# Appendix 2
# Operation Information

## Completing Appendix 2

The following information provides guidance for completing each area of Appendix 2: Operation Information.

Operation Description

The nutrient management plan (NMP) must include an agricultural operation identification sheet which includes a brief description of the operation including the following information:

- Animal types and numbers included on the operation
- Acreage of cropland, hayland and pastureland
- Acreage of farmstead
- The crop rotation planned to be used on the operation
- Provide a brief description of how the various manure groups on the operation are generated, stored, and handled, including a description of any mortality compost and how it will be handled, and any atypical manure handling strategies. See below for an example of information to be included with and integrated into the Operation Description:

  *" The manure from the cows is collected in gutters behind the animals and scraped two times a day into a reception pit which is then pumped to the circular concrete storage once a day. Milkhouse wastewater and barnyard runoff is collected in a reception pit at the bottom of the barnyard and pumped when ready into the circular concrete storage. Manure from all of the calf and heifer pens is scraped once a month into a roofed manure storage that is part of the heifer facility. Both storages are emptied in the spring and fall and the manure is land applied on the operation."*

County

This information is to be obtained from the operator. This is to include all the counties that are included in the NMP within the state . The farm address determines which county reviews and approves the NMP.

Name of Receiving Stream(s)/Watershed(s)

The regulations require that the watershed(s) where this operation is located be included in the NMP. To meet this requirement the planner shall identify the "blue line streams" at this operation.

The **"blue line stream"** would be the nearest blue line stream (taken from the appropriate USGS topographic map) that would receive the runoff from this operation. Where there is more than one named stream that would take the runoff from this operation, all should be listed.

Every NMP should indicate a "blue line stream" regardless of the distance from the operation.

Notation of Special Protection Waters

The NMP is required to **list any special protection watersheds** that this operation lies within. Special Protection Waters are those areas designated as High Quality (HQ) or Exceptional Value (EV) identified in Chapter 93 (Water Quality Standards) of the DEP regulations. This list of Special Protection Waters is revised on a continuing basis based on water quality assessments and public comment. Information on special protection waters can be found on the web in an interactive map format called eMapPA at: http://www.emappa.dep.state.pa.us/emappa/viewer.htm. To use this site, turn on the "Streams Designated Use" feature and zoom in on the farm location on the map. For additional information on using the DEP eMap website tool refer to "Using eMAP to Identify Special Protection Watersheds" posted on the PA Nutrient Management Program website (http://panutrientmgmt.cas.psu.edu/) under the Planning Tools and Resources section.

Nutrient Management Plans developed for farms on these areas do not have to include any additional information but additional planning procedures (P Index; see Appendix 5) may be required.

Operation Acres (Total)

The NMP is to include all the lands that are an integral part of this animal operation. These lands may be different from those lands counted in the AEU/acre calculation. The lands to be included in the NMP are specifically defined as those lands owned by the operator which are located at the animal production facility, as well as other lands under the management control (owned or rented) that are an integral part of this animal production facility (see definition of Farming Resources in the regulations). There may be a number of situations that will require an individual determination based on the specific circumstances of a given farm but the following examples are shown in order to give you an understanding of how the program interprets this provision.

This definition in the regulations provides direction to the planner concerning **owned lands that are contiguous** with the animal operation.

1) If manure produced at the operation is applied to these owned acres, whether or not these acres are rented to another operator, the owned acres located at (contiguous with) the animal facility, would need to be included in the NMP. "Included in the plan" can be Appendix 4 and 5 or Option 3 of the Nutrient Balance Sheet (NBS).

2) If no manure from the operation is applied to these acres, but they are farmed by the operator or someone under his direction, these acres must be included in the NMP.

3) If no manure from the operation is applied to these acres, and these acres are rented out to another operator, these acres do not need to be included in the NMP.

If the **owned lands are non-contiguous** (even if they are rented to another operator) with the animal facility, the following criteria will be followed in determining if the land is to be included in the NMP.

1) If the owned land is non-contiguous and **is not** used for application of the manure from the animal operation during the normal cropping rotation, those owned, non-contiguous lands **would not** need to be considered in this NMP.

2) If the owned land is non-contiguous and **is** used for application of the manure from the animal operation during the normal cropping rotation, those owned, non-contiguous lands **would be** included in the NMP.

   All **rented land** that will be receiving manure generated by the animal production facility at any time within the planned cropping rotation for the operation will need to be included in the NMP.

For those situations **where the animal operator is permitted to apply manure to fields owned and managed by other people**, and the animal operator does not have an agreement (verbal or written) with the landowner allowing for management control (defined on page 4 of Section I) of that land related to crop production, that land is not required to be included in the NMP and the manure sent to those lands shall be considered to be exported and applied by the animal facility operator.

Total Acres Available for Nutrient Application Under Operator's Control
List the number of **acres, from the total acres in the NMP that will receive nutrients** during the normal cropping rotation for the operation. This includes nutrients from manure, sewage sludge or bio-solids, chemical fertilizers, etc. Provide the number of acres of owned land and also include, separately, the number of acres of rented ground. Rented or leased lands, under the management control of the operator of the facility, that are used for the application, treatment, or storage of manure generated at the facility shall be included in the NMP.

Names & Addresses of Owners of Rented or Leased Land
The NMP must include the names and addresses of owners of the rented and leased lands.

Animal Equivalent Units
An AEU is 1,000 pounds of live animal weight on an annualized basis. Annualized means that if the animals are not present on an operation for a whole year, the animal units are adjusted for the proportion of time during the year the animals are present on the operation. The calculation involves determining the number of AEUs of all animals on the farm based on the number of animals and their average weights and then adjusting that for the actual number of days (out of 365) that the animals are on the operation.

