AGRICULTURE AND FEDERAL AIR QUALITY POLICY OUTLOOK

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I have been asked to speak to you on the outlook for federal air quality regulatory policies applicable to livestock and poultry producers. The good news about this talk is that I have a lot of policy "data" to deal with. The bad news is that this policy "data" indicates that there are multiple possible and significantly divergent paths that these federal policies could go down.

Despite all the policy uncertainty we face, there is one thing I can say for certain. Livestock and poultry producers will most definitely need effective, sound, practical and economical air emissions mitigation practices. For that reason alone, I applaud ISU for holding this important conference. And I also want to thank all of you, on behalf of agriculture, for your efforts now and in the future to develop economical emission mitigation tools. Please keep it up, and thanks to ISU for bringing attention to where we are now in developing these tools and helping us focus on where we need to go.

Currently, as you all know, livestock and poultry producer groups are actively engaged in the National Air Emissions Monitoring Study (NAEMS), an effort that is currently scheduled to be completed at the end of 2009. At the point of NAEMS completion, EPA will develop air emission factors or coefficients for use in either the federal Superfund air emissions program or possibly in some instances by states as part of the development and implementation of their State Implementation Plans (or SIPs) under the Clean Air Act (CAA). I also fully expect that the other non-NAEMS emission factor research that will have been done by this point for the broiler and turkey industries will also be used by EPA in their emission factor development efforts.

In terms of federal policy outlook, we should all expect that starting sometime in 2010 and possibly finishing in 2011; EPA will carry out an emission factor development process from the NAEMS and related data. That process is supposed to be open to substantive and extensive input and comment from the scientific community and other members of the public, and there is no reason at this point in time to expect that not to happen. I expect that there are several of you in this audience who could make a significant and meaningful contribution to how EPA turns the NAEMS and other data sets into emission factors, and I encourage you to take advantage of that opportunity if you can.

In addition to the post-NAEMS emission factor development work, there are five primary policy/regulatory issues or issue areas that I am going to be paying particular attention to over the next several months to a few years. These five issues or issue areas are:

1. EPA's possible final rulemaking dealing with excluding livestock and poultry producers from the air emission reporting requirements under CERCLA/EPCRA;
2. On-going regulation of livestock and poultry operations under the Clean Air Act in California in ozone non-attainment areas;
3. The implications for ammonia management from the CAA rulemaking completed in 2007 governing the development of SIPs for fine particulate matter (PM2.5);
4. The potential establishment of a secondary National Ambient Air Quality Standard (NAAQS) for all reactive forms of nitrogen (N); and lastly
5. Climate change legislation, with important possible implications for methane, and nitrous oxide emissions and management from livestock and poultry facilities.

These are discussed briefly below.

CERCLA/EPCRA RULEMAKING

EPA issued a proposal at the end of 2007 to exclude air emissions from poultry and livestock houses from the emergency reporting requirements of CERCLA/EPCRA – the federal Superfund laws. Some are treating this proposed rule as having a big environmental impact, but in my view this is hardly the case. That is in part apparent from the fact that this rulemaking is only tangentially relevant to the critical subject matter of this conference. These CERCLA/EPCRA requirements in question simply require reporting by these operations, and no mitigation of emissions is expected or called for. And nothing in EPA's proposal diminishes EPA's ability to require clean up or remedial actions on the part of these livestock operations, should EPA determine that is needed under CERCLA/EPCRA. Still, I offer these observations about this provision as it is very much in the news, deals with air emissions, and in many ways will be part of the tone or context to come in DC for consideration of what comes next in air emissions policy.

I am of the view that the chances are good that EPA will adopt this proposal in a final rulemaking before the end of 2008. It will be controversial as some key Democrats in Congress have called upon EPA not to adopt this in a final rule. But from EPA's perspective it makes absolute good sense. Reporting these emissions serves no practical purpose for the emergency response agencies, and in fact appears to represent costs and distractions from their important work that are worth avoiding. It certainly raises all kinds of questions of liability for CAFOs unrelated to actual environmental impacts or emergency response.

But the bottom line is that whatever you might think about these operations, the ammonia and hydrogen sulfide produced from the animals' manure does not represent an **emergency** health threat to the general public outside of the animal houses. As such, there will never be a local or state emergency response needed or called for as a result of these emissions. (Please see the comments submitted by the major livestock and poultry groups on this EPA proposed rule for a discussion of the literature on the likely concentration levels of these substances in the airspace outside these animal houses relative to the best known ambient air public health standards.) Furthermore, there is no mystery as to where these livestock and poultry operations are located, and no mystery as to the chemical content of these emissions from manure. CERCLA/EPCRA reporting of ammonia and hydrogen sulfide does not add in any meaningful way to this knowledge base for the general public or anyone else for that matter.

