National Air Quality Site Assessment Tool (NAQSAT) Inventory Jobsheet
General Instructions - Swine

Inventory Sheets have been developed for each species listed in NAQSAT.

- **Swine**
- Beef - excluding pasture situations
- Dairy Cattle
- Horses
- Laying Chickens
- Broiler Chickens
- Turkeys

Requirements for Completing NAQSAT Reports

- AFOs with 300 animal units and greater that are requesting EQIP assistance (CAP and/or Practice) must complete and provide two NAQSAT reports to the field office. Reports include 1) Baseline (for current management conditions) and 2) Planned practices (for operation with the planned management/practice changes, i.e. planned construction of building and elimination of open lots, etc.).

- How to calculate total Animal Units?

  Option 1: Animal Units = (Average weight of the animal in pounds divided by 1,000 pounds) multiplied by the total one-time animal type. Repeat for each type of animal; combine totals.

  Option 2: If you don't know the average weight for each species - Use the following Species Specific Conversion factors to Animal Units (Head Count x Conversion Factor = AU)

Animal Type	No. of Animals	Multiply by	Conversion factor	Equals	A.U. by Type
Dairy Mature Cow (≤ 1000 lbs.)		multiply by	1.0	equals	
Dairy Mature Cow (> 1000 lbs.)		multiply by	1.4	equals	
Dairy - Heifer		multiply by	0.7	equals	
Dairy - Calf		multiply by	0.2	equals	
Beef - Cow/Calf Pair		multiply by	1.2	equals	
Beef - Finishing Cattle		multiply by	1.0	equals	
Beef Feeder Cattle - backgrounding, heifer development		multiply by	0.7	equals	
Swine (>300 lbs.) Sows, boars		multiply by	0.4	equals	
Swine (55-300 lb.) Gilts, feeder, finishing		multiply by	0.3	equals	
Swine (<55 lb.) Nursery		multiply by	0.1	equals	
Horse		multiply by	1.0	equals	
Sheep. Lambs, Goats		multiply by	0.1	equals	
Chickens, Over 5 lbs.		multiply by	0.005	equals	
Chickens, Under 5 lbs.		multiply by	0.003	equals	
Turkeys, Over 5 lbs.		multiply by	0.018	equals	
Turkeys, Under 5 lbs.		multiply by	0.005	equals	
Ducks		multiply by	0.01	equals	

TOTAL A.U. for all Animals types	

Completing Inventory Sheet

- Separate inventory sheets will need to be completed for each species.
- Separate inventory sheets will need to be completed for species of different housing, i.e. beef feeding operation with open lots and confinement barns requires two different NAQSATs reports.

- **All possible questions in NAQSAT have been listed in the inventory sheets, only answer the questions that apply to the operation requesting assistance.**

Entering inputs in NAQSAT:

- Click on the management category of interest - start at the top with animals and housing and work down the list to perception.
- Only questions that pertain to the user's operation will be asked.
- All questions that appear need to be answered.
- The program is set up to include or remove questions from view on the basis of user input. Answers to some questions will generate additional questions to be answered. The program may pause momentarily while those questions are populated.
- Pictures are used when a visual appraisal of current practices is most appropriate. Placing the cursor over the picture will generate a text description of the management practice. Clicking on the green X in the top right-hand corner of the picture will generate a larger view. Click the red X or outside of the photo to return to the data input screen.
- Save data after completing each category by clicking on the "Save Progress" button at the bottom of the page. Each NAQSAT session is assigned a unique URL. Bookmark the URL to facilitate easily returning to the NAQSAT session at a later date. Click on the red X to return to the input section and move to a new management category.
- Do not use the browser "back" button. Clicking on the browser "back" button will return you to the NAQSAT home page, and all unsaved inputs will be lost.

Generating output:

- Before getting results, click on the "Save Progress" button to ensure that all inputs are saved.
- To generate results, click on the "Get Results" button at the bottom of the page.

Interpreting results:

- The effectiveness of current practices for each management category and each emission of concern is reflected by the percentage of green in the boxes under each emission. The larger the green area in each box, the more effective current management practices are and the fewer the opportunities to reduce emissions of that constituent in that management category.

- If all boxes are completely green, it does not mean there are no emissions. Fully green boxes simply indicate that the current management practices for the existing structural facilities provide few or no opportunities to reduce the emissions of that constituent in that management category.

- “Sheet not complete” identifies some questions required to complete the analysis that were not answered in that management category.
- N/A (Not Applicable or Not Available) – Sufficient data was not available at the creation of this tool to provide the impact of a practice on emission of a specific constituent, or a selected answer in a sheet does not have an impact on emissions of a specific constituent.

Returning to inputs:

- Clicking on the red X in the upper right-hand corner will take users back to the input section.
- Return directly to a management category by clicking on that category on the “Effectiveness Results” page.
- Do not click on the browser “back” button.

Exiting NAQSAT:

- Save all inputs before exiting NAQSAT.
- All scenarios will remain active on the NAQSAT site for 30 days.
- If you re-access the data, the 30-day period starts over again.