A description of the information that goes into this calculation is covered under *Section I: Identification of CAOs*, in this guidance manual.

Animal Equivalent Units Per Acre

A description of the information that goes into this calculation is covered under Section I: Identification of CAOs ", in this guidance manual.

Existing Manure Storages & Capacity

Indicate separately for each storage on the operation, the storage description, dimensions, useable design capacity, freeboard, top or bottom loaded, description of contributing run-off area, description of wastewater additions, types and amounts of bedding.

Manure Application Equipment Capacity & Practical Application Rates of the Act 38 Nutrient Management Plan

Over the course of implementing the Nutrient Management Program there has been confusion over what is expected in this part of the NMP and inconsistency across the state in what information is included in the NMP.

The purpose of the manure application equipment capacity and practical application rates section of the NMP is to ensure that the **application rates listed in the NMP** have been determined to be practical and achievable by the application equipment used to apply the manure on the operation. There would be no purpose in developing a NMP that would require rates that are not able to be met by the farmer. All planned manure application rates are to be expressed in whole numbers except for rates that are less than 5 tons/acre. This is a key element of ensuring the NMP can be implemented.

The Act 38 regulations (83.294) state that manure application rates be consistent with the capabilities of the application equipment, including calibration. It states that **"…the plan must include a statement indicating that the existing equipment has been calibrated to ensure the implementation of the application rates described in the plan…"** The Act 38 standard NMP requires the following information to be included: description of the application equipment, **practical application rates based on calibration and calibration method used. The data recorded during the equipment calibration is to be retained on the farm.**

Manure Spreader Calibration

As noted the NMP requires a description of the application equipment. An important part of that description is the capacity of the equipment. However, capacity is not calibration.

Manure application rates are determined by equipment speeds and settings along with application management, such as overlaps. Therefore determining actual application rates or manure spreader calibration is an event. It requires that the spreader is filled with manure to the typical full load and applying the manure to the field. It involves recording the applicable speeds and settings such as ground speed and/or PTO speed, gear box settings, gate opening settings, operating pressures,

spread widths, spread lengths, and overlaps. Using the recorded information the actual application rate at those speeds and settings is calculated.

Each rate listed in and Act 38 NMP must be based on equipment calibration. The actual calibration data does not need to be submitted with the NMP, but it does need to be maintained on file at the operation for review by program staff as necessary. A new Penn State publication, **Agronomy Facts 68: Manure Spreader Calibration** has been developed by the program to facilitate meeting this planning requirement. It outlines calibration methods for both liquid and solid manures and includes tables to record and calculate application rates. These tables could be filed as documentation on the operation. This factsheet is available in print form or can be downloaded from the Pennsylvania Nutrient Management Website at: http://panutrientmgmt.cas.psu.edu/pdf/Facts68.pdf
Additionally, Conservation District personnel will assist with the manure spreader calibration upon request.

Following is some general guidance from an NMP development standpoint in meeting this NMP requirement.

*Farms that apply their own manure, with existing equipment:*
For farms that can identify their application equipment prior to submitting the NMP, the NMP is to list the type and capacity of equipment they are using, the practical application rates that have been determined by calibration, and the method of calibration should also be listed.

*Farms not able to complete calibration prior to NMP submission:*
Because manure calibration requires actually land applying manure, a good time to complete this management practice is during the application season. Therefore, there will be frequent instances where NMP development and manure application timeframes do not conveniently coincide. For existing operations that were not able to calibrate their spreader prior to NMP submission, the operator is to calibrate the spreader during the next manure application season. These plans will include a statement indicating what equipment is planned to be used, that the equipment is expected to be able to meet the planned rates (so planned rates should be in a realistic range for the planned type of equipment) and that the equipment will be fully calibrated when the manure storage is emptied for the first time after NMP submission. If, when the equipment is calibrated during the first year and cannot be adjusted to closely match the planned rates, then the NMP will need amended to provide rates that will be realistic for the given equipment.

*Custom applied manure:*
For farms that have their manure custom applied, the NMP would just need to indicate that the operator uses a custom applicator and that the application rates listed in the NMP are rates that can be met by the custom applicator. The NMP writer should confirm with the custom applicator what rates he can apply for the manure type in question. Most custom applicators have calibrated their equipment and have a range of rates that can be achieved with their equipment.

*For proposed animal operations:*

For proposed operations that NMP to use their own equipment to spread the manure, the operator is to calibrate the spreader prior to the first full application of manure in order to properly adjust their equipment to closely match the application rates outlined in the NMP. These plans will include a statement indicating what equipment is planned to be used (if it is known at the time, if not, the NMP will list the type of equipment planned), that the specific equipment (or type of equipment) is expected to be able to meet the planned rates (so planned rates should be realistic for the planned type of equipment) and that the equipment will be fully calibrated before the manure storage is emptied for the first time. If, when the equipment is calibrated during the first year and cannot be adjusted to closely match the planned rates, then the NMP will need amended to provide rates that will be realistic for the given equipment.

In summary, the goal of nutrient management planning is to provide manure application rates that are accurate and achievable. Along with soil testing and manure analysis, manure spreader calibration is a fundamental nutrient management practice necessary to achieve this goal. I appreciate the help from both planners and reviewers in making farmers aware of the importance of the calibration effort and how it ensures that the NMP is practical and tailored to their operation. The manure spreader calibration factsheet (Agronomy Facts 68) which can be downloaded from the nutrient management program website (http://panutrientmgmt.cas.psu.edu/pdf/Facts68.pdf) is a key tool in this effort.