

National Air Quality Site Assessment Tool (NAQSAT) Inventory Jobsheet

General Instructions - Horses

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 (\leq 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	

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
- "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.

HORSE HOUSING

Four types of housing is provided. Check all at apply. Based on the housing type chosen - you will need to provide additional information. See below.

- 1.0 Pen/Dry lot
- 2.0 Pasture
- 3.0 Box stall
- 4.0 Riding arena

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

1.0 Pen / Dry (open) Lot - if checked, answer following questions:

- a. What are the average surface conditions?
 - Uncompacted wet manure with significant ponding
 - Dry, well drained lots

- b. Use of any surface amendments to assist with mud during wet periods?
(straw, wood chips)
 - Yes
 - No

- c. Properly constructed mounds?
 - Yes
 - No

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

- e. Any supplement shade structures? Check all that apply.
 - Windbreaks
 - Shade structure
 - Sheds

- f. Are the pens sprinkled for dust control?
 - Yes
 - No

- g. The runoff pond is designed and operated for which of the following?
 - Evaporation
 - Storage followed by land application
 - Treatment
 - Does not apply

2.0 Pasture - if checked, answer following questions:

- a. What is the condition of water, feed and shade areas
- Heavily trampled, wet, little vegetation
 - Trampled and soft, some vegetation remaining
 - Minimal hoof damage, hard surface, significant vegetation
 - Complete grass cover, no bare areas

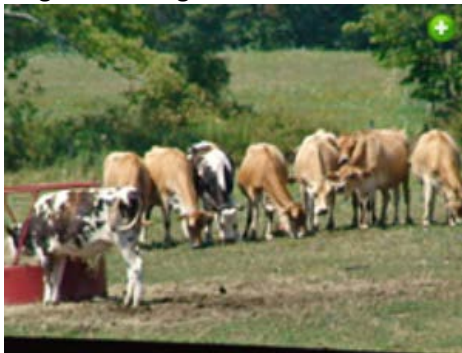
Heavily trampled, wet, little vegetation



Trampled and soft, some vegetation remaining



Minimal hoof damage, hard surface, significant vegetation



Complete grass cover, no bare areas



3.0 **Box stall - if checked, answer following question:**

- a. What are the bedding conditions?
- Large amount of manure and wet
 - Intermediate amount with some wet and some dry areas
 - Low manure load and dry

4.0 **Riding arena - if checked, answer following question:**

- a. What practices are used to control dust during use of the open riding arena?
- Water
 - Low dust footing material (rubber or sand)
 - Does not apply

HORSE - FEED AND WATER

1.0 How is water supplied to livestock?

- Cups, bowls, or bells
- Stock tank or circulating tank
- Overflow waterers (seasonal and run continuously)

2.0 How often are all waterers checked and repaired for leaks?

- Daily
- At least weekly
- Weekly or less frequently

3.0 Are rations (roughage and supplement) formulated for animal age, size and activity?

- Yes
- No - if checked, answer following questions:
 - a. What is the average activity level of the horses?
 - Idle
 - Moderately active (5 hours trot or gallop per week)
 - Active (>5 hours trot or gallop/week)
 - b. What best describes the horse's diet?
 - Alfalfa/other legume
 - Grass/mixed
 - Alfalfa/other legume with a supplement
 - Grass/mixed with a supplement

4.0 Is water sulfur concentration considered when rations are formulated?

- Yes
- No

5.0 How are legume roughages offered?

- Free choice
- Limited

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5.0 How are legume roughages offered?

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- Limited

HORSE - COLLECTION AND TRANSFER

1.0 How often does a complete clean-out occur?

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

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

- Does not apply.
- Open spreader or truck - if checked, answer following questions:

a. If a truck or spreader is used to transport manure to fields, is the manure covered with a tarp, etc.? (whether the truck leaves the farm and goes on a public road or not?)

- Yes
- No

3.0 Is manure spilled at the loading station / area?

- No
- Yes - if checked, answer following question:

a. Is manure tracked offsite?

- Yes
- No

HORSE - MANURE STORAGE**1.0 Is manure handled daily?**

- Yes - If checked, no additional questions
- No - If checked, complete the following.



If "no" was checked, complete the following:

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

_____ If 0%, Complete Section 3.0 and skip Section 4.0
If $\geq 1\%$, Complete Sections 3.0 and 4.0

3.0 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 what processes checked above, complete the following questions below.