This is at its core a common sense proposal and I expect and hope that EPA will follow through on its adoption. But if they do so, it will be controversial in Congress, and if the next Administration is a Democratic one, there will be calls to rescind the rule. I am not convinced that will actually be done in that event. In 2009 and beyond there will be a great deal of more pressing work than the reporting of extraneous agricultural information to the Coast Guard, and a common sense position like this one could very well ultimately prevail. It is ironic that the CERCLA/EPCRA threat in the late 1990's of enforcing against CAFOs, and actual enforcement actions themselves, for failure to report these emissions has in part been the driving force behind the NAEMS work. The emissions factors generated as a result of NAEMS will add to our knowledge base and be important perhaps to environmental improvement efforts under the CAA, but there never was anything significant to be gained for the environment from the CERCLA/EPCRA reporting requirements.

CLEAN AIR ACT IMPLEMENTATION IN CALIFORNIA

Legislation adopted in 2003 in California ended an agricultural exemption from CAA permitting requirements for both major and minor sources. In addition to the general particulate matter requirements, Confined Animal Facilities (CAFs) would be required to install and use practices to reduce emissions of volatile organic compounds (VOCs), as these are considered precursors to ozone formation in the state's ozone nonattainment areas. These changes provided for enforceable rules and regulations applicable to agriculture and CAFs in particular. In the San Joaquin Valley, up to 1,100 CAFs were thought to be subject to the requirements to adopt Best Available Retrofit Control Technology (BARCT), and about 350 large CAFs subject to the permitting requirements. These requirements are quite detailed, as shown revealed in the checklist that the San Joaquin Air Pollution Control District provides to dairy operations to help them comply with these requirements. The checklist is not the actual permit, and the permit would be the document that specifies the final list of practices to be implemented for a particular operation.

Of course, the circumstances in California with respect to ozone non-attainment areas and agriculture's presence in these areas will not necessarily be the case in other states and regions. The CAA is sensible in that regard. It truly is supposed to be local air quality conditions that drive regulatory requirements, and where the conditions do not warrant it, regulatory requirements should not be imposed. But we can be confident that state air regulatory agencies across the US are watching the California experience with regulating the emissions from these agricultural operations, and will be seeking to learn from it for possible use in their programs. I encourage this community to pay attention as well to the practices being required and their utility in generating actual air quality benefits.

AMMONIA, PM FINE AND SIPS

In 2007, EPA issued a final rule governing how states are to address their responsibilities to develop State Implementation Plans (SIPs) for non-attainment areas under the 1997 PM2.5 NAAQS. Under that final rule, states are required to evaluate direct PM2.5 and SO2 for control measures in each area. Sources of NOx must be evaluated for control measures in each area as well, unless the state and EPA provide a technical demonstration showing that NOx emissions from sources in the State do not significantly contribute to PM2.5 concentrations in a specific area. Sources of VOC are not required to be evaluated for control measures in each area, unless the state or EPA provides a technical demonstration showing that VOC emissions from sources in the State significantly contribute to PM2.5 concentrations in a specific area.

Of particular interest to agriculture and the subject matter of this conference, under this SIP rulemaking EPA did **not** require sources of ammonia to be evaluated for control measures in each area, unless the state or EPA provides a technical demonstration showing that ammonia emissions from sources in the state significantly contribute to PM2.5 concentrations in a specific area. Given the levels of ammonia known to be emitted from many of our livestock facilities and likely association with certain non-

attainment areas, I would not be surprised if some states do not actively explore the linkages between our ammonia emissions and PM2.5 non-attainment. I would expect to see state proposals before EPA that certain SIP's include emission reduction measures from our facilities in some locations.

SECONDARY NAAQS FOR TOTAL REACTIVE NITROGEN (N)

This issue, along with the climate change issues discussed below, will likely be the subject of considerable scientific and policy discussion in years to come. It is part of a broader discussion happening in the environmental science community about the growing and pervasive presence of biologically and ecologically active forms of N, and developing calls for policies that diminish reactive N emissions into the environment. As agricultural scientists you understand just how enormous a challenge such a policy goal would represent. Human food production since the inception of agrarian societies has always depended on the addition of N to support crop and livestock systems. N is essential for crop and livestock production, and it is its very properties of mobility and reactivity that make it some biologically important to plant growth, and it is these same properties that create the associated environmental challenges. This is not going to change and there is always going to be large quantities of reactive N in our food production systems.

Relative to the subject matter of this conference, EPA's Integrated Reactive Nitrogen Committee, part of EPA's Science Advisory Board, has recommended that EPA establish a **secondary** NAAQS under the CAA for total reactive nitrogen, including ammonia, treating these as a criteria pollutant. A "secondary" standard is not a human health or "primary" NAAQS. A secondary standard focuses exclusively on welfare issues like effects on the natural environment, independent of any specific human health considerations. EPA faces enormous procedural and legal challenges in creating a stand-alone secondary reactive N standard.

If the next Administration is a Democratic one, I would not at all be surprised to see them try to create this secondary standard over the course of the next eight years. And once EPA initiates such a process, whether or not it succeeds, you can guarantee that the level of scrutiny that livestock and poultry ammonia air emissions will receive will increase by at least an order of magnitude, and a visible increase in the demand for affordable and effective ammonia emissions reductions practices. And if EPA succeeds in setting such a standard, the regulatory driven demand for such practices will be enormous. Either way, your help to develop such tools and methods will be needed.

