

TECHNOLOGY SUMMARY

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ANIMAL FEEDING OPERATIONS
CONFERENCE**

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Iowa Pork Industry Center
Iowa Pork Producers Association

Siting of Livestock and Poultry Facilities Using MNSET

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Species: Swine, Dairy, Beef, Poultry
Use Area: Animal Housing and Manure Storage
Technology Category: Facility Siting
Air Mitigated Pollutants: Odor, Hydrogen Sulfide,
Ammonia

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System Summary:

MNSET predicts three separate air quality impacts. The first prediction is for odor impacts at any given distance downwind from the facilities. The second prediction is for the frequency of exceeding the MN state standard for hydrogen sulfide (30 ppb / 30-minute average not to be exceeded twice in a five day period). Although this may not be applicable for other states it does show relative impacts of hydrogen sulfide. Additionally, MNSET estimates both daily and annual pounds of hydrogen sulfide and ammonia emitted from the modeled facility. Remember however that the outputs of the models are only as valid as the inputs. A literature review was done to develop the flux values used in the model.

MNSET can be used to evaluate the impact of existing sites and quantify reductions of these impacts using various treatment technologies. Unfortunately, this requires reliable quantification of the emission reductions from the mitigation technologies.

Applicability and Mitigating Mechanism:

- Tool for predicting air quality impacts for odor, hydrogen sulfide and ammonia
- Allows for adding mitigation to reduce these impacts
- Free downloadable spreadsheet
- User can add new technologies

Limitations:

- Based on average flux values
- Conservative predictions
- Based on Minnesota weather conditions and regulations

Cost:

This software can be downloaded free at www.manure.umn.edu . The use of MNSET to evaluate the downwind impacts of any mitigation technologies is very valuable both in new construction and in solving existing air quality problems.