

**Oregon Dairy Air Task Force**  
**Meeting # 7 – June 18, 2008**  
Agriculture Building Hearing Room (Basement)  
635 Capitol Street, NE  
Salem OR 97301-2532

**Meeting Notes**

**Task Force Members Present:**

Dan Bansen, Forest Glen Dairies  
Jeremiah Baumann, Environment Oregon  
Andy Ginsburg, DEQ Administrator  
Lisa Hanson, ODA Deputy Director  
Kendra Kimbirauskas, Friends of Family Farmers  
Betsy Johnson, State Senator  
Dr. Jim Males, OSU Department of Animal Science  
Dr. Jim Moore, OSU Professor Emeritus  
Marty Myers, Three Mile Canyon Farms  
David Nelson, State Senator  
Gail Shibley, ODHS Environmental Public Health Administrator  
Mark Wustenberg, Tillamook County Creamery Association

**Task Force Members Absent:**

Deborah Boone, State Representative  
Jackie Dingfelder, State Representative  
Dana Kaye, Oregon Chapter American Lung Association

**Presenters, appearing by phone:**

Jill Davidson, Ph.D., Dairy Production Systems, Oregon State University  
Tom Hack, Department of Environmental Quality

**Facilitator:** Sam Imperati, Institute *for* Conflict Management

**Others in Attendance:**

Tom Barrows, Three Mile Canyon Farms  
Len Bergstein, Three Mile Canyon Farms  
Roger Beyer, ODFA  
Carrie Ann Capp, DEQ  
David Collier, DEQ Air Quality Division  
Troy Downing, OSU Extension  
Melissa Egan, ICM  
Ray Jaendl, ODA  
Jim Krahn, ODFA  
Kathryn Higgs, ODFA  
Gregg Lande, DEQ  
Mitch Lies, Capital Press  
Wym Matthews, ODA CAFO Program  
Jeffrey Stocum, DEQ

## **Welcome, Announcements and Agenda Review – Sam Imperati**

Sam welcomed Task Force members, staff, and the public to the final Dairy Air Quality Task Force Meeting. Task Force introduced themselves and gave their affiliations. The Agenda for the day was to hear brief presentations from the folks who attended the Iowa Dairy Conference in May, then go over the final Report and the Technical Support Document (TSD).

Sam asked if there were any corrections to May's Meeting Notes. There was none. The May 2008 Meeting Notes were approved.

Sam also passed around the Charter to get remaining signatures. We are still missing Jackie Dingfelder's signature.

Sam suggested the following triage of issues to make sure we attend to the most critical items:

- ORS vs. OAR (Statutory implementation construct or Rule implementation construct)
- DACC/EQC enabling language (is this report enabling DAAC and EQC to do anything?)
- Recommendations
- Findings
- Conclusion
- Executive Summary

## **Guest Speakers Presentations on the “Mitigating Air Emissions from Animal Feeding Operations: Exploring the Advantages, Limitations, and Economics of Mitigation Technologies” conference in Des Moines, IA in May, 2008 – Jill Davidson and Tom Hack**

### **Jill Davidson, OSU.**

She is Assistant Professor at OSU, has a background in dairy, and has managed a research farm. She thanked the Task Force and agencies for supporting the trip, allowing her to go to the meeting.

She discussed:

1. Challenges to dairy systems
2. Finding the balance
3. Learning from European efforts

Dr. Davidson highlighted studies/talks from the conference:

Dr. Chase, Cornell University, “Methane Emissions for Dairy Cattle.” His work parallels what producers are already thinking about for their own productivity

Ration formulation:	high forage diets increase methane low quality forage diets increase methane
Implications for Oregon:	pasture, grass-based systems
Implications for all ruminants:	escalation costs of grain, risk of by-products feeds affecting ammonia, hydrogen sulfides, or phosphorous balance

Dr. Ndegwa, Washington State University, “A Review of Ammonia Emissions Mitigation Techniques for Concentrated Animal Feeding Operations”

first line of defense is for producers is to optimize diets for N utilization

Dr. Mukhtar, Texas A&M University – his 95% confidence level was a “huge range;” therefore, within a given farm, measures were highly variable. From both regulatory and mitigation standpoints, in Davidson’s view, this means we do not have the numbers to create targets at this point.

Research from Europe:

Dr. Ogink, Wageningen University, the Netherlands. In their research, they have found huge variation when testing emissions, 30-40%. In an attempt to address this, they employed a multi-site sampling approach, like the NAEMS study.

Implications:

Nutritional program of dairies

High forage diets (pasture), or low quality ⇒ increase methane

Balance dietary protein ⇒ reduce ammonia

Determination of Emissions Factors and Mitigation Strategies

Limitations of control laboratory data

High variation within and among farms limits accuracy of measurements

In addition, she reported that Dr. Mitloehner’s method were controversial among scientists at the conference.

*Andy Ginsburg:* re: Dr. Chase’s methane numbers, there is a lot of variability and uncertainty, did he mention anything to explain why this is the case?

*Jill Davidson:* he used nutrition models, supported with laboratory feeding studies that look at ruminant functions.

*Andy Ginsburg:* he asks because later on today, we will be discussing how to characterize this. We know estimates are not accurate for any given farm, and so we are limited in what conclusions can we draw. Based on what you heard at the conference, going back to ammonia, can we say that it is emitted and should be a focus of this program?

*Jill Davidson:* yes, agrees you are facing those challenges re: standardization of procedures. They were also trying to come up with a plan in the Netherlands. She does not think it should be ignored on a dairy operation, but we do not fully understand the landscape and impacts. We have some gut feelings on it, but not all the data to put the pieces together. Producers will start with the most cost-effective. Concerning nitrogen and carbon sources, they will want to apply BMPs for efficiency. We do not have sufficiently accurate emission factors upon which to base regulations.

*Lisa Hanson:* can you explain the implications of a pasture-based system?

*Jill Davidson:* pasture-based produces higher emissions than traditional CAFOs. Because of costs associated with grain, dairies will be doing a higher percentage of pasture feeding. We may have to think about using different feed. An alfalfa vs. grass study with beef cattle did reveal higher emissions.

*David Nelson:* Dr. Davidson, you mentioned “we are not going to get to zero” emissions, and we do not really know what the threshold is either, so how do we determine what is healthy?

*Jill Davidson:* we are waiting for the NAEMS results. When you look at an airshed, how do you separate individual entities and figure out who is having the most negative influence? She thinks the NAEMS has dairies spread out, does not know if there are enough, but at least we will have some new data.

*Mark Wustenberg:* question re: greenhouse gases.