CLIMATE CHANGE AND CH_4 AND N_2O

There is a widespread assumption in Washington DC, that in 2009 or 2010 Congress will pass and the President will sign climate change legislation with far reaching and implications fundamental to the operations of our economy. Whether one bill or several, and whether a Republican or Democrat sits in the White House, the thinking goes that such legislation is coming. While I share the view that legislative action is coming and that something will be signed into law, I am less certain about how far reaching and substantive that legislation will be.

There is dispute about the economic costs of intelligent green house gas (GHG) emission reductions, and some contend that over several decades it will only reduce economic growth a few percentage points relative to what would have occurred otherwise. I do not share that view and do not see how any aggressive and significant GHG reduction effort can do anything but impose serious and painful costs on our economy. If my view is correct, then as Congress and the President consider such legislation during what appears to be a time of a near (if not actual) economic recession, I imagine final legislation that is long on process and research and efforts, and less on enforceable reductions in GHG emissions. From agriculture's perspective, the critical issue is that even in this lighter, less aggressive form, the final climate change provisions will include significant incentives for agriculture to provide GHG offsets or credits. This should be on considerable interest to your research programs.

There is some question about how livestock agriculture will be treated in such legislation. Currently, the Lieberman-Warner climate change bill does not require GHG reductions from any part of production agriculture – crop, livestock or poultry. Instead, agriculture is being called upon to provide GHG reduction credits that the regulated industries (utilities and mobile sources) can use. These credits can be generated through carbon sequestration on crop land or the capture and destruction of methane or nitrous oxides that would otherwise be emitted as part of manure management practices. I do not ever expect crop agriculture to be a regulated industry under GHG legislation, but there are those that discuss requiring mandatory GHG reductions from livestock producers. I do not see that happening. All of agriculture, according to EPA, accounts for about 6.5% of the country's **total** GHG emissions. Given this fact and the obstacles in Congress to passing climate change legislation, I would expect practical members of Congress to find a way to have all of agriculture be an ally in support of legislation, and not a regulated entity seeking to stop it or diminish its effect.

The bottom line in my view is that whether we have legislation with aggressive or less aggressive, enforceable GHG reduction requirements, the legislation will look for ways to promote GHG emission reductions where significant and cost effective gains are possible. This is certainly the case for agriculture and livestock and poultry agriculture will have significant opportunities to

generate revenue through the capture, use or destruction of methane and nitrous oxides. As such, the challenge is there for this research community represented by you in the audience to help generate the practices and techniques that make such GHG reductions more cost effective or in some cases even possible. There are still a large number of practical or expensive considerations with the capture of methane from manure. We need those costs reduced and challenges solved. I have no idea even where to begin on N2O or how much of a challenge this represents. But N2O is 300 times more potent a GHG than CO2, and so significant opportunities exist if we can capture and destroy this, or render it less potent a GHG.

SUMMARY

I have always been of the view that it is the CAA that has the most significant, on the ground implications for livestock and poultry agriculture. Clearly, there are other concerns and opportunities, like those associated with GHG as discussed above. But the CAA is the most likely source of actual and relatively large dollar outlays for the adoption of emission reduction technology and practices. In terms of federal law, it will be the CAA, much more so than CERCLA/EPCRA that will drive the demand by farmers for the technologies and practices that are the subject of this conference.

We do have some time, though, and I hope we will use it wisely to develop and refine economical and effective emission reduction practices. We have time because policy makers will naturally want to see how NAEMS and the resulting emissions factors turn out and what we can learn from the NAEMS results in general. We also have time because the CAA is an extremely complicated statute, requiring famously detailed and Byzantine procedures for the development and implementation of policy. At multiple stages of this process the opportunities for lawsuits abound, increasing by an order of magnitude or two the uncertainties about what the statute will mean in practice at specific locations and at specific times across the country. And as in many similar instances involving aggressive and detailed federal law that utilizes state authorities and programs to put it into effect, there can be a wide divergence between what the statute can in theory make happen or require, the actual resources and will to make that theory a reality, and therefore what really does in fact occur. And the fact that all of livestock and poultry agriculture would be affected, as opposed to one sector (like was the initial case in the late 1990's with swine and water quality concerns) means that all of livestock agriculture will be engaged in this policy making process. That will likely make the process go more slowly and more carefully.

But we should make no mistake. Air quality considerations and practical, cost effective measures to mitigate our air emissions, are going to critically important to the future of livestock and poultry agriculture in the US. And for the foreseeable future, US livestock and poultry agriculture will be critical to the future of US feed grain and oilseed agriculture. Therefore, your work is more important than ever. Thank you very much for all that you have done to this point and please redouble your efforts to help agriculture deal with this important and critical challenge of improving their environmental performance through reductions in their air emissions.