Printing Reports:

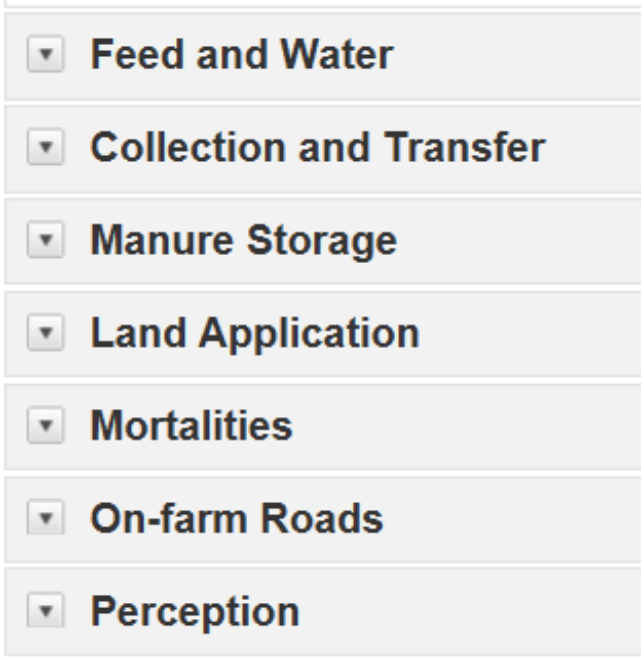
- The “Effectiveness Results” screen contains a print button in the lower left-hand corner as well as the saved session URL (Figure 5). All inputs are printed as well as the “Effectiveness Results” page.

Swine Operations Input Data (Paper Version)

For using the
NAQSAT (National Air Quality Site Assessment Tool (NAQSAT)

The NAQSAT is a web-based tool that can't be downloaded. Site evaluation is best done with a mobile device that has wireless access at the site location. Areas without wireless should have the data recorded on a paper version and entered back at the office. This on-line tool is interactive and some answers will generate additional questions. These are indented from the original question, in this form.

There are seven areas to be completed after the Housing questions.



SWINE - HOUSING

Housing Type

Based on the housing type selected above, answer corresponding questions below:

1.0 ○ **Confined Total Stat - If checked , complete the following:**

a. Ventilation - choose one of the following types:

- ○ Natural
  - a. If natural, select all that are used in the housing system.
    - ☐ Oil Sprinkling
    - ☐ Pelleted Feeds
    - ☐ Vegetative Buffers (VEB, windbreak proximate to building)
    - ☐ Not applicable
- ○ Mechanical
  - a. If mechanical, select all that are used in the housing system.
    - ☐ Oil Sprinkling
    - ☐ Pelleted Feeds
    - ☐ Biofilters
    - ☐ Curtain Walls (air dam, windbreak wall, VEB proximate to building)
    - ☐ Not applicable
- ○ Combination (Natural ventilation and tunnel ventilation available in warm weather or natural ventilation from pit fans) .
  - a. If combination, select all that are used in the housing system.
    - ☐ Oil Sprinkling
    - ☐ Pelleted Feeds
    - ☐ Vegetative Buffers (VEB, windbreak proximate to building)
    - ☐ Biofilters
    - ☐ Curtain Walls (air dam, windbreak wall, VEB proximate to building)
    - ☐ Not applicable

b. Animal Cleanliness - which best depicts typical animal appearance?

- ○ Dirty - mostly soiled hides

- ○ Moderately Dirty - some soiled hides

- ○ Clean - few if any soiled hides

2.0 Confined Partial Slat, if checked, complete the following:

a. Conditions on solid portion: percentage wet/manure covered?
- ○ Up to 25%
- ○ 26-50%
- ○ > 50%

b. Ventilation - choose the ventilation system types:
- ○ Natural
  1) If natural, <u>select all that are used in the housing system</u>:
     - ☐ Oil Sprinkling
     - ☐ Pelleted Feeds
     - ☐ Vegetative Buffers (VEB, windbreak proximate to building)
     - ☐ Not applicable
- ○ Mechanical -
  1) If mechanical, <u>select all that are used in the housing system</u>:
     - ☐ Oil Sprinkling
     - ☐ Pelleted Feeds
     - ☐ Biofilters
     - ☐ Curtain Walls (air dam, windbreak wall, VEB proximate to building)
     - ☐ Not applicable
- ○ Combination (Natural ventilation and tunnel ventilation available in warm weather or natural ventilation from pit fans)
  1) If combination, <u>select all that are used in the housing system</u>:
     - ☐ Oil Sprinkling
     - ☐ Pelleted Feeds
     - ☐ Vegetative Buffers (VEB, windbreak proximate to building)
     - ☐ Biofilters

☐ Curtain Walls (air dam, windbreak wall, VEB proximate to building)
☐ Not applicable

3.0 Open Front - if checked, complete the following:

a. Lot conditions - at what point are the pens scraped?