*Jill Davidson:* no one made that connection with their modeling; you are talking a more systems approach.

*Tom Hack:* interestingly, a lot of the methane that is generated comes from the food before it is digested.

### **Tom Hack, DEQ, comments on Iowa Conference**

His main interests were the presentations concerning greenhouse gases. The biofilters aspect of animal operations was the most interesting to him. They did measurements before and after, showing that greenhouse gases were reduced. The studies were on swine and other animals, but in his view, the use of biofilters could be applicable to dairies. There was also use of enzymes that was interesting to him. The presenters did not get into the economics of any of this, but the science behind it looks good.

The covered pond technique also seemed to reduce the greenhouse gases. Some of the process worked well and some did not. From what he got out of the study, he sees that scraping versus flushing manure addressed greenhouse gases.

*Jill Davidson:* yes, and it also causes more ammonia volatilization, so again, there are no magic bullets.

*Sam Imperati:* asked Kendra if she had anything to add, since she was the only Task Force member who attended the Iowa conference.

*Kendra Kimbirauskas:* the discussion has evolved a lot over the years. It used to be that the industry was saying, "There is no problem here," now they put on this conference to discuss what to do about emissions. Kendra commends the dairy industry for moving forward. Concerning the theme of environmental trade-offs, a student of Dr. Mitloehner is giving dairy cows antibiotics that lessen emissions. While we share that as a goal, you have to look at the consumer side of things and ask do we want to go that route? She appreciated the opportunity to go.

### **Public Comment**

*Jim Krahn:* in the Findings section, wants to be sure to discuss section F. Quantifying Emissions.

### **Task Force Discussion: Finalize Report**

*Sam Imperati:* the de-facto Policy Subcommittee met twice since our last meeting. This report is the third or fourth iteration. The attendees were Mark, Kendra, Jeremiah (one meeting), Lisa, Andy (last meeting), David Collier (one meeting), and Greg Lande (one meeting). The draft you have is a compilation of all this work and edits. The question now is on the Recommendation section, IV. Section A, re: ORS vs. OAR (Statutory implementation construct or Rule implementation construct).

*Betsy Johnson:* with a statute, you know exactly what you are getting; rules are not quite as public a process. To attempt to put something in statute, you have the vicissitudes of the legislature to deal with, which should impact the work of this Task Force. Rules, you have to rely on the good will of the agency.

*Marty Myers:* agrees whole-heartedly with Betsy, prefers a statute rather than a rule.

*Betsy Johnson:* the caveat is the bill passed rarely is the same as the original.

*David Nelson:* concerned about giving authority to agencies that people do not trust.

*Andy Ginsburg:* while what everyone said is true in the normal case, there is a twist in this scenario that leads him to the opposite conclusion. SB 235 gives us authority to adopt what comes out of this Task Force, so unlike normal, this task force could basically dictate to the commission what to do. If we go to the Legislature, as Betsy said, we will start with a legislative concept and it will be amended and changed. This Task Force has a lot more control over the outcome.

*Betsy Johnson:* let us assume Andy's argument is persuasive. What kind of mechanism could this Task Force build in around recommendations to prevent agencies going into rule writing immediately?

*Andy Ginsburg:* our tax credit recommendations cannot be done by rule, so that would have to be done by the Legislature. The way it is laid out, right after 2009 session, dairies who adopt BMPs would be eligible for tax credits still under the voluntary program.

*Sam Imperati:* we need to address Betsy's question, what language could we put in there that assures the intentions of the Task Force are carried out?

*Andy Ginsburg:* the limitations are already in the statute.

*Lisa Hanson:* but how do you fold in the public process?

*Andy Ginsburg:* talked to Department of Justice this morning, asking them about what kind of power the Task Force can give to the Dairy Air Advisory Committee (DAAC). The report says it is a BMP program. The way we write this is very important. We can control how much flexibility we give to the Commission so they adopt a BMP approach.

*Betsy Johnson:* we need a record that clearly delineates the intent of the Task Force so there is something to go back to and prevent any substantial deviation.

*Sam Imperati:* that is exactly what we tried to accomplish in the subcommittee.

*Andy Ginsburg:* when we submit this to the Commission, we have to explain how we got authority based on SB 235.

*David Nelson:* in 2015, targets become mandatory, but it depends on tax credits. That bothers him. Are we making the situation worse? This Task Force will have a lot of credibility; he has great concerns about making things mandatory.

*Andy Ginsburg:* refers the group to page 11 of the draft report, Item 5 under Guiding Principles. The BMP program will be modeled after the CAFO program. Among other things, it provides

protection for industry from lawsuits. It is intended to be something we continue to modify as the science gets better. Timing is supposed to line up with NAEMS study.

*Jeremiah Baumann:* the mandatory v. voluntary question is something that the Task Force has struggled with. He feels like what we have come up with is a pretty good balance, especially since there are many off-ramps before 2015 to change directions, if necessary.

*Sam Imperati:* question: let us assume this Task Force creates assurance that EQC does what you want it to do. How is that different from the legislative process? What piece of report will be in legislation and what would they normally send to the agency to implement? He is suggesting that much of what we are grappling with normally is sent to the agency to implement anyway. Betsy, David, what is your sense of this?

*David Nelson:* unintended consequences are probably going to be bad. Look at the ethics issue – we lost 200 people. Third party lawsuits seem to be driving a lot of this, which makes him mad. Still thinks we have not even identified a problem.

*Betsy Johnson:* flexibility rule to adopt new science, likes that, wants to be responsive to new science. There is uncertainty on both sides of this issue. If we can achieve some sort of certainty and avoid lawsuits, that is good for everyone. She wants to be sure dairy industry is not gratuitously sued.

*Sam Imperati:* to refocus - whatever it is we do, is it by legislation or administrative rule?

*Lisa Hanson:* anything we do is an unfunded mandate for ODA. That said, what about an oversight mechanism added to the language about resources.

*Betsy Johnson:* you could have the same problem with legislative action – go forth and do, and here is no money!

*Andy Ginsburg:* the way the schedule lays out, the first rulemaking is only that the Task Force sets up the DAAC, which meets for two years, and figures out BMPs to recommend later. The only thing adopted are the voluntary targets.

*Jeremiah Baumann:* agrees with Senator Johnson. The administrative route gives the most control to the Task Force. As soon as we open up a legislative debate, then we are losing some of the progress we have made.

*Betsy Johnson:* worries about less transparent lobbying occurring. She is rapidly talking herself into rule.

*Sam Imperati:* it is somewhat ironic in this setting that the common wisdom is set on its head with this particular process.

*Betsy Johnson:* what would notification process be for revisiting this rule?