 Storage/stockpile - if checked, answer 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 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?
 - Don't know

<120 F
 120 to 140 F
 > 140 F

e. **How often is compost cover added?**

With each manure
 At least once daily
 Less frequently than each manure

f. **How often are maggots noticed?**

Rarely
 Commonly

g. **How often are flies noticed?**

Rarely
 Commonly

- Pelletizing
- Gasification
- Incineration/burn - if checked, answer 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:

4.0 STAGED STORAGE INFORMATION

For each stage of manure storage present, complete a separate stage section below. For example, if you have a 2-stage manure storage system, you will need to complete two stage sections. EXAMPLE: If the operation has debris basins and a holding pond, this would be considered a 2-stage system.

For each stage complete the corresponding information as it relates to the nitrogen (N) content of the liquid/slurry. If you don't know the N and solid content, use the unknown section and answer question based on the consistency of the liquid - see below. Label the stage with a description of storage unit. Using the example above, Stage one is debris basin and stage 2 is the holding pond.

For each stage of manure storage you will need to answer questions based on N content of liquid.

- I. Less than 5 lb. nitrogen (N) / 1000 gallons and be less than 4% solids.
 II. Greater than 5 lb. N / 1000 gallons and greater than 4% total solids
 III. Don't know what the nitrogen (N) and solid content of liquid / slurry

STAGE 1 _____ (i.e. deep pits, shallow pits, debris basin)

Complete section I, II, or III based on nitrogen content of liquids or slurry.

- I. Less than 5 lbs./1000 gallons or 600 mg/kg and be less than 4% total solids - if checked, answer following questions:

a. Is solid content less than 1%?

Yes
 No

b. Is there aeration?

No
 Yes - if checked, answer following question:

- 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
 - Redox > -50 mV
 - Redox < -50 mV
- c. Is there an anaerobic digester?
 - No
 - Yes - if checked, answer following question:
 - 1) Does the operation employ any mitigation for the released ammonia?
 - 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 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. - If checked, answer the following:
 - a) How is vent air treated?
 - No treatment
 - Combusted
 - Flared
 - Converted to pipeline quality gas
- e. What percent of the surface is exposed or uncovered?
 - ≤ 25%
 - 26-40%
 - 41-60%
 - 61-85%
 - ≥ 86%

II. Greater than 5 lbs. N/1000 gallons and greater than 4% total solids - - if checked, answer following questions:

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

III. If no manure analysis has been completed recently and/or don't know the nitrogen (N) content of the manure- - if checked, answer following questions:

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

- Water** - if checked, answer following questions:
 - a. Is solid 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 Redox > -50 mV
 DO < 0.1 mg/L Redox < -50 mV

 c. 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:
 1) Describe the material for the cover on the structure:
 No cover
 Natural Crust
 Permeable, such as straw, corn stalks
 Impermeable, such as plastic - If checked, answer the following
 a) How is vent air treated?
 No treatment
 Combusted
 Flared
 Converted to pipeline quality gas

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

Motor Oil - if checked, answer following questions:

a. Describe the material for any cover that may be on it:
 No cover
 Building (slatted floors or deep pits)
 Natural Crust
 Permeable, such as straw, corn stalks
 Impermeable, such as plastic
 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% 41-60% ≥ 86%
 26-40% 61-85%

STAGE 2 _____ (i.e. storage pond, holding pond, etc.)

Complete section I, II or III based on nitrogen content of liquids or slurry.

I. **Less than 5 lbs./1000 gallons or 600 mg/kg and be less than 4% total solids - if checked, answer following questions:**

a. Is solid content less than 1%?
 Yes
 No

 b. Is there aeration?
 No
 Yes

1) If yes, what is the DO (Dissolved Oxygen) or Redox (Reduction-Oxidation) analysis of the storage?

- DO > 0.1 mg/L
- DO < 0.1 mg/L
- Redox > -50 mV
- Redox < -50 mV

c. Is there an anaerobic digester?

- No
- Yes - if checked, answer following question:
 - 1) Does the operation employ any mitigation for the released ammonia?
 - Yes (i.e. biogas collection)
 - 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 following questions:
 - 1) Describe the material for the cover on the structure:
 - No cover
 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, etc.
 - Impermeable, such as plastic, etc. - If checked, answer the following:
 - a) How is vent air treated?
 - No treatment
 - Combusted
 - Flared
 - Converted to pipeline quality gas

e. What percent of the surface is exposed or uncovered?

- ≤ 25%
- 26-40%
- 41-60%
- 61-85%
- ≥ 86%

II. **Greater than 5 lbs. N/1000 gallons and greater than 4% total solids - if checked, answer following questions:**

a. Describe the material for any cover on it.

