen land is available. These instances must be documented in the CNMP records. If winter application is deemed necessary, applications are to be applied only if ALL the following criteria are met:

Application rate is limited to 10 wet tons/acre for solid manure more than 50% moisture and 5 wet tons for manure less than 50% moisture. Applications are to be made on land with at least 90% surface residue cover (e.g. good quality hay or pasture field, all corn grain residue remaining after harvest, all wheat residue cover remaining after harvest).

Manure shall not be applied on more than 20 contiguous acres. Contiguous areas for application are to be separated by a break of at least 200 feet. Utilize those areas for manure application that are furthest from streams, ditches, waterways, surface water, etc. (areas that present the least runoff potential and are furthest from surface water).

Increase the application setback distance to 200 feet “minimum” from all grassed waterways, surface drainage ditches, streams, surface inlets, water bodies. This setback distance may need to be further increased due to local conditions.

Additional winter application criteria for fields with significant slopes more than 5%.

Manure shall be applied in alternating strips 60 to 200 feet wide generally on the contour, or in the case of contour strips on the alternating strips. The fields must have erosion control practices implemented and have a RUSLE2 soil loss of less than T.

Manure Application on Steep Fields

Waste shall not be applied to land with slopes over 15%.

Manure Application on Fields Subject to Flooding

Manure is not to be land-applied on soils that are frequently flooded during the period when flooding is expected unless incorporated immediately.

General Liquid Manure Applications

For liquid wastes, the application rate is to be adjusted to the most limiting factor to avoid ponding, surface runoff, subsurface drainage (tile) discharge, the nutrient needs of the field, or the nitrogen or phosphorus risks of the field. The total application is not to exceed the field capacity of the upper 8 inches of soil. See the guide for determining soil moisture content below. No applications should be made when the field reaches 100% of its available capacity. The actual application rate shall be adjusted during application to avoid ponding or runoff. Bare/crusted soils may require some tillage to improve infiltration.

Tile Drained Fields

Fields or areas of fields that are subsurface (TILE) drained require additional precautions. When liquid wastes are applied to fields with TILE drains, the liquid can follow soil macro-pores (in dry soils) directly to the tile drains creating a surface water pollution hazard from direct tile discharge. (A field is considered TILE drained if ½ or more of the field is subsurface (tiled) drained; however, even a field with one subsurface drainage line may present a risk of manure/wastewater movement to subsurface drains and cause a direct discharge. Do not apply application rates (volume) that would exceed AWC in the upper 8 inches.

Prior to manure application, use a tool (AERWAY tool or similar tool) that can disrupt/close (using horizontal fracturing) the preferential flow paths (worm holes, cracks, root channels) in the soil, or till the surface of the soil 3-5 inches deep to a condition that will absorb the liquid wastes. The purpose is to have the surface soil act as a sponge to soak up the liquid manure and keep it out of preferential flow channels. This is especially important if shallow tile are present (<2 feet deep). Any pre-application tillage should leave as much residue as possible on the soil surface. The adsorption of liquid manure by the soil in the root zone will minimize nitrogen loss and the manure/nutrient runoff potential. For perennial crops (hay or pasture), or continuous no till fields where tillage is not an option, all tile outlets from the application area are to be plugged prior to application. This criteria (4b.) may be waived if the producer can verify there is no prior history of manure discharge via subsurface drains. However, if there is a discharge, the producer is liable for damages and may risk being classified as a CAFO.

If injection is used, inject only deep enough to cover the manure with soil. Till the soil at least 3 inches below the depth of injection prior to application, or all tile outlets from the application area are to be plugged prior to application. This criteria may be waived if the producer can verify there is no prior history of manure discharge via subsurface drains. However, if there is a discharge the producer is liable for damages and may risk being classified as a CAFO.

In accordance with NPDES General Permit, Special Condition 4, Part E, Subpart iii, and Special Condition 7, Part E; producers should visually inspect subsurface drainage systems prior to and after land applications. Visual inspections may determine failures of subsurface drainage systems that may cause discharges. Visual inspections should be completed for all tile risers, collection boxes, and outflow locations located within or down gradient of application areas

In addition to tillage prior to surface liquid waste application or injection, install in-line tile flow control structures or (inflatable) tile plugs that can mechanically stop or regulate tile flow either prior to application, or have on site if needed to stop tile flow. Use caution not to back tile water where it may impair the functioning of an offsite subsurface drainage system. These criteria may be waived if the producer can verify there is no prior history of manure discharge via subsurface drains. However, if there is a discharge the producer is liable for damages and may risk being classified as a CAFO.