*Andy Ginsburg:* you mean later down the road? Process would start with DAAC, which is a public process. Recommendations would come forward to agencies, then be sent out to the mailing list, and then the Commission would adopt through normal administrative rule process.

*Sam Imperati:* administrative procedures dictate this.

*Betsy Johnson:* that is what she was looking for, she has seen rules done in the open and behind closed doors. Andy's comments reassure her.

*Marty Myers:* can Andy explain selection process for DAAC?

*Andy Ginsburg:* (page 13, section D) It says we want a balanced committee, agencies nominate some members. We can get more specific if we need to.

*Sam Imperati:* is your concern, who would be making the appointments?

*Marty Myers:* that, and the element of trust that has been developed in this Task Force. Would like some of our Task Force members on the committee, we have a knowledge base that should not be lost.

*Kendra Kimbirauskas:* agrees.

*Andy Ginsburg:* for continuity, that makes sense.

*Sam Imperati:* when we get to that section, we can work on adding some language. We could go to the level of specificity similar to the SB 235 if that is what folks want.

*Andy Ginsburg:* as a model, we have an air toxics committee. That selection process has worked really well. We have had high support from industry and environmental community.

*David Nelson:* has a concern with "public interest" in section D 1. For this case, it is the environmental interests, right? From the legislative standpoint, that may not be "public," it could be to preserve family farms.

**Vote 1:** on ORS vs. OAR - will the Task Force recommend a statutory implementation construct or a rule implementation construct?

**Result:** 9 voted 1 (Bansen, Baumann, Ginsburg, Kimbirauskas, Johnson, Males, Moore, Nelson, Shibley, Wustenberg), 2 voted 2 (Hanson, Myers), and 1 voted 3 (Nelson)

Next topic: DACC/EQC enabling language (is this report enabling DAAC and EQC to do anything?)

*Sam Imperati:* this report will become an enabling mechanism for the EQC. This Task Force recommendation is to recommend that the EQC implement the program. What is going on here re: structure, also decide what authority you want to give the DAAC.

## **BREAK**

As the discussion continued, Sam had the Draft Report text on the screen and edited during the conversation.

*Sam Imperati:* an issue that has come up repeatedly is, "should adopt" vs. "shall adopt." The theory is that recommendations come in the form of "should." On the other hand, the concern is that "shall" is stronger language. If we want more clarity to ensure that our intent is pristine, we may want the stronger language.

*Andy Ginsburg:* what about "may adopt?" You are right, Sam, this is an advisory body. He would add "as a whole" at the end. Thus, the choices are adopt as a whole or do not adopt at all.

*Betsy Johnson:* you are making me happier and happier!

*Sam Imperati:* any objections to "as a whole".

*Andy Ginsburg:* Len Bergstein reminded Andy of the "in its discretion" piece, that means they have to have the ability to not adopt.

*Jeremiah Baumann:* "may" v. "should" is the more important discussion than "adopt" v. "implement."

*Sam Imperati:* add, "strongly recommends?"

*Andy Ginsburg:* the construct of the statute is telling the Commission that they need to adopt the program.

*Sam Imperati:* may is permissive; should is consistent with a recommendation; shall is do it.

*Jeremiah Baumann:* it does not really matter which word we use.

**Vote 2:** "should" as operative language and intent

**Result:** 10 voted 1 (Bansen, Ginsburg, Kimbirauskas, Hanson, Johnson, Males, Moore, Myers Nelson, Shibley, Wustenberg), 1 voted 2 (Baumann), and 1 voted 3 (Nelson)

*Sam Imperati:* EQC, language to give authority. Authorizing the DAAC to do what it needs to do. Thinks this language is duplicative, we are trying to say things just once. There will be inferences if you say it in a few places, but not others. If it is just said once, in the right place, it will be clearer.

*Gail Shibley:* thinks Sam's point is really important. Can we add a sentence under Program Development?

*Sam Imperati:* added, "The program consists of and it guided by this Recommendation section."

*Gail Shibley:* suggested new phrasing for Guiding Principles. Also, wants to add what may be a new substantive Guiding Principle re: recognizing that adequate implementation of the program requires additional resources.

*Sam Imperati:* that issue is mentioned in Principle 7.

*Sam Imperati:* "strongly recommends" language, do folks have any problems with removing it? We are wordsmithing to ensure EQC does what we want it to do, and not what we do not want it to do.

*Jeremiah Baumann:* it is illegal for them to do otherwise.

*Jim Krahn:* is in favor of not changing the language, this is what we agreed to in the subcommittee.

*Jim Males:* you can leave "strongly recommends" in the language.

*Sam Imperati:* took a vote on the new text.

**Vote 3:** on above suggested language changes

**Result:** 12 voted 1 (Bansen, Baumann, Ginsburg, Kimbirauskas, Hanson, Johnson, Males, Moore, Myers, Nelson, Shibley, Wustenberg)

*Sam Imperati:* focused discussion on the question of the DAAC's authority.

*Andy Ginsburg:* this Task Force has broad authority and we cannot give the Commission equally broad authority. The Task Force has to set the bookends, the balance of authority. We can leave the details to the Commission, based on the advice of the DAAC, but it cannot dictate anything outside the bounds of this Task Force. That is the distinction between these two bodies.

*Sam Imperati:* went over the section of the report that outlines the current set up of the DAAC (pages 13-14). We are attempting to authorize and simultaneously constrain authority. Did we do that to your satisfaction?

*Gail Shibley:* question for clarification on D.3.

*Andy Ginsburg:* we were trying to elaborate on the details that are not in the Recommendations.

*Sam Imperati:* have we added enough language to deal with authorizing and constraining what you want and do not want DAAC to do?

*All:* yes.

*Sam Imperati:* now moving on to Recommendations section. The first change appears on page 11, re: reducing ammonia, methanol, and odors.

*Andy Ginsburg:* suggested new language (changing placement of "initial" in item 1).

*Andy Ginsburg:* do we want to have the "goals" v. "targets" conversation?

*Jeremiah Baumann:* question for clarification. Wondering what the problem we are trying to solve? Is someone concerned that we are trying to establish numerical targets?

*Kendra Kimbirauskas:* when we initially worded this in subcommittee, we were talking about directing the DAAC.

*Mark Wustenberg:* just take "goal" out.

*Andy Ginsburg:* Mark's right, it is confusing otherwise.

*Sam Imperati:* we have the concept of "adequate resources to move from Phase I to Phase II" in two places, it might be good to have it in just one, as this is designed to be an integrated document.

*All:* comfortable with leaving it as it.

*Sam Imperati:* moving to section C, Program Elements.