- No cover
- Building (slatted floor or deep pits)
- Natural Crust
- Permeable, such as straw, corn stalks, geotextile, etc.
- Impermeable, such as plastic, etc. - If checked, answer the following:
 - 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. **If no manure analysis has been completed recently and/or don't know the nitrogen (N) content of the manure - if checked, answer following questions:**

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

Water - if checked, answer following questions:

- a. Is solid 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 liquid in the storage?
- DO > 0.1 mg/L
 - DO < 0.1 mg/L
 - Redox > -50 mV
 - Redox < -50 mV
- c. Pick the color that best represents the liquid in the structure during the summer.
- Red/maroon to Purple
 - Black or brown - if checked, answer following questions:
 - 1) Describe the material for the cover on the structure:
 - No cover
 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, etc.
 - Impermeable, such as plastic, etc. - If checked, answer the following:
 - a) How is vent air treated?
 - No treatment
 - Combusted
 - Flared
 - Converted to pipeline quality gas
- d. What percent of the surface is exposed or uncovered?
- ≤ 25%
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Motor Oil - if checked, answer following questions:

- a. Describe the material for any cover that may be on it:
- No cover
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 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, etc.
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 - 1) How is vent air treated?
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- b. What percent of the surface is exposed or uncovered?
- ≤ 25%
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 - 41-60%
 - 61-85%
 - ≥ 86%

HORSE - LAND APPLICATION**1.0 Where does the manure go? Check all that apply.**

- Moved offsite (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, answer questions in Section 2.0
 - No
- Composted or stockpiled, then sold or given away
- Land applied - *If checked, answer questions below in section 2.0*

2.0 What form of manure is land applied? Solid and/or Liquid (Check all that apply) **Solid - if checked, answer following questions:**

- a. How long are solids piled or staged/stored on the field prior to application?
 - Directly land applied not piled or staged/stored
 - < 3 days
 - > or = 3 days
 - 1) Are solids covered?
 - Yes
 - No
 - 2) Is there ponded leachate?
 - Yes
 - No
- b. Are the majority of the solids composted prior to application?
 - Yes
 - No - If no, answer the following:
 - a. 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 following questions:

- a. Choose predominant method of application
 - Surface applied and not incorporated
 - Injection - if checked, answer following questions:
 - 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 - if checked, answer following questions:
 - 1) Check predominant irrigation method below
 - 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

HORSE - MANURE STORAGE**1.0 Is manure handled daily?**

- Yes - If checked, no additional questions
- No - If checked, complete the following.



If "no" was checked, complete the following:

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

_____ If 0%, Complete Section 3.0 and skip Section 4.0
If $\geq 1\%$, Complete Sections 3.0 and 4.0

3.0 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 what processes checked above, complete the following questions below.

 Storage/stockpile - if checked, answer following questions:

- a. How often is seepage noticed?
 - Rarely
 - Commonly
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 - Ponding or standing water is not present more than 24 hr. after a rainfall event
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- c. How often are maggots noticed?
 - Rarely
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- d. How often are flies noticed?
 - Rarely
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 Composting - if checked, answer following questions:

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- c. Is there a specific recipe?
 - No
 - Yes
 - 1) What is the recipe?
 - 3:1 or greater carbon source (stalks, sawdust, straw, etc.):manure
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- d. What is average of the highest two consecutive weekly temperature readings of the compost pile?
 - Don't know

<120 F
 120 to 140 F
 > 140 F

e. **How often is compost cover added?**

With each manure
 At least once daily
 Less frequently than each manure

f. **How often are maggots noticed?**

Rarely
 Commonly

g. **How often are flies noticed?**

Rarely
 Commonly

- Pelletizing
- Gasification
- Incineration/burn - if checked, answer 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:

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For each stage of manure storage you will need to answer questions based on N content of liquid.

- I. *Less than 5 lb. nitrogen (N) / 1000 gallons and be less than 4% solids.*
 II. *Greater than 5 lb. N / 1000 gallons and greater than 4% total solids*
 III. *Don't know what the nitrogen (N) and solid content of liquid / slurry*

STAGE 1 _____ (i.e. deep pits, shallow pits, debris basin)

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b. Is there aeration?