○ Over ankle-deep muck

○ Ankle-deep muck

○ Lot surface covered

○ Daily scrape

b. Animal Cleanliness - which best depicts typical animal appearance?
   - ○ Dirty - mostly soiled hides

   - ○ Moderately Dirty - some soiled hides

   - ○ Clean - few if any soiled hides

c. Surface comparison for average pen conditions:
   - ○ Mush
   - ○ Some drainage, some poor drainage
   - ○ Uncompacted manure, shallow or thin
   - ○ Deep manure but dry, well drained

d. How fast does the surface water drain after a rainfall event?
   - ○ Within 72 hours
   - ○ Remain wet for more than 72 hours

4.0 Hoop or deep-bedded - If checked, complete the following:

a. What conditions best resembles the pen pack/resting area just prior to adding bedding?

○ No bedding visible; wet

○ < 25% bedding visible

○ 25-75% bedding visible

○ > 75% bedding visible

b. Animal cleanliness - which best depicts typical animal appearance?

- ○ Dirty - mostly soiled hides

- ○ Moderately dirty - some soiled hides

- ○ Clean - few soiled hides

SWINE - FEED & WATER

1.0 Number of phases, including split-sex feeding formulations

- ○ < 3
- ○ 3 to 5
- ○ > 5
- ○ Don't know

2.0 How many supplemental amino acids included?

- ○ 1
- ○ 2
- ○ 3 or more
- ○ Don't know

3.0 Is the feed pelleted?

- ○ Yes
- ○ No

4.0 How often are feed ingredients analyzed?

- ○ Weekly
- ○ Twice monthly
- ○ Monthly or less frequently
- ○ Never
- ○ Don't know

5.0 Use B-agonists or beta agonist (growth promoters such as ractopamine; zilpaterol; Optaflexx™; or Zilmax, etc.)

- ○ Yes
- ○ No
- ○ Don t know

6.0 What percent of distillers grains are fed (including dry and wet sources as a % of diet on dry basis)?

- ○ 0
- ○ 1 to 10%
- ○ 10 to 20%
- ○ > 20%

7.0 Sulfur odor (or rotten egg) smell in livestock water?

- ○ No
- ○ Yes
  a. If yes, is sulfur from water supply considered in feed ration?
  - ○ Yes
  - ○ No

8.0 Is there 1% or more added fat in the diet?

- ○ Yes
- ○ No
- ○ Don't know

9.0 Is feed made or processed onsite?

- ○ No
- ○ Yes

a. If yes, what ration inputs are process onsite? (not including crop harvest)
Check all that apply

- ☐ Grain grinding/processing
  1) Is the operation trying to control dust when processing?
     - ○ Yes
     - ○ No
- ☐ Other products (i.e. total mixed ration)
  1) Is the operation trying to control dust when processing?
     - ○ Yes
     - ○ No

b. **Does the operation implement good manufacturing processes (GMPs) in the feedmill?** GMP include: enclosing the receiving area to the degree practicable, preferably with doors at both ends of a receiving shed; specifying dust-tight cleaning and processing equipment; using lip-type shaft seals at bearings on conveyor and other equipment housings; using flanged inlets and outlets on all spouting, transitions, miscellaneous hoppers; fully enclosing and sealing all areas in contact with products handled; reduced belt speed on conveyers; aspiration systems - dust collection in cyclone or fabric filters; dust containment in hoods or sheds; and oil suppression systems, etc.

- ○ Yes
- ○ No

c. Which best describes grain delivery to the feedmill?

- ○ Choke flow (reduces free fall distance during hopper car unloading).
- ○ Free flow
- ○ Don't know

10.0 How is water supplied to your animals in the facility?

- ○ Liquid feed
- ○ Wet-dry feeders
- ○ Nipple drinkers (swinging or stationary)
- ○ Cups, bowls, or bells

11.0 How often are all waterers checked then repaired for leaks?

- ○ Daily
- ○ At Least Weekly
- ○ Weekly or less frequently

SWINE - COLLECTION & TRANSFER

What best describes the manure handling system? Check all that apply

1.0 ☐ Flush
2.0 ☐ Drain/pull plug
3.0 ☐ Scrape/vacuum
4.0 ☐ Gutter
5.0 ☐ Deep pit - no additional questions
6.0 ☐ Solid Removal

Complete the following questions below for manure handling systems checked above:

1.0 ☐ Flush - if checked, answer the following:

a. Are there "odor bursts" when flushing occurs?
   - ○ No
     1) How often is the housing flushed? Assumes no drying between flushes.
        - ○ Every other week or less often
        - ○ Weekly
        - ○ 2-3 times per week
        - ○ Once daily
        - ○ 2-3 times per day
        - ○ More than 3 times per day
   - ○ Yes
     1) How often is the housing flushed? Assumes no drying between flushes.
        - ○ Every other week or less often
        - ○ Weekly
        - ○ 2-3 times per week
        - ○ Once daily
        - ○ 2-3 times per day
        - ○ More than 3 times per day

2.0 ☐ Drain/pull plug - if checked, answer the following:

a. How often is manure removed?
   - ○ Less than 7 days
   - ○ 7 to 14 days
   - ○ More than 14 days

b. Are pits recharged with water after being drained?
   - ○ Yes
   - ○ No

c. is there solid build-up in the gutter after being drained?
   - ○ Yes
   - ○ No

3.0 ☐ Scrape/vacuum - if checked, answer the following:

a. How often are the pens scraped or vacuumed?
   - ○ 1 to 3 days
   - ○ More than 3 days

4.0 ☐ Gutter - if checked, answer the following:

a. How often are the gutters cleaned?