*Marty Myers:* would like clarification on B, Targets.

*Andy Ginsburg:* in Phase I, we are encouraging operations to voluntarily implement BMPs to gain tax credits. In Phase II, the targets are mandatory.

*Lisa Hanson:* it is not about a counting thing, like the Idaho or California approach.

*Andy Ginsburg:* exactly, since we did not specify the approach.

*Marty Myers:* was confused upon reading it whether you mean Emission Factor targets or BMP targets. It makes more sense now.

*Andy Ginsburg:* we could add “BMP” for clarity.

*Marty Myers:* good.

*Andy Ginsburg:* in the subcommittee, the timing became an issue. We form the DAAC in the last part of 2009, it is going to take them a year or two to come up with recommendations. So how is ODA going to go out and do an initial baseline survey? We all agree it is important to get an initial BMP survey. We decided to create an interim list of BMPs just to allow them to do the survey, working with the pre-cursor that will become the DAAC. This is already in the schedule. Thinks it is a good addition to add to Program Elements. The list will be refined by the DAAC, and yes – it is an unfunded mandate, but it has to be done. It is the only way he could think to deal with the chicken and egg problem.

*Kendra Kimbirauskas:* re: to “may change” from “should increase” re: funding in Item 5. It was originally put there to give the legislature strong language.

*Andy Ginsburg:* he is fine with the change because the funding part is well explained in the schedule.

*Lisa Hanson:* re: #6, tax incentives.

*Andy Ginsburg:* thinks we should just focus tax credits in Phase I, we can ask that they can be reauthorized later.

*Kendra Kimbirauskas:* are you saying we do not need to mention the Phase II process?

*Andy Ginsburg:* the way we laid it out, there will not be tax credits in Phase II.

*Kendra Kimbirauskas:* in Phase II, those dairies that go above and beyond should be rewarded with tax credits.

*Andy Ginsburg:* suggested language re: asking for “reauthorizing beyond five years for those dairies that go beyond the minimum requirement.”

*Sam Imperati:* #6, language accepted.

*Sam Imperati:* #8 was significantly edited. (He read the original text).

*Lisa Hanson:* explained her edits, noting that she moved text around for clarity and added “annual.”

*Jim Krahn:* they were simplifying text, thought it was repetitive.

*Andy Ginsburg:* wants it to be clear that ODA is the lead implementing agency. As a Task Force, we need to tell our story, and if ODA is doing inspections, they should also do reports.

*Jeremiah Baumann:* does not disagree, wonders if it is redundant.

*Sam Imperati:* what do you want, then where does it go?

*Jeremiah Baumann:* if the principle for this edit is redundancy, Jim, can you explain where?

*Andy Ginsburg:* is there something in there that you do not want done?

*Jim Krahn:* no.

Sam replaced the deleted text and the group went through what they want in there.

*Andy Ginsburg:* does not seem like its redundant, it seems like good detail, and especially since ODFA is not against anything in there, he is in support of leaving it with Lisa's edit.

*Gail Shibley:* suggested language.

Language accepted.

*Andy Ginsburg:* separate from SB 235, we were instructed to have a Memorandum of Understanding (MOU) re: air requirements. In that, ODA has the lead in implementation. From the EPA we got comments that EPA would need to approve the program. This will be clarified in the MOU.

*Wym Matthews:* this falls along the lines of the CAFO program, a 3-way MOU.

*Sam Imperati:* re: Dairy Air Advisory Committee. Because the DAAC is going to become important in this, the composition piece is important.

*Andy Ginsburg:* suggested Task Force members be considered for membership for continuity purposes.

*Kendra Kimbirauskas:* explained she added "public interest" because some of her folks would never consider themselves to be environmentalists.

*Sam Imperati:* the concern on both sides is the committee being stacked on one side or another.

*Betsy Johnson:* this is a big issue in the legislature re: composition of advisory groups. Thinks the term "public interest" brings up a lot of connotations.

*Jeremiah Baumann:* suggested language, adding "and the public."

*Betsy Johnson:* you make those mandatory seats.

*Sam Imperati:* yes, that is what we are saying. If we are getting to that level of specificity, you have to start counting noses. If we are doing assigned seating, you have to look at it to be sure it is balanced.

*Kendra Kimbirauskas:* you also have to make sure there are technical people and policy people.

*Sam Imperati:* This could be the committee that could create subcommittees with the technical people. Betsy's question is important – do you want assigned seating or not?

*Jim Moore:* is it possible to just say something about how the appointments should be made?

*Jim Krahn:* you do not want eighty people on it and you do want people with knowledge and background in the dairy industry.

*Jeremiah Baumann:* suggested language, adding “with knowledge of the dairy industry, such as....”

*Sam Imperati:* this language leaves it to the good graces of the agencies.

*Jim Krahn:* thinks there is enough trust here with ODA, DEQ and environmental community to create a balanced committee.

*Sam Imperati:* pointed out the difference between “equal” and “balanced.”

*Andy Ginsburg:* moves to accept as written.

*Marty Myers:* seconds.

**Vote 4:** language regarding DAAC, as discussed above

**Result:** 11 voted 1 (Bansen, Baumann, Ginsburg, Hanson, Johnson, Males, Moore, Myers, Nelson, Shibley, Wustenberg), 1 voted 2 (Kimbiraskas)

*Andy Ginsburg:* questions re: d) “Phase I and II BMP targets for each tier and emission type.”

*Jim Moore:* to get to what Andy is talking about, do you want to have BMPs?

*Andy Ginsburg:* was picturing that the DAAC's conversation would be getting a whole list of BMPs and they will all be evaluated for their impact on each emission type.

*Jeremiah Baumann:* suggested language.

*Sam Imperati:* We have made great progress. What is left is Overall Program Resources and Schedule; then we will go back to the Findings and Conclusion sections.

*Jeremiah Baumann:* has to leave, wants to communicate his support for the document. Feels a lot of good work has been done and that the product is balanced. Is there anything he will need to do after this meeting?

*Sam Imperati:* will send out a final edit, having been reviewed for grammar, style, and references. Should he send it to Mark and Jeremiah, the Co-Chairs, or does everyone want it?

*Betsy Johnson:* motions for Jeremiah and Mark giving final approval.

*All:* agreed.

**Break**

## **Lunch**

### **Reconvene**

*Sam Imperati:* on the “Overall Program Resources” section, he received no edits.

*Gail Shibley:* move for approval.

*All:* approved.

*Sam Imperati:* Andy took a stab at creating Section F, the Overall Recommended Program Structure, Staging, and Funding Summary.