No
 Yes - if checked, answer following question:

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 - Yes - if checked, answer following question:
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 - No cover
 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, etc.
 - Impermeable, such as plastic, etc. - If checked, answer the following:
 - a) How is vent air treated?
 - No treatment
 - Combusted
 - Flared
 - Converted to pipeline quality gas
- e. What percent of the surface is exposed or uncovered?
 - ≤ 25%
 - 26-40%
 - 41-60%
 - 61-85%
 - ≥ 86%

II. Greater than 5 lbs. N/1000 gallons and greater than 4% total solids - - if checked, answer following questions:

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

III. If no manure analysis has been completed recently and/or don't know the nitrogen (N) content of the manure- - if checked, answer following questions:

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

- Water** - if checked, answer following questions:
 - a. Is solid 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 Redox > -50 mV
 DO < 0.1 mg/L Redox < -50 mV

 c. 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:
 1) Describe the material for the cover on the structure:
 No cover
 Natural Crust
 Permeable, such as straw, corn stalks
 Impermeable, such as plastic - If checked, answer the following
 a) How is vent air treated?
 No treatment
 Combusted
 Flared
 Converted to pipeline quality gas

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

Motor Oil - if checked, answer following questions:

a. Describe the material for any cover that may be on it:
 No cover
 Building (slatted floors or deep pits)
 Natural Crust
 Permeable, such as straw, corn stalks
 Impermeable, such as plastic
 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% 41-60% ≥ 86%
 26-40% 61-85%

STAGE 2 _____ (i.e. storage pond, holding pond, etc.)

Complete section I, II or III based on nitrogen content of liquids or slurry.

I. **Less than 5 lbs./1000 gallons or 600 mg/kg and be less than 4% total solids - if checked, answer following questions:**

a. Is solid content less than 1%?
 Yes
 No

 b. Is there aeration?
 No
 Yes

1) If yes, what is the DO (Dissolved Oxygen) or Redox (Reduction-Oxidation) analysis of the storage?

- DO > 0.1 mg/L
- DO < 0.1 mg/L
- Redox > -50 mV
- Redox < -50 mV

c. Is there an anaerobic digester?

- No
- Yes - if checked, answer following question:
 - 1) Does the operation employ any mitigation for the released ammonia?
 - Yes (i.e. biogas collection)
 - 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 following questions:
 - 1) Describe the material for the cover on the structure:
 - No cover
 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, etc.
 - Impermeable, such as plastic, etc. - If checked, answer the following:
 - a) How is vent air treated?
 - No treatment
 - Combusted
 - Flared
 - Converted to pipeline quality gas

e. What percent of the surface is exposed or uncovered?

- ≤ 25%
- 26-40%
- 41-60%
- 61-85%
- ≥ 86%

II. **Greater than 5 lbs. N/1000 gallons and greater than 4% total solids - if checked, answer following questions:**

a. Describe the material for any cover on it.

- No cover
- Building (slatted floor or deep pits)
- Natural Crust
- Permeable, such as straw, corn stalks, geotextile, etc.
- Impermeable, such as plastic, etc. - If checked, answer the following:
 - 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. **If no manure analysis has been completed recently and/or don't know the nitrogen (N) content of the manure - if checked, answer following questions:**

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

Water - if checked, answer following questions:

- a. Is solid 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 liquid in the storage?
- DO > 0.1 mg/L
 - DO < 0.1 mg/L
 - Redox > -50 mV
 - Redox < -50 mV
- c. Pick the color that best represents the liquid in the structure during the summer.
- Red/maroon to Purple
 - Black or brown - if checked, answer following questions:
 - 1) Describe the material for the cover on the structure:
 - No cover
 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, etc.
 - Impermeable, such as plastic, etc. - If checked, answer the following:
 - a) How is vent air treated?
 - No treatment
 - Combusted
 - Flared
 - Converted to pipeline quality gas
- d. What percent of the surface is exposed or uncovered?
- ≤ 25%
 - 26-40%
 - 41-60%
 - 61-85%
 - ≥ 86%

Motor Oil - if checked, answer following questions:

- a. Describe the material for any cover that may be on it:
- No cover
 - Building (slatted floors or deep pits)
 - Natural Crust
 - Permeable, such as straw, corn stalks, geotextile, 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%

HORSE - 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

- a. Routine service traffic (feed delivery, milk truck, renderer) - answer questions below
- b. Less frequent service traffic (manure handling) - answer questions below
- c. General transportation (veterinarians, maintenance, nutritionists, managers, employees, farm tours) - answer questions below
- d. Does not apply - no additional questions

→ If you checked any one of a and/or b and/or c - or all three, answer all the following questions:

- 1) 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

- 2) 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

- 3) 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

- 4) Does the operation restrict public access to private roads?
 - Yes
 - No

- 5) Are most roads lined with windbreaks or shelterbelts?
 - No
 - Some or all roads are lined with vegetation

HORSE - 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? (Is there a means of controlling how much manure/mud leaves the property on the tires of all vehicles leaving the 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