Repair broken tile or blow holes prior to application.

Guide to Determining Soil Moisture Content

Available Moisture Remaining in the Soil	Sand-Sandy Loam	Loam-Silt Loam	Clay Loam-Clay
0% moisture Wilting point	Dry and loose; flows through fingers	Powdery, sometimes slightly crusted but easily broken into powder	Hard, baked and cracked; difficult to break into powder
50% or less soil moisture	Loose, feels dry	Forms a weak ball when squeezed but will not stick to tools	Pliable but not slick, balls under pressure, sticks to tools
50-75% or less soil moisture	Balls under pressure, but seldom holds together when bounced in hand	Forms a ball under pressure; somewhat plastic; slicks slightly under pressure. Does not stick to tools	Forms a ball; ribbons out between thumb and forefinger, has a slick feeling
75% to Field Capacity	Forms a weak ball, breaks easily when bounced in the hand; can feel moistness	Forms ball; very pliable; slicks readily if relatively high in clay, clings slightly to tools	Easily ribbons out between fingers; has a slick feeling, very sticky.
100% Field Capacity	Soil mass clings together. Upon squeezing, outline of ball is left on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand	On squeezing, no free water appears on soil, but wet outline of ball on hand. Sticky enough to cling to fingers

Livestock Management Facilities Act Regulatory Provisions

For facilities with > 1,000 animal units, follow these guidelines on manure application to conform to state regulatory provisions for the LMFA.

- o)** Waste applied within 1320' (1/4 mile) of any residence not part of facility shall be injected or incorporated on the day of application
- p)** Waste shall not be applied within 200' of surface water unless the water is up-gradient or there is adequate diking and waste will not be applied within 150' of potable water supply wells
- q)** Waste shall not be applied within a 10-year floodplain unless the injection or incorporation method is used
- r)** Waste shall not be applied in waterways
- s)** Waste that is spread on frozen or snow-covered ground will be limited to land areas with:
 1. less than 5% slope, OR
 2. adequate erosion control provisions exist
- t)** Certified livestock manager shall inspect all bermtops, exterior berm sides, and non-submerged interior berm sides for evidence of erosion, burrowing animal activity, and other indications of berm degradation on a frequency of not less than once every two weeks

u) Waste shall not be applied during a rainfall or to saturated soil and that conservative waste loading rates will be used in the case of a high water table or shallow earth cover to fractured bedrock. Caution should be exercised in applying livestock wastes, particularly on porous soils, so as not to cause nitrate or bacterial contamination of groundwaters.

Land Application Record Keeping

Records must be maintained for 5 years

The producer must maintain records to document plan implementation. Records should include the following, when applicable:

- soil test results and recommendations for nutrient application
- amounts, analyses, and source of nutrients applied
- dates and method of nutrient applications
- crop rotations, planting and harvesting dates, yields, and crop residues removed
- results of water, plant, and organic by-product analyses
- dates of review, person performing review, and recommendations that resulted from the review of the CNMP

Operation and Maintenance for CNMP

- Periodic review of plan to determine if adjustments or modifications to the plan are needed. At a minimum, the plan should be reviewed and revised with each soil test cycle (recommended annually).
- Protection of fertilizer and organic by-product storage facilities from weather and accidental leakage or spillage,
- Calibration of application equipment to ensure uniform distribution of material at planned rates
- Documentation of the actual rates at which nutrients were applied. When the actual rates differ from the planned rates, records will indicate reasons for the differences.

1.3. Resource Concerns

Manure & Wastewater Storage & Handling

Facility has adequate manure storage; the producers are working to make improvements to the facility to insure the structural integrity of the holding ponds and to upgrade the buildings. Other planned improvements include but are not limited to:

- Installation of staff gauges in all holding ponds.
- Regrading around holding pond one to divert clean water from entering the holding pond.
- Removal of all unwanted vegetation surrounding the holding ponds
- Updating the composting facility including the addition of roof.

Currently these updates are planned without using cost share assistance from NRCS.

Land Treatment Practices

Fields meet t under current management and rotations. No new land treatment is planned.

Nutrient Management

Producer is planning on applying for the waste utilization incentive. Producer will need to implement two of the practices outlined by NRCS in the Guidance for Implementation of Waste Utilization Plans. Maps for all fields show setbacks from surface waters.

Waste Utilization – Practice Code 633