*Andy Ginsburg:* tried to take everything, pare it down, and make a clear timeline and set of recommendations. See the chart on page 14.

*Lisa Hanson:* it currently has ODA and DEQ creating the initial list of BMPs. She thinks it might be a good idea to shift to OSU, since they have done so much work in this area.

*Andy Ginsburg:* his idea would be that we would use their work, but it should not be a non-governmental agency as the agency being responsible.

*Sam Imperati:* suggested language, edits approved.

*Betsy Johnson:* does not know what the language should be, but wants to reinforce that this needs to be in the Governor’s budget.

*Gail Shibley:* there is a placeholder for a Policy Option Package (POP).

*Betsy Johnson:* if you think it is covered, she is fine with it. She just does not want to miss an opportunity.

*Sam Imperati:* this report goes to ODA and DEQ, then thorough the legislature. If we get negative reaction from the legislature, do we want to have the Task Force reconvene if we need to further futz with the document?

Yes.

*Sam Imperati:* noted that a late addition to the document was “and develop capacity for air monitoring.”

*Andy Ginsburg:* if we do not have capabilities for monitoring, we cannot adequately address problems that come up.

*Mark Wustenberg:* it would be used in specific instances?

*Andy Ginsburg:* we might want to do some monitoring in the community to see if there is ambient ammonia.

*Mark Wustenberg:* do you have something to compare those to, to determine if its good or bad?

*Gregg Lande:* yes. We have annual average numbers from our air toxicology program.

*Betsy Johnson:* as a budget writer, this feels like a sneaky way to get a piece of equipment.

*Andy Ginsburg:* we are requesting this in our agency budget.

*Betsy Johnson:* then ask for it there.

*Jim Moore:* 2009, there's a \$500K request for R&D for development for BMPs

*Andy Ginsburg:* that is separate, something ODFA wanted to improve the state of knowledge of BMPs that are applicable for the state of Oregon. That is different from monitoring, which is to get the levels of ambient emissions.

*Jim Moore:* looks like you are asking for money for the same thing.

*Gregg Lande:* suggested putting in "ambient."

*Marty Myers:* we have gone through a whole process agreeing that there is a voluntary BMP program, and now all of a sudden there is a monitoring element. We have not discussed or agreed to any type of monitoring.

*Andy Ginsburg:* we can take it out, but is a little surprised at the reaction. Ambient monitoring is crucial to further developing the science, which seems to be everyone's goal.

*Gail Shibley:* fully supports ambient monitoring. As a public health official, she is repeatedly called upon to make decisions or respond to issues with no data. Early on, we talked over and over about the data gaps. Does not see this as being a red flag or opposite from this issues that have already been raised.

*Sam Imperati:* what is the fear around ambient monitoring?

*Mark Wustenberg:* has no specific fears about monitoring, but has concern about it being directly connected or attributed to the dairy industry.

*Andy Ginsburg:* talked with Jim about Gorge air studies and ammonia. If you want better emission factors and data re: the relative contributions of dairy to other emitters, then you have to monitor. It is part of a broader effort, and he did not intend to make a statement about the industry.

*Mark Wustenberg:* if you came to us asking if we would support gathering more data, it is likely we would have said yes - but not as part of this Task Force.

*Troy Downing:* wonders if Andy knows about USGS and what they are doing on ambient monitoring?

*Gregg Lande:* this might go back to the Gorge studies.

*Troy Downing:* they show change in ammonia at certain sites.

*Sam Imperati:* it is already in DEQ's budget request, and for transparency's sake, it is good this info came out, but if we agree it is not necessary for this document/program, then perhaps it should be taken out.

*Betsy Johnson:* agrees. Imbedding that request in this report goes outside what this Task Force has worked on.

*Andy Ginsburg:* is completely fine with taking it out.

*Kendra Kimbirauskas:* it is important to have some baseline data. If we go back to the legislature later with no data, it will be hard to prove that the program is doing well. We need to make this connection somehow. She is struggling with it.

*Betsy Johnson:* we are not saying that, not trying to upset the balance. What were talking about is the agency buying and operating a piece of equipment. They can still do that.

*Kendra Kimbirauskas:* fair enough.

Sam led the group in editing the “Late 2009” section, need to clarify the membership/structure issue between EQC and ODA/DEQ; also the responsibility for administering tax credits.

*Andy Ginsburg:* not requesting resources for OSU, is that how we want to leave it?

*Marty Myers:* we have the \$500K for R&D above.

*Jim Males:* it is fine with us, as is.

*Sam Imperati:* Jim Krahn, did you add two other requests for \$500K in 2011 and 2013.

*Jim Krahn:* yes, it has to be on-going.

*Sam Imperati:* on to Findings.

The edits were largely grammar and clarity. Based on Marty’s suggestion, Lisa will come up with language indicating the support of the CAFO program, that it is a national leader in protecting the environment. The Task Force wants it in the report so the legislature knows that it is a good model to follow in creating and implementing such as system.

Discussion continued on section D, Human Health Impacts and CAFOs.

*Marty Myers:* it was in response to a union organization effort, NIOSH came out and inspected, monitored with sniffers, and came to the conclusions that we were well within safe levels for worker health. Marty wants it to be known that ThreeMile Canyon Farms have gone through a study and are fine.

*Gail Shibley:* feels strongly that throughout this document, we are staying away from identifying individual studies and research reports. We did a good and consistent job of putting all that in the TSD. Does not know the details of what happened at TMCF, and she wants the info in there, but it belongs in the Appendix with all the other research.

*Kendra Kimbirauskas:* agrees.

*Marty Myers:* he then thinks we need stronger language to say that there is no evidence to say that we are impacting human health.

*Gail Shibley:* she reads it differently. The overall thesis statement of this section is that “there is very sparse research regarding human health...”

*Jim Moore:* agrees. Therefore, do we take this further in other sections?

*Andy Ginsburg:* the NIOSH study is in the TSD, and we agreed that the summary Report would be a summary at a high level. Sees Marty’s point that the language could lead a reader to imply that there are negative health impacts but we do not know. Sam has suggested language might help with this.

*Mark Wustenberg:* when he reads it, as a medical person, whenever you list a whole set of symptoms, that is what people have. You might want to put the symptoms in the Appendix, too.

*Lisa Hanson:* agrees with Mark. In the subcommittee, they struggled with how to make this work in a general way and make it less alarming.

*David Nelson:* has trouble with “Theoretically, the following can be said:” Theoretically, anything can be said! He does not like this text at all.

*Mark Wustenberg:* there are lawsuits going on with health related effects. For all practical purposes, they are being done to get people to mitigate odor issues. It is very important for us to understand health impacts going forward. It may be a way, an in-road, for folks to get things done on dairies.