- ○ 1 to 3 days
- ○ More than 3 days

b. Animal cleanliness - what best describes their condition?

- ○ Clean

- ○ Moderately dirty

- ○ Dirty

5.0 ☐ Deep pit - no additional questions

6.0 ☐ Solid Removal - if checked, answer the following:

a. How often does a complete clean-out occur?

- ○ More than once a year
- ○ Yearly
- ○ Less than once per year

<u>Generic Questions Pertaining to Transfer</u>

1.0 What method is used to transfer the majority of manure from storage to field?

- ○ Pipe, closed channel, hose or drag line
- ○ Open channel
- ○ Tank-type spreader or tanker - If checked, complete the following question:
    a. If a truck or spreader is used to transport manure to fields, is the manure transferred to the land application equipment in a closed transfer system?
        - ○ Yes
        - ○ No
        - ○ Not Applicable
- ○ Open spreader or tank - If checked, compete the following question:
    b. if a truck or spreader is used to transport manure to fields, is it covered (whether the truck leave the farm and goes on a public road or not)?
        - ○ Yes
        - ○ No
- ○ Does not apply

2.0 Is manure spilled at the loading station/area?

- ○ No
- ○ Yes - If yes, complete the following question:
    a. Is manure tracked offsite?
        - ○ Yes
        - ○ No

SWINE - MANURE STORAGE

1.0 What percent of the manure is stored as liquid or slurry (does not stack) in the operation's predominant housing? (on a scale of 0-100%)

_____ If 0% - Complete Section 2.0 and skip Section 3.0 below:
If > 1% - Complete Sections 2.0 and 3.0 below:
If 100% - Complete Section 3.0; No Section 2.0

2.0 Do any of these processes occur onsite? Check all that apply

- ☐ Storage/stockpile - answer additional questions below
- ☐ Composting - answer additional questions below
- ☐ Pelletizing - no additional questions
- ☐ Gasification - no additional questions
- ☐ Incineration/burn - answer additional questions below

Based on the processes chosen above in Section 2.0, complete additional information below:

☐ Storage/stockpile if checked, answer the following questions:

a. How often is seepage noticed?
   - ○ Rarely
   - ○ Commonly

b. Does water pond around the base of compost piles (from rainfall events or leachate) for greater than 24 hours?
   - ○ Ponding or standing water is not present more than 24 hr. after a rainfall event
   - ○ Ponding or standing water is present more than 24 hr. after a rainfall event

c. How often are maggots noticed?
   - ○ Rarely
   - ○ Commonly

d. How often are flies noticed?
   - ○ Rarely
   - ○ Commonly

☐ Composting - if checked, answer the following questions:

a. How often is seepage noticed?
   - ○ Rarely
   - ○ Commonly

b. Does water pond around the base of compost piles (from rainfall events or leachate) for greater than 24 hours?
   - ○ Ponding or standing water is not present more than 24 hr. after a rainfall event
   - ○ Ponding or standing water is present more than 24 hr. after a rainfall event

c. Is there a specific recipe?
   - ○ No
   - ○ Yes
     1) What is the recipe?
        - ○ 3:1 or greater carbon source (stalks, sawdust, straw, etc.):manure

- ○ < 3:1 carbon source (stalks, sawdust, straw, etc.):manure

d. What is average of the highest two consecutive weekly temperature readings of the compost pile?
   - ○ Operation doesn't know
   - ○ < 120 F
   - ○ 120 to 140 F
   - ○ > 140 F

e. **How often is compost cover added?**
   - ○ With each manure addition
   - ○ At least once daily
   - ○ Less frequently than each manure addition

f. How often are maggots noticed?
   - ○ Rarely
   - ○ Commonly

g. How often are flies noticed?
   - ○ Rarely
   - ○ Commonly

☐ Pelletizing

☐ Gasification

☐ Incineration/burn - If checked, answer the following question:

a. Is there a scrubber in place for gas emissions?
   - ○ Yes
   - ○ No

Is liquid or slurry stored (not stacked) in the operations predominant housing type?

- ○ If runoff or slurry is not collected - skip staged storage section below.
- ○ if runoff, effluent or slurry is collected in a storage structure such as deep pits, storage pit, holding pond, etc.), complete the following:

3.0 STAGED STORAGE INFORMATION

For each stage of manure storage present, complete a *stage* storage section below. For example, if you have a 2-stage manure storage system, you will need to complete two stage storage sections. EXAMPLE If the operation has underfloor shallow pits and an outside storage pit - this would considered 2-stage system.

