



# Western Dairy News

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for the West, about the West, from the West

## National Air Emissions Monitoring Study update

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My how time flies!

It's already been four years since the voluntary Air Compliance Agreement between the dairy, pork, egg, and broiler industries was established in 2006. This agreement was a legal settlement and provided an opportunity for owners and operators of animal feeding operations to sign up as potential participants in a monitoring project on air emissions from these facilities and pay a small fine.

This project is the National Air Emissions Monitoring Study (NAEMS). In return, the Environmental Protection Agency (EPA) agreed to not sue Agreement participants for past or ongoing violations under the Clean Air Act (CAA), or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or the Emergency Planning and Community Right-to-Know Act (EPCRA), provided they fulfill the Agreement's commitments. The settlement resulted from litigation suggesting livestock operators of specific size potentially needed to comply with CERCLA and EPCRA reporting requirements.

Just a few brief words about EPCRA. The emergency planning component applies to, "facilities that store, use, or release certain chemicals, may be subject to various reporting requirements. Reported information is made publicly available so that interested parties may become informed about potentially dangerous chemicals in their community". (See <http://www.epa.gov/superfund/contacts/focenter/>

[epcra.htm](http://epcra.htm) for more information.)

Based on emission data available during the Agreement's signup period in 2006, dairies with as few as 100 milking cows could have triggered CERCLA and EPCRA reporting requirements that were in effect at that time. However, on December 18, 2008 EPA published a Federal Register Notice that granted an administrative reporting exemption for releases of hazardous substances to the air from animal waste at farms. In February, 2009 the U.S. EPA Office of Emergency Management issued a press release that clarified the reporting exemptions. Currently, a dairy with fewer than 700 mature cows, whether milked or dry, qualifies for administrative reporting exemption. (More information is available at [http://epa.gov/emergencies/docs/chem/CAFO\\_rule\\_fact\\_sheet.pdf](http://epa.gov/emergencies/docs/chem/CAFO_rule_fact_sheet.pdf))

### NAEMS data submitted this month . . .

The NAEMS is an aggressive approach to collect data on a wide range of gaseous (ammonia, hydrogen sulfide, and volatile organic compounds) and particulate matter emissions from animal feeding operations. The data collection process is complete and data was scheduled to be submitted to U.S. EPA by May 1, 2010. It's a given that the very next business day EPA would receive Freedom of Information Act requests by concerned citizen groups, which will want to get copies of the same data EPA will be evaluating. Funding for data collection from dairy sites was obtained from National Milk Producers' Federation through the Agricultural Air Research Council (a not-for-profit organization).

Let's briefly review the two major phases of this project. The first part was data collection. Six different dairy facilities were used in New York, Wisconsin, Washington, California, and Indiana. The second phase

of the project began May 1, 2010, in which numerous EPA staff members will be working to assess the data gathered during NAEMS and compile a database for estimation of emission rates.

Key from a regulatory perspective is to have tools available to determine whether dairy, pork, egg, and broiler industries emit sufficient amounts of particulate matter and VOCs to exceed Clean Air Act thresholds, and if these facilities emit sufficient ammonia and hydrogen sulfide amounts to exceed CERCLA and EPCRA reporting requirements.

First, let's extend a huge thank you to the dairy producers who participated in this study. It's no small task to have emission monitoring equipment, scientists, technicians, and visitors at your facility for over two years! Now, let's take a quick walk through the barn design on each of dairies where monitoring occurred:

The New York dairy is a mechanically ventilated free stall operation. Manure is scraped, enters an anaerobic digester, and is separated in a settling basin. Four hundred and seventy stalls are present and bedding is separated digested solids.

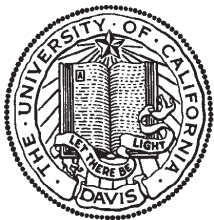
The Indiana dairy has a total of 1,600 stalls and manure is handled similarly to the New York dairy.

The Wisconsin herd is housed in a 325-stall barn and has a mechanically ventilated free stall system with flush used for manure collection. A settling pond/basin system is used to separate solids. Cows are housed on mattresses and shavings are used for bedding material.