*David Nelson:* we need a statement saying we do need more studies. We are not going to impact the big dairies. They will take care of it. It is the small ones I am worried about it.

*Andy Ginsburg:* wants to check in to see if we really have a disagreement.

- 1) sparse research
- 2) data gap
- 3) pollutants in an of themselves have health effects, but we do not know if the concentrations on dairies have any impacts

Does anyone disagree with this?

*Sam Imperati:* what are you trying to accomplish? We all agree with the points Andy made above. Marty’s group just wants people to know they passed. The other side wants to make sure health risks are not overlooked.

*Marty Myers:* the enclosed swine facilities have been associated with harmful effects on workers.

*Sam Imperati:* we had some better language before, explaining the difference between swine (closed) and dairy (open).

*Gail Shibley:* she likes pointing out that we need “dairy-specific” data; it is easy to conflate CAFOs.

*Jim Krahn:* why don’t you just take out the reference to swine? We have in all other places in the report.

Further discussion and editing ensued.

*Lisa Hanson:* in the following paragraph, she wonders why we put in the list.

*Gail Shibley:* outside the public health world, people do not speak in terms of “acute” and “chronic.” The list is in there just to make sure it is clear what the difference is between the potential health impacts.

*Andy Ginsburg:* suggested putting in qualifiers – “acute (immediate) or chronic (long-term)”

The group worked on the first paragraph.

*Betsy Johnson:* question for clarification re: odor changing behavior? What does this mean?

*David Nelson:* we are only looking at the negatives, what about the positives from working outside and being happy?

*Mark Wustenberg:* thinks Gail’s point is important. We want to get to the point that we can say, from the industry, that you may smell odors, but its not bad for your health. If our convictions are so strong, then we should just let them look at it.

Sam continued writing suggested language during the discussion.

*Gail Shibley:* we can change it to “Potential Risks,” instead of “Impacts.” This better articulates the recognizable concerns about risk. We do not have the data for anything other than that.

*Jim Krahn:* feels the first paragraph covers everything and that 1, 2, and 3 are too specific and will, in people’s minds, create issues.

**Vote 5:** on Human Health Section text, as is, with 1, 2, 3.

**Result:** 6 voted 1 (Bansen, Hanson, Kimbirauskas, Johnson, Myers, Shibley), 4 voted 2 (Ginsburg, Males, Moore, Wustenberg), 1 voted 3 (Nelson)

*Sam Imperati:* what would it take for 2s to get to 1?

*Andy Ginsburg:* restructure for grammar.

*Jim Moore:* is there a section in the TSD? If so, then this is ok.

*Sam Imperati:* that raises an interesting point about cross-referencing.

*Gail Shibley:* None!

*All:* agree, none.

*Sam Imperati:* David, please explain your 3.

*David Nelson:* wants it more generic. With the mentions of worker health, community health, and odors in the text, not as bullet points.

Betsy Johnson had to leave the meeting. She is fine with David’s edits, and fine with the Report.

**Vote 6:** on Human Health text editing as above, removing 1, 2, 3, incorporating key sentences in the body of the paragraph

**Result:** 8 voted 1 (Bansen, Hanson, Johnson, Males, Moore, Myers, Shibley, Wustenberg), 1 voted 2 (Kimbiraskas), 1 voted 3 (Nelson), Ginsburg did not vote, stepped out of room

*Gail Shibley:* voting 3. She has concerns that we have slimmed down the public health section so much, she has spent so much agency time, and it has not turned out to be a big priority.

*Mark Wustenberg:* that is not his intention at all, and not the Task Force's intention, to make it seem that public health is not important.

*Gail Shibley:* taking the 1,2 3 away seems to take the structure away. Likes to have it stand out better visually.

*Jim Males:* is in support of leaving the two sentences in after worker health and community health. It is important to note that those are the two groups are the most impacted by dairy operations.

*David Nelson:* does not think they should be in there. We are all impacted by car emissions.

*Mark Wustenberg:* that is not the same.

*Jim Moore:* bothered by "odors cause change in behavior." Suggests, perhaps "elevated"... something about level and duration.

*Lisa Hanson:* remove reference to H<sub>2</sub>S in 1<sup>st</sup> paragraph

**Vote 7:** Health paragraph with exclusion of H<sub>2</sub>S

**Result:** "mostly twos" (*this one went too quickly for the note-taker*)

**Vote 8:** Health paragraph with exclusion of H<sub>2</sub>S and additional edits

**Result:** 10 voted 1 (Bansen, Ginsburg, Hanson, Kimbiraskas, Males, Moore, Myers, Nelson, Shibley, Wustenberg)

*Sam Imperati:* moving on to Quantify in Emissions from Oregon Dairies.

*Andy Ginsburg:* their reasoning is that the emission factors we use now are general; we do not have NAEMS yet. Do not have issue with the concept but the wording was inadequate. The resulting wording is ok with DEQ and ODFA.

**Vote 9:** on using the term "measurable"

**Result:** 8 voted 1 (Bansen, Ginsburg, Hanson, Males, Myers, Nelson, Shibley, Wustenberg), 2 voted 3 (Kimbiraskas, Moore)

Further discussion on the paragraph.

**Vote 10:** accepting paragraph as edited, "notable" emissions

**Result:** 10 voted 1 (Bansen, Ginsburg, Hanson, Kimbiraskas, Males, Moore, Myers, Nelson, Shibley, Wustenberg)

*Jim Moore:* in section E, Environmental Impacts. Mention of public or worker health problems is redundant.

*All:* agreed. Strike it.

*Sam Imperati:* last paragraphs, discussing NAEMS. New info from Jill Davidson, does that change anyone's mind about this text?

*All:* no.

## **Break**

Sam gave an example of what type of editing he will do before giving the report to Jeremiah and Mark for Co-Chair approval. Sam edited the Background section to make clear the difference and use of the Report and TSD, that the Report essentially trumps the TSD, which is intended for background purposes.

*Marty Myers:* in background, added "formulate" to D.

*Sam Imperati:* could involve explaining our voting, some by consensus and some by majority/minority. We could elaborate on each vote by name, or rely just on meeting notes to capture each vote, or just take one vote on the document, taken as a whole.

Vote taken as a whole:

**Vote 13:** Accept Report as edited today without issue-by-issue attribution. (Johnson and Baumann expressed their support before they left.)

**Result:** 9 voted 1 (Bansen, Ginsburg, Hanson, Kimbirauskas, Males, Moore, Myers, Shibley, Wustenberg), 1 voted 3, later amending to 2 (Nelson)

*David Nelson:* explained the nature of his 3, that he likes the work that we have done, thinks it is a good product, but does not support everything.