For each stage complete the corresponding information as it relates to the nitrogen (N) content of the liquid/slurry (see the three choices below). If you don't know the N and solid content, there is a section that allows you to answer questions based on the consistency of the liquid - thin or thick. *Label the stage with a description of storage unit. So for the above example: stage one is shallow pits/pull plug and stage 2 is the storage pit.*

Options for manure nutrient value for each stage of storage

I. ○ *Less than 5 lb. N / 1000 gallons and less than 4% solids.*

II ○ *Greater than 5 lb. N / 1000 gallons and greater than 4% total solids*

III. ○ *Don't know what the N and solid content of liquid / slurry*

STAGE 1 _____ *Facility Description (i.e. storage pit, deep pits, shallow pits)*

Complete Section - I, II, or III based on nitrogen nutrient content of liquids or slurry.

I. ○ Less than 5 lbs. nitrogen (N) /1000 gallons (or 600 mg/kg) and be less than 4% total solids - If checked, answer the following questions:

a. Is the solids content less than 1%?
   - ○ Yes
   - ○ No

b. Is there aeration?
   - ○ No
   - ○ Yes
     1) If yes, what is the DO (Dissolved Oxygen) or Redox (Reduction Oxygen) analysis of the storage?
        - ○ DO > 0.1 mg/L
        - ○ DO < 0.1 mg/L (or not sure)
        - ○ Redox > -50 mV
        - ○ Redox < -50 mV (or not sure)

c. Is there an anaerobic digester?
   - ○ No
   - ○ Yes
     1) Is there anything in particular to mitigate ammonia release from the digester? (i.e. biogas collection, etc.)
        - ○ Yes
        - ○ No

d. Pick the color that best represents the liquid in the structure during the summer.
   - ○ Red / Maroon to Purple
   - ○ Black or brown - If checked, answer the following questions:
     1) Describe the material for any cover on the structure
        - ○ No cover
        - ○ Natural Crust
        - ○ Permeable, such as straw, corn stalks, geotextile, etc.
        - ○ Impermeable, such as plastic, etc.
          a) How is vent air treated?
             - ○ No treatment
             - ○ Combusted
             - ○ Flared
             - ○ Converted to pipeline quality gas
     2) What percent of the surface is exposed or uncovered?
        - ○ ≤ 25%
        - ○ 26-40%
        - ○ 41-60%
        - ○ 61-85%

- ○ ≥ 86%

II. ○ **Greater than 5 lb. N /1000 gallon and greater than 4% total solids - If checked, answer the following questions:**

a. Describe the material for any cover on the structure
   - ○ No cover
   - ○ Building (slatted floor or deep pits)
   - ○ Natural Crust
   - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
   - ○ Impermeable, such as plastic, etc.
     1) How is vent air treated?
        - ○ No treatment
        - ○ Combusted
        - ○ Flared
        - ○ Converted to pipeline quality gas

b. What percent of the surface is exposed or uncovered?
   - ○ ≤ 25%
   - ○ 26-40%
   - ○ 41-60%
   - ○ 61-85%
   - ○ ≥ 86%

III. ○ **Don't know the Nitrogen content of the liquid/slurry - complete the following:**

Which best describes the consistency of the product in the storage pit:
Water (thin) or Motor Oil (thick)?

- ○ **Water** - If checked, answer the following questions:

a. Pick the color that best represents the liquid in the structure during the summer.
   - ○ Red / Maroon to Purple
   - ○ Black or brown - If checked, answer the following questions:
     1) If yes, describe the material for the cover on the structure:
        - ○ No cover
        - ○ Natural Crust
        - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
        - ○ Impermeable, such as plastic, etc.
          a) How is vent air treated?
             - ○ No treatment
             - ○ Combusted
             - ○ Flared
             - ○ Converted to pipeline quality gas
     2) What percent of the surface is exposed or uncovered?
        - ○ ≤ 25%
        - ○ 26-40%
        - ○ 41-60%
        - ○ 61-85%

- ○ ≥ 86%

- ○ **Motor Oil** - If checked, answer the following questions:
  a. What percent of the surface is exposed or uncovered?
     - ○ ≤ 25%
     - ○ 26-40%
     - ○ 41-60%
     - ○ 61-85%
     - ○ ≥ 86%
  b. Describe the material for any cover on it
     - ○ No cover
     - ○ Building (slatted floor or deep pits)
     - ○ Natural Crust
     - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
     - ○ Impermeable, such as plastic, etc.
       1) How is vent air treated?
          - ○ No treatment
          - ○ Combusted
          - ○ Flared
          - ○ Converted to pipeline quality gas

STAGE 2 _____ *Facility Description (i.e. storage pit, deep pits, shallow pits)*

Complete Section - I, II, or III based on nitrogen nutrient content of liquids or slurry.

