Source Category:	**Synthetic Fertilizer Application**
SCC Code:	
Pollutants of Concern:	**NH_3**

How is the NH_3 National Emission Inventory developed for this category?

Current Methodology:

- Estimates of the total use of 10 separate fertilizers that emit NH3 are obtained from the Association of American Plant Food Control Officials (AAPFCO).
- Emission factors based on European studies for each type of fertilizer applied and the results are totaled into a single category.
- The use data is at the county-level so no allocations are needed.

Uncertainties / Shortcomings of Current Methods:

- The emissions from fertilizer application depend significantly on the external conditions, the type of soil, amount of moisture, and treatment during or immediately following application (plowing, disking, watering). The aggregate factors neglect these differences.
- All fertilizer is assumed to be applied in the county in which it is sold.
- Fertilizers are applied at specific times in the preparation and growth cycles. This method assumes emissions are an annual average.

How can State, Local, and Tribal agencies improve upon this methodology?

A new national ammonia emissions inventory has been prepared by the Carnegie Mellon University for the Mid-Atlantic States Air Resource Managers (MARAMA). This new inventory tool includes features to allocate fertilizer use to specific locations and at specific times. EPA, state, local and tribal agencies should review this inventory to determine if this model is appropriate and if further improvements are warranted.

- The new NEI methodologies will accommodate a separate category for each NH_3 emitting fertilizer.

Anhydrous ammonia	2801700001	Aqua ammonia	2801700002
Nitrogen solutions	2801700003	Urea	2801700004
Ammonium nitrate	2801700005	Ammonium sulfate	2801700006
Ammonium thiosulfate	2801700007	Other straight nitrogen	2801700008
Ammonium phosphate	2801700009	N-P-K	2801700010

- Determine any use of manure or animal waste fertilizer slurry and include in the inventory.
- Update the local information on fertilizer use in each county on a regular basis.
- Develop local information on the application methods that alter the emissions rate characteristics (are fields plowed immediately after application, etc.)

Activity Variables Used to Calculate Emissions from Fertilizer Application

Current Variables/Assumptions Used:

- Total amount of fertilizer sold by county. [*Association of American Plant Food Control Officials (AAPFCO)*]
- Aggregate emission factor [*based on European studies*]

Suggestions for Improved Variables:

- Local estimate of application time frame for each crop type. [*State Department of Agriculture, Agriculture Extension Service*]
- Local estimates of operational features during application.[*State Department of Agriculture, Agriculture Extension Service*]

Where can I find Additional Information and Guidance?	
EPA Contact:	Mr. Dallas Safriet, Mail Code D205-01 Emission Factor and Inventory Group U.S. Environmental Protection Agency Research Triangle Park, NC 27711 E-mail: safriet.dallas@epa.gov Telephone: 919 541-5371
NH_3 Emission Factors Report	http://www.epa.gov/ttn/chief/efdocs/ammonia.pdf
MARAMA CMU NH_3 Emissions Inventory	check MARAMA website www.marama.org/
Commercial Fertilizers Data Base	Association of American Plant Food Control Officials
NEI Methodology Description	http://www.epa.gov/ttn/chief/publications.html#reports