*Sam Imperati:* based on those reasons, it sounds like your actual vote is a 2.

*David Nelson:* agrees it's a 2.

**Result:** *Consensus Recommendation*

*Andy Ginsburg:* can we have a vote that folks can do a minority report on?

*Sam Imperati:* Right now we have a consensus, all members voting 1 and 2 is a consensus so why would you want to do that? Sam will check in with all members who are not here, including talking to Jacking Dingfelder.

Agreed.

The discussion continued on to the Conclusion section.

*Sam Imperati:* What do we want to put in conclusion? Specifics or general?

*Marty Myers:* believes the Recommendation cover everything and thinks a general treatment is sufficient.

*All:* agree.

Next: Executive Summary.

*Sam Imperati:* it can be a narrative guide to the report. We can also consider if we even need an Executive Summary?

*Mark Wustenberg:* sixteen pages is not an Executive Summary in my book.

*Andy Ginsburg:* folks did ask for a 1-pager.

*Jim Moore:* recommends that we take pages 11-15 and write a couple paragraphs. You do a disservice to the report by overlooking an Executive Summary.

*Sam Imperati:* an Executive Summary should be “we came, we saw, we conquered,” and here are our recommendations. No new stuff.

*Gail Shibley:* agrees with having a 1-page summary. Would it be helpful to give some indication in the Conclusion that we worked through some tough, sticky points. It may not represent how any one of us would write it, but we feel it is a balanced, good product. And for over time, for Agencies to faithfully implement it, staying true to the trust that has been built, while moving forward in the scientific arena. She wants the emotion and mindset in there, along with the data points.

*Jim Males:* this type of paragraph could be at the end of the Executive Summary and Conclusion.

### **Final Comments on Technical Support Document (TSD)**

*Sam Imperati:* Jim and Jim – where are we on this?

*Jim Moore:* we are basically done. They have responded and it looks good. It is a huge amount of information.

*Andy Ginsburg:* let us please acknowledge the tremendous amount of work done by Carrie Ann and Gregg, as well as Wym and Ray. (Applause.)

*Carrie Ann Capp:* explained the references. In cases when a full citation is followed by the same reference, the document will only indicate the author’s last name. If it comes up again, with other intervening citations, the full citation will appear again.

*Kendra Kimbirauskas:* not comfortable approving a document she has not read.

*Sam Imperati:* the committee has until Monday at noon to let him know if there are any major problems. It will be put on the website so folks have access, it is far too large to send out by email.

Sam asked if there was anything else for the good of the order? He also wanted to second that what Gail said earlier is really true. Seldom has he seen a group come together like this Task Force. He congratulated everyone on the work they did.



Working Draft

**6/17/08 Final Draft**  
**With Redlined Comments**  
**Received To Date**  
**for**  
**Oregon Dairy Air Quality**  
**Task Force Report**  
**For 6/18/08 Meeting**

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Post-6/12/08 Subcommittee Meeting¶  
With Andy's 6/15/08 Edits¶  
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## **Executive Summary**

(Provide at End of Process)

TO DO: Add appropriate cross references to the Technical Supplemental document throughout the report.)

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[Update at End of Process]

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## **I BACKGROUND**

Until 2007, Oregon law exempted agricultural operations from air quality regulations with the exception of field burning in the Willamette Valley. In the fall of 2005, several environmental and public interest groups petitioned the U.S. Environmental Protection Agency (EPA) asserting that Oregon's air quality program was deficient because Oregon statute exempted agriculture from regulation if those regulations were necessary to comply with the Clean Air Act.

Senate Bill 235 addressed the inconsistency between state and federal law by allowing the Oregon Environmental Quality Commission (EQC) to regulate agricultural operations to the extent needed under the Clean Air Act. The Bill directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA) to enter into a Memorandum of Understanding in order to implement federal Clean Air Act requirements for agriculture. In addition, it established a Task Force on Dairy Air Quality, which was charged with studying the emissions of air contaminants from dairy operations and presenting findings and recommendations to the DEQ and ODA by July 1, 2008 for reducing emissions from dairies. The findings and recommendations could include technical studies, voluntary actions, regulation, and proposed legislation. The recommendations are not limited to current requirements of the federal Clean Air Act and may recommend that the EQC adopt rules beyond the authorities in the Clean Air Act. The Task Force Charter can be found in the Technical Supporting Document as Appendix \_\_\_.

The Task Force's work plan follows:

- A. Study the emission of air contaminants from dairy operations, including but not limited to, emissions regulated under the Clean Air Act.
- B. Study available data on the emission of air contaminants, including but not limited to, the United States EPA national air study of animal feeding operations.
- C. Determine the problem(s) that need to be solved.
- D. The goal is to reduce emissions.
- E. Identify the option(s) to reduce emissions:
  - 1) voluntary measures, including education, demonstration projects, and incentives;
  - 2) regulatory measures;
  - 3) legislative measures or funding; and
  - 4) other recommendations.
- F. Select the solutions(s) for fixing the problem(s) and accomplishing the goals by taking into consideration:
  - 1) The diverse nature and economic viability of dairies and the economic contribution dairies make to the state economy;
  - 2) The impact that federal Clean Air Act regulations have, and that actions to address air emissions would have, on Oregon's dairies in the Pacific Northwest markets;
  - 3) The protection of human health, the environment, and scenic and cultural resources; and
  - 4) The impact of available alternatives on other environmental media, energy, the cost of producing dairy products, and the feasibility of implementation.
- G. Make Other Observations and Recommendations

The Task Force began its work in January 2008 and has studied the air emissions associated with dairy operations, including but not limited to, emissions regulated under the Clean Air Act. It has evaluated

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alternatives for reducing air emissions, and explored voluntary measures, including education, demonstration projects, and incentive options, together with regulatory and/or legislative options for emission reduction.

This summary report provides a broad overview of the Task Force findings and the information related to quantifying, managing, and reducing air emissions from dairy operations. The Technical Support Document (TSD) accompanying this Report provides considerably more detail and served as the foundation for discussions and inquiry for the Oregon Dairy Air Quality Task Force. However, this Report contains task force recommendations if there are any conflicts with the TSD material. It can be found at [provided web link]. The TSD also contains the Task Force Meeting Notes.