I. ○ **Less than 5 lbs. nitrogen (N) /1000 gallons (or 600 mg/kg) and be less than 4% total solids - If checked, answer the following questions:**

a. Is the solids content less than 1%?
   - ○ Yes
   - ○ No

b. Is there aeration?
   - ○ No
   - ○ Yes
     1) If yes, what is the DO (Dissolved Oxygen) or Redox (Reduction Oxygen) analysis of the storage?
        - ○ DO > 0.1 mg/L
        - ○ DO < 0.1 mg/L (or not sure)
        - ○ Redox > -50 mV
        - ○ Redox < -50 mV (or not sure)

c. Is there an anaerobic digester?
   - ○ No
   - ○ Yes
     1) Is there anything in particular to mitigate ammonia release from the digester? (i.e. biogas collection, etc.)
        - ○ Yes

- ○ No

d. Pick the color that best represents the liquid in the structure during the summer.
   - ○ Red / Maroon to Purple
   - ○ Black or brown - If checked, answer the following questions:
     1) Describe the material for any cover on the structure
        - ○ No cover
        - ○ Natural Crust
        - ○ Permeable, such as straw, corn stalks, geotextile, etc.
        - ○ Impermeable, such as plastic, etc.
          a) How is vent air treated?
             - ○ No treatment
             - ○ Combusted
             - ○ Flared
             - ○ Converted to pipeline quality gas
     2) What percent of the surface is exposed or uncovered?
        - ○ ≤ 25%
        - ○ 26-40%
        - ○ 41-60%
        - ○ 61-85%
        - ○ ≥ 86%

II. ○ Greater than 5 lb. N /1000 gallon and greater than 4% total solids - If checked, answer the following questions:

a. Describe the material for any cover on the structure
   - ○ No cover
   - ○ Building (slatted floor or deep pits)
   - ○ Natural Crust
   - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
   - ○ Impermeable, such as plastic, etc.
     1) How is vent air treated?
        - ○ No treatment
        - ○ Combusted
        - ○ Flared
        - ○ Converted to pipeline quality gas

b. What percent of the surface is exposed or uncovered?
   - ○ ≤ 25%
   - ○ 26-40%
   - ○ 41-60%
   - ○ 61-85%
   - ○ ≥ 86%

III. ○ Don't know the Nitrogen content of the liquid/slurry - complete the following:

Which best describes the consistency of the product in the storage pit:
Water (thin) or Motor Oil (thick)?

- ○ **Water** - If checked, answer the following questions:
  a. Pick the color that best represents the liquid in the structure during the summer.
    - ○ Red / Maroon to Purple
    - ○ Black or brown - If checked, answer the following questions:
      1) If yes, describe the material for the cover on the structure:
        - ○ No cover
        - ○ Natural Crust
        - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
        - ○ Impermeable, such as plastic, etc.
          a) How is vent air treated?
            - ○ No treatment
            - ○ Combusted
            - ○ Flared
            - ○ Converted to pipeline quality gas
      2) What percent of the surface is exposed or uncovered?
        - ○ ≤ 25%
        - ○ 26-40%
        - ○ 41-60%
        - ○ 61-85%
        - ○ ≥ 86%

- ○ **Motor Oil** - If checked, answer the following questions:
  a. What percent of the surface is exposed or uncovered?
    - ○ ≤ 25%
    - ○ 26-40%
    - ○ 41-60%
    - ○ 61-85%
    - ○ ≥ 86%

  b. Describe the material for any cover on it
    - ○ No cover
    - ○ Building (slatted floor or deep pits)
    - ○ Natural Crust
    - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
    - ○ Impermeable, such as plastic, etc.
      1) How is vent air treated?
        - ○ No treatment
        - ○ Combusted
        - ○ Flared
        - ○ Converted to pipeline quality gas

Complete Section - I, II, or III based on nitrogen nutrient content of liquids or slurry.

I. ○ **Less than 5 lbs. nitrogen (N) /1000 gallons (or 600 mg/kg) and be less than 4% total solids - If checked, answer the following questions:**

a. Is the solids content less than 1%?
   - ○ Yes
   - ○ No

b. Is there aeration?
   - ○ No
   - ○ Yes
     1) If yes, what is the DO (Dissolved Oxygen) or Redox (Reduction Oxygen) analysis of the storage?
        - ○ DO > 0.1 mg/L
        - ○ DO < 0.1 mg/L (or not sure)
        - ○ Redox > -50 mV
        - ○ Redox < -50 mV (or not sure)

c. Is there an anaerobic digester?
   - ○ No
   - ○ Yes
     1) Is there anything in particular to mitigate ammonia release from the digester? (i.e. biogas collection, etc.)
        - ○ Yes
        - ○ No

d. Pick the color that best represents the liquid in the structure during the summer.
   - ○ Red / Maroon to Purple
   - ○ Black or brown - If checked, answer the following questions:
     1) Describe the material for any cover on the structure
        - ○ No cover
        - ○ Natural Crust
        - ○ Permeable, such as straw, corn stalks, geotextile, etc.
        - ○ Impermeable, such as plastic, etc.
          a) How is vent air treated?
             - ○ No treatment
             - ○ Combusted
             - ○ Flared
             - ○ Converted to pipeline quality gas
     2) What percent of the surface is exposed or uncovered?
        - ○ ≤ 25%
        - ○ 26-40%
        - ○ 41-60%
        - ○ 61-85%
        - ○ ≥ 86%

