

Section 2.3

Barn Drainage and Pen Sanitation

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BARN DRAINAGE AND PEN SANITATION

REQUIREMENTS

1. All areas of the barn must have adequate drainage to prevent accumulation of stagnant water and/or manure.
2. For bedded production systems:
 - a. Fresh and clean bedding material must be added whenever necessary to maintain a dry environment.
 - b. Bedding and manure must be removed at least once a year and stored away from the pigs.

RATIONALE

- a. Dirty pigs increase the risk of indirect contamination of pork at the slaughterhouse through cross-contamination with equipment and workers. Pigs shipped for slaughter should be clean the majority of the time.
- b. Pig cleanliness is crucial for decreasing the likelihood of carcasses becoming contaminated with *Salmonella* or other pathogens at the processing plant. Pigs with more than 25% of their skin visually contaminated by feces are almost three times more likely to test positive for *Salmonella* at the processing plant than pigs not visually contaminated.
- c. Inadequate barn drainage may lead to the flooding of pens and feeding areas with backed-up manure and will increase the risk of bacterial contamination of the meat.
- d. The manure may also contain some level of unabsorbed antibiotics that could contaminate pigs in the finishing stage.
- e. Proper manure removal and storage helps to reduce the risk of pathogens.
- f. Pathogens in the manure can be spread through direct contact and aerosol transmission as well as through indirect contact by humans, equipment, or vehicles. For example, it has been shown that *Salmonella* can survive nine months in manure.
- g. The presence of dirty pigs might indicate problems with temperature and ventilation.

GUIDANCE

- a. Flooding:

A rare occurrence in which the level of manure in the pits rises above the slatted floor.

 - i. **To avoid flooding:**
 - » ensure adequate pit management and manure removal
 - » ensure water pipes are maintained in working condition.
- b. Pooling:

An occurrence that happens occasionally in which stagnant water, urine and/or feces accumulates on the floor.

 - i. **To avoid pooling:**
 - » encourage pigs to urinate/defecate in dedicated areas (proper dunging patterns)
 - » design the floors for adequate drainage
 - » use effective cleaning procedures.

c. Stagnation:

A drainage problem leading to permanent and reoccurring accumulation of urine and feces on the specific areas of the floor.

i. **To avoid stagnant water:**

- » maintain the floors for adequate drainage
- » use effective cleaning procedures.

d. Bedded production:

- i. If the herd is affected by diseases or enteric problems (such as diarrhea), it is recommended that the bedding be changed after each production batch.
- ii. An adequate layer of absorbent bedding should be present, especially around the feeders and water area.
- iii. Ground limestone can be used as a drying agent to dry the ground before bedding is placed.

e. Occasional and unanticipated issues:

- i. Manure pits may overflow, causing manure to come through the slats, or there may be minor flooding in an area caused by:
 - » a water line break
 - » a blockage or break in the manure system between the pits and the manure storage
 - » spring thaw.
- ii. Allowing manure to remain in the pens permanently, or for extended periods of time, is a serious concern for food safety.

AUDIT QUESTIONS

Q#	Audit Questions and Interpretations	Verification			
		Compliant	NC-Minor	NC-Major	N/A
Q2.3.1	Verify that the overall condition of the barn (including, pens, gestation stalls, feeding areas, alleyways, etc.) ensures there is no permanent flooding, pooling or stagnation of water, urine or manure. If pigs have access to the outdoors, go to section 10.2 to complete this question.	Full Validation: > observation			
	Is there adequate drainage in all areas of the barn?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Q2.3.2	a. Verify that the bedding in contact with the pigs is not saturated with manure and that all pigs can lie down at the same time in a dry area. b. Verify that the bedding is changed at least once a year and the soiled bedding is disposed of and kept away from the pigs.	Full and Partial Validation: > observation (full validation only) > interview			
	For production units using bedding:				
	a. Are the bedded pens kept dry?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Is the bedding and the manure removed at least once a year and stored away from the pigs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

N/A = not applicable

LEVELS OF COMPLIANCE – EXAMPLES

COMPLIANT

- > There are no drainage issues in the barn.
- > The soiled bedding is disposed of and kept away from the pigs.
- > Bedding, if applicable, is kept dry.

MINOR NON-COMPLIANCE **Timeline: 12 months**

- > There is flooding and/or pooling of water or manure and no action plan is in place.
- > Soiled bedding, if applicable, is not removed at least once a year, disposed of and kept away from the pigs.

MAJOR NON-COMPLIANCE **Timeline: 60 days**

- > » There are signs of continuous flooding, pooling and/or stagnation with no corrective measures in place.
- > » Bedding in contact with the pigs is saturated with manure.
- > » All pigs cannot lay down at the same time in a dry area.