In brief, the Task Force found that under certain circumstances, air emissions from dairy operations might become subject to regulation under the Clean Air Act. However, the current uncertainties in our quantitative knowledge of air emissions from dairies make the application of Clean Air Act requirements difficult. There is a need to improve our understanding of emissions from dairies and improve our ability to quantify these emissions, especially if those estimates are to inform future regulatory decisions. While we build our knowledge and certainty of dairy emissions there is also a desire by the Task Force to explore opportunities for reducing these air emissions to prevent future problems from arising.

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## **II. TASK FORCE MEMBERS**

- Two members of the Senate, appointed by the President of the Senate:
  - Senator Betsy Johnson
  - Senator David Nelson
- Two members of the House of Representatives, appointed by the Speaker of the House:
  - Representative Debbie Boone
  - Representative Jackie Dingfelder
- One representative from the Oregon Department of Environmental Quality (DEQ), appointed by the DEQ Director:
  - Andrew Ginsburg, Air Quality Division Administrator, DEQ
- One representative from the Oregon Department of Agriculture (ODA), appointed by the ODA Director:
  - Lisa Hanson, Deputy Director, ODA
- One representative from the Department of Human Services (DHS) having expertise in public health, appointed by the Director of Human Services:
  - Gail Shibley, Administrator, Environmental Public Health , ODHS
- Three representatives, appointed by the governor from the dairy industry:
  - Dan Bansen, Dairyman, Forest Glen Jerseys, Forest Glen Heifer Ranch, and Forest Glen Oaks
  - Martin Myers, General Manager, Threemile Canyon Farms
  - Dr. Mark Wustenberg, Vice President, Dairy Services Tillamook Creamery Association
- Three representatives, appointed by the governor from environmental-public interest organizations:
  - Jeremiah Baumann, Environment Oregon
  - Dana Kaye, Executive Director for Oregon Chapter American Lung Association
  - Kendra Kimbirauskas, Friends of Family Farmers
- Two representatives, appointed by the governor from institutions of higher education listed in ORS 352.002 having expertise in science and technology relevant to air emissions generated by dairy operations:
  - Dr. Jim Males, Department Head Animal Science, OSU
  - Dr. Jim Moore, Professor Emeritus, OSU

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### III Findings

#### A. Oregon Dairy Farm Overview

There are currently more than 60,000 dairy farms in the United States. Seventy seven percent of these dairies have herds of less than 100 mature cows. The remaining dairies provide 77% of all milk sold in the United States. To place Oregon within the national context, as of December 31, 2007 there were 370 permitted dairy operations containing 116,335 milk cows. All dairies in Oregon that provide milk for public consumption (Grade A licensed) are permitted by the ODA Confined Animal Feeding Operation (CAFO) Program. Of the 331331331 permitted dairy operations, 39 are registered as large federal concentrated animal feeding operations (CAFOs), meaning that they have 700 or more dairy cows.

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Oregon dairies are an important component of the state's economy. Milk products were the fifth most valuable agricultural commodity in Oregon in 2006 with a farm gate value of \$329,574,000. Oregon dairies range in size from 25 to 16,000 milking cows and produce both conventional and organic milk; most are family farms and a few are corporately owned. Dairy production in Oregon spans across the state with at least one permitted dairy operation in 27 of Oregon's 36 counties. Currently, dairy production systems in Oregon include pasture-based production systems, partial confinement in free stall barns, total confinement in free stall barns, and dry lot operations.

During the last decade, the increased cost of fuel, feed, and transportation have had a direct effect on the cost of operating a dairy and, therefore, net dairy income. Milk price volatility has become greater in recent years, and this increased volatility has added significant challenges for dairy farm businesses. The number of dairy operations in Oregon has remained fairly constant over the last several years, but following a national trend, the Oregon industry has seen smaller farms ceasing milking operations or consolidating and the newer operations coming into production tending to be larger than the ones going out of business.

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While the three new dairy facilities registered to the CAFO Permit in the last five years are all located on the east side of the Cascades, a large geographic movement or relocation of facilities does not seem to be occurring in Oregon at this time. This is because niche marketing of artisan cheeses and organic production have provided opportunities for dairies to remain in their current locations and current sizes.

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There are significant regional differences in the conditions under which Oregon dairies operate. These include variations in climate (i.e. temperature, humidity, rainfall) and site characteristics (soil types for growing crops, availability of grassland for feed, etc.). The variation in these conditions affects what types of approaches and challenges operators evaluate when considering changing the production system to address existing and future environmental regulations.

#### B. Environmental Regulations

Today's environmental requirements for large dairies are primarily driven by the EPA under the authority of the federal Clean Water Act (CWA). The Oregon CAFO program began in the early 1980s to prevent CAFO wastes from contaminating groundwater and surface water. When the program began, the DEQ was the permit issuing and enforcement authority, and the ODA acted as program administrator and investigating authority. This relationship has been modified and changed over time so that currently ODA operates the program under Memoranda of Agreement (MOA) with DEQ and EPA.

All CAFOs that require a permit are required to prepare an animal waste management plan. This plan is a detailed description of facilities and operations with respect to containment, treatment, storage, and disposal of waste including wastewater. The plan also describes how compliance with permit conditions and water quality laws will be achieved and maintained. The level and amount of information required

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will depend upon the size, complexity, and other specifics of each facility.

Other states have recently begun regulating dairy air emissions through permitting and by requiring the adoption of “best management practices.” These regulations have targeted specific emissions of local concern.

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## Current Regulations for Air Quality in Oregon<sup>1</sup>. Federal Clean Air Act

- a) National Ambient Air Quality Standards (NAAQS) – The EPA establishes standards to protect public health, including sensitive people. State and local air agencies determine if these standards are being met, and devise emissions reduction strategies in any location where standards are exceeded.
- b) Hazardous Air Pollutants - Congress provided EPA with a list of hazardous air pollutants and EPA has identified categories of sources for control of these pollutants. Currently, dairies are not one of the identified categories, although methanol emissions may be large enough to require an air quality permit.
- c) Regional Haze – The Clean Air Act requires air agencies to protect visibility in wilderness areas and National Parks. Visibility degradation in the Columbia River Gorge Scenic Area, however, is not subject to authorities in the Clean Air Act.

### 2. Oregon Air Program

- a) Air Toxics – Oregon has established a program to complement the federal approach by focusing on urban areas where many smaller sources contribute to air toxics concentrations that affect public health.
- b) Nuisance – DEQ has the authority to identify and reduce certain nuisance odors through existing rules. (OAR 340-208-0300). However, this state authority does not include odors from agricultural operations under ORS 30.930. Finally, odors are not subject to regulation under the Federal Clean Air Act.

### 3. Other Federal Authorities

- a) Occupational Safety and Health - Worker health concerns are within the authority of OR-OSHA, which has established standards for exposure.
- b) Emergency