II. ○ **Greater than 5 lb. N /1000 gallon and greater than 4% total solids - If checked, answer the following questions:**

a. Describe the material for any cover on the structure
   - ○ No cover
   - ○ Building (slatted floor or deep pits)
   - ○ Natural Crust
   - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
   - ○ Impermeable, such as plastic, etc.
     1) How is vent air treated?
        - ○ No treatment
        - ○ Combusted
        - ○ Flared
        - ○ Converted to pipeline quality gas

b. What percent of the surface is exposed or uncovered?
   - ○ ≤ 25%
   - ○ 26-40%
   - ○ 41-60%
   - ○ 61-85%
   - ○ ≥ 86%

III. ○ **Don't know the Nitrogen content of the liquid/slurry - complete the following:**

Which best describes the consistency of the product in the storage pit:
Water (thin) or Motor Oil (thick)?

- ○ **Water** - If checked, answer the following questions:

a. Pick the color that best represents the liquid in the structure during the summer.
   - ○ Red / Maroon to Purple
   - ○ Black or brown - If checked, answer the following questions:
     1) If yes, describe the material for the cover on the structure:
        - ○ No cover
        - ○ Natural Crust
        - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
        - ○ Impermeable, such as plastic, etc.
          a) How is vent air treated?
             - ○ No treatment
             - ○ Combusted
             - ○ Flared
             - ○ Converted to pipeline quality gas
     2) What percent of the surface is exposed or uncovered?
        - ○ ≤ 25%
        - ○ 26-40%
        - ○ 41-60%
        - ○ 61-85%
        - ○ ≥ 86%

- ○ **Motor Oil** - If checked, answer the following questions:
  a. What percent of the surface is exposed or uncovered?
     - ○ ≤ 25%
     - ○ 26-40%
     - ○ 41-60%
     - ○ 61-85%
     - ○ ≥ 86%

  b. Describe the material for any cover on it
     - ○ No cover
     - ○ Building (slatted floor or deep pits)
     - ○ Natural Crust
     - ○ Permeable, such as straw, corn stalks, geotextiles, etc.
     - ○ Impermeable, such as plastic, etc.
       1) How is vent air treated?
          - ○ No treatment
          - ○ Combusted
          - ○ Flared
          - ○ Converted to pipeline quality gas

SWINE - LAND APPLICATION

1.0 Where does the manure go? Check all that apply

- ☐ Moved off-site (sold or given away) directly from housing
  - a. Do you want land application considered as part of the assessment for your operation?
    - ○ Yes - If checked, complete Section 2.0
    - ○ No
- ☐ Composted or stockpiled, then sold or given away
- ☐ Land applied - If checked, answer questions in Section 2.0

If you checked "land applied" in section 1.0, complete the following information:

2.0 What form of manure is land applied? *Solid and/or Liquid* - Check all that apply

- ☐ **Solid - If checked, answer the following questions:**
  - a. How long are solids piled or staged/stored on the field prior to application?
    - ○ < 3 days
    - ○ > or = 3 days
      1) Are solids covered?
         - ○ Yes
         - ○ No
      2) Is there ponded leachate?
         - ○ Yes
         - ○ No
    - ○ Directly land applied not piled or staged/stored
  - b. Are the majority of the solids composted prior to application?
    - ○ Yes
    - ○ No - if no, answer the following:
      1) When are solids incorporated?
         - ○ At time of application
         - ○ < 24 hours after application
         - ○ 24 hours to 3 days following application
         - ○ More than 3 days after application or not incorporated

- ☐ **Liquid - If checked, answer the following questions:**
  - a. Choose the predominant method of liquid manure application
    - ○ Surface applied and not incorporated
    - ○ Injection - If checked, answer the following:
      1) What portion of the field is manure left exposed on the surface?
         - ○ 100% of the manure is covered
         - ○ All manure is covered except on the headlands where manure is left exposed
         - ○ Manure is left exposed in the injection slot
         - ○ Manure is left exposed in the injection slot and the headlands
    - ○ Incorporate within 24 hours
    - ○ Incorporate 24 hours or greater following application
    - ○ Irrigation - *continued on next page (additional questions)*

1) Choose the predominant Irrigation method used to apply the liquids
   - ○ Flood or furrow
   - ○ High pressure sprinkler or gun
   - ○ Low pressure sprinkler (drop drag line)
   - ○ Low pressure sprinkler (low canopy system)
2) Does ponding occur after irrigation?
   - ○ Yes
   - ○ No
3) Is freshwater added?
   - ○ Yes
   - ○ No

SWINE - MORTALITIES

1.0 Other than during freezing weather, how long before carcasses are picked up or put into the disposal system?

- ○ Within 24 hours of death
- ○ Within a week of death
- ○ Less Frequently

2.0 How is mortality handled? Check all that apply

- ☐ Managed off-site (rendered, landfilled or offsite composting) - *no additional questions*
- ☐ Buried on-site - complete additional questions below
- ☐ Composted on-site - complete additional questions below
- ☐ Contained (in-vessel) incinerated on-site - complete additional questions below

Complete additional questions for all mortality options checked above.