The Washington and California free stall systems are open (naturally ventilated), collect manure through a flush system, and separate solids with settling ponds and/or basins. Barns monitored in Washington and

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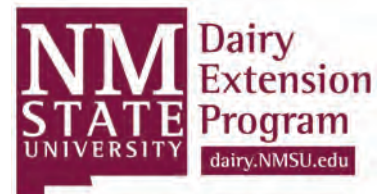
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California are similar in size (650 and 600 stalls). Both dairies used manure solids for bedding and the California dairy also included almond shells and soil as part of the bedding material. A map showing the various types of operations monitored in each participating state is seen at right.

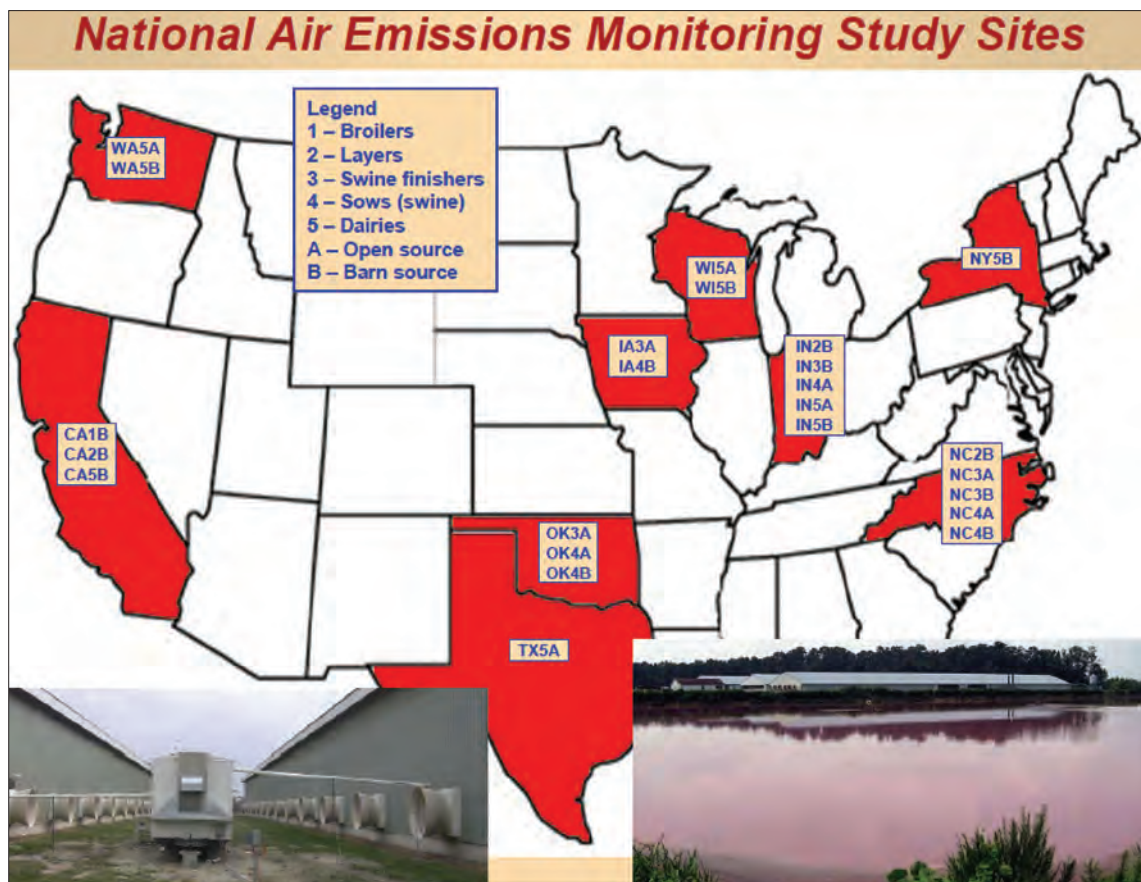
In the second part of the process, EPA will work with all stakeholders and develop emissions estimating methodologies. Numerous staff members from many divisions of U.S. EPA will be involved in the data analysis process and in synthesis of the final methodologies.

The methods used for the analyses are not written in stone. What these emissions estimation methodologies will look like is uncertain at this point. They may be a combination of approaches within a species and may differ between species. Perhaps the emissions estimation methodologies will be as simple as an emission factor times the number of head or more complex, allowing for greater site specificity.

Considerable discussion is continuing with stakeholders (EPA staff, animal industry representatives, scientists, concerned citizen groups, etc.) to identify how to quantify these data. EPA will be seeking input from the stakeholders on whether emission rates should be determined per head, per animal unit, per unit of production, or on some other basis.

Keep in mind, that potential management practices (mitigation measures) to reduce emissions may vary depending on the unit by which the emissions are expressed. One key factor is that EPA will have 18 months from May 1, 2010 to complete data analysis and publish emissions estimating methodologies.

Those who signed up as potential partici-



Map source: Presentation by Dr. Al Heber, slide 8 of 75, made at the National Agricultural Air Quality Task Force

Meeting May 2007 in San Diego, California.

pants in the NAEMS will have 60 to 120 days once the final emissions estimating methodologies are published to comply with any applicable requirements.

Producers will want to be engaged in the dialogue. The final outcome of this process may well have important management ramifications for dairy operators. Work through your trade associations, milk processor, and National Milk Producers' Federation to have your opinions heard.

For additional information on this topic there are numerous websites with information on this subject. The U.S. EPA website hosts links to pertinent related documents providing background information as well as links to the Federal Register at: <http://www.epa.gov/compliance/resources/agreements/caa/cafo-agr.html>.

Or you may go to the website on this project maintained by Dr. Al Heber at <http://www.agairquality.com/>

## Emissions permitting rule drawing closer in California

Volatile Organic Compounds (VOCs) were included in the NAEMS project because some can serve as catalysts to ozone formation at ground levels, and established ambient air quality standards exist for ground level ozone.

In California, the San Joaquin Valley Air Pollution Control District is in extreme non-attainment for ozone. Many industries have been required to have permits, and permitting large dairies and requiring implementation of management practices to reduce VOC emissions has occurred since 2006.

Once a permit is required, any modification to the facility that potentially alters emissions (either increasing them or relocating them from one permit unit to another) requires submission of an Authority to Construct application. Staff at the District then review the proposed modification and determines if changes in emissions may occur. Staff also identify if Best Available Control Technologies (BACT) are required for the project to proceed.

These calculations are done for each emissions unit (milking parlor, housing, manure storage, feed, etc.). A change in any permit unit is what is determined, not a net change in the facility. The original rule is

available at <http://www.valleyair.org/rules/currentrules/r4570.pdf>

Due to different methods of animal confinement and associated manure management, there is no typical dairy facility. Development of the original rule acknowledged that the design and operation of dairies varies from one facility to the next. Mitigation measures were identified for each of

the processes on farm: feed/feed storage, silage, milking parlor, animal housing (free stalls and corrals), solid/liquid waste handling, and land application. Operators selected a requisite number of practices from a menu of options.

Two changes are in progress for permitting dairies. The result will require almost all dairies within the District to obtain permits and implement management practices to reduce VOC emissions. Existing emissions factors are being modified based upon data collected from numerous California-based monitoring projects.

The second change is a reduction in the threshold above which a facility must obtain a permit. This reduction is due to the designation of extreme air quality.

In contrast to earlier research, the current information indicates that silage piles and placing feed in bunkers are a larger portion of total dairy emissions than solid and liquid manure handling. A public hearing for considering adopting amendments to Rule 4570 is tentatively scheduled for June 17 at the San Joaquin Air District office in Fresno. It will also be teleconferenced to District offices in Bakersfield and Salida to encourage participation.

Western Dairy News is published as a service to people interested in the health and welfare of the Western dairy industry. Archives of this publication may be found at:

<http://animalscience-extension.tamu.edu/dairy/wdn.html>

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