☐ Buried on-site - If checked, answer the following question:

a. Is cover added to the burial pit or pile every time mortality is added?
   - ○ Yes
   - ○ No

☐ Composted on-site - If checked, answer the following questions:

a. How often is seepage noticed?
   - ○ Rarely
   - ○ Commonly

b. Does water pond around the base of the compost pile (from rainfall events or leachate) for greater than 24 hours?
   - ○ Ponding or standing water is not present more than 24 hr. after a rainfall event
   - ○ Ponding or standing water is present more than 24 hr. after a rainfall event

c. Is there a specific compost recipe?
   - ○ No
   - ○ Yes
     1) What is the recipe?
        - ○ 3:1 or greater carbon source (stalks, sawdust, straw, etc.):mortality
        - ○ < 3:1 carbon source (stalks, sawdust, straw, etc.):mortality

d. What is average of the highest two consecutive weekly temperature readings of compost in?
   - ○ Operation doesn't know
   - ○ < 120F
   - ○ 120F to 140F
   - ○ > 140F

e. How often are maggots and flies noticed?

- ○ Rarely
- ○ Commonly

f. How often are uncovered carcass parts visible or noticed?
   - ○ Rarely
   - ○ Commonly

g. How often is compost cover added?
   - ○ Immediately after each carcass addition
   - ○ At least once daily
   - ○ Less frequently than each carcass addition

☐ Contained (in-vessel) incinerated on-site - If checked, answer the following questions:

a. Does the operation have a functioning secondary burner?
   - ○ Yes
   - ○ No

b. Does the operation monitor and record temperature of the incinerator to verify that targeted operating conditions are met?
   - ○ Yes
   - ○ No

SWINE - ON-FARM ROADS (Private roads owned by operation; not public county roads, highways, etc.)

1.0 Are unpaved roads used for any of the following activities? Check all that apply

- ☐ Routine service traffic (feed delivery, milk truck, renderer)
- ☐ Less frequent service traffic (manure handling)
- ☐ General transportation (veterinarians, maintenance, nutritionists, managers, employees, farm tours)
- ☐ Does not apply - no additional questions

If you checked any one of first three activities or combination of, complete the following:

a. Unpaved roads are surfaced with: (Check all that apply)

- ☐ Caliche/limestone - Caliche is a sedimentary rock, a hardened natural cement of calcium carbonate that binds other materials—such as gravel, sand, clay, and silt. Found in the western USA in dry and arid regions.
- ☐ Unimproved dirt road
- ☐ Washed gravel
- ☐ Gravel

b. Which is the predominant road-surface treatment used?

- ○ Petroleum products, resins, emulsions as per manufacturer recommendations
- ○ Salts or hygroscopic materials (i.e. magnesium chloride)
- ○ Fresh Water
- ○ Holding pond wastewater
- ○ None

c. Are speed limits strictly enforced, or is speed controlled by passive means (i.e. speed bumps)?

- ○ Speed limits are not present or are not enforced by management
- ○ Speed limits are enforced by management
- ○ Speed is controlled by speed bumps or other passive means

d. Does the operation restrict public access to private roads?

- ○ Yes
- ○ No

e. Are most roads lined with windbreaks or shelterbelts?

- ○ No
- ○ Some or all roads are lined with vegetation

SWINE - PERCEPTION

1.0 Does the operation employ any of the following to reduce nuisance issues?
Check all that apply

- ☐ Property line vegetative buffers
- ☐ Cleaning up spilled manure from roads
- ☐ None of the above

2.0 Does the operation practice "track-out control" (manure on tires) of manure or mud on vehicles leaving the property? (Do they have a means of controlling how much manure/mud leaves their property on the tires of all vehicles leaving their property?)

- ○ Yes
- ○ No

3.0 Are most roads lined with windbreaks or shelterbelts?

- ○ No
- ○ Some or all roads lined with vegetation

4.0 Is the operation mindful of neighbors when timing manure removal from housing or storage?

- ○ Yes
- ○ No

5.0 Does the operation consider how the following impact nuisance conditions when planning manure applications? Check all that apply

- ☐ Timing relative to neighbor activities
- ☐ Time of day
- ☐ Season
- ☐ Weather forecasts (wind direction relative to neighbor's location)
- ☐ None of the above

6.0 Are compost piles, mortalities, or manure storage visible from public roads?

- ○ Yes
- ○ No

7.0 Are efforts made to ensure a pleasing roadside appearance?

- ○ Yes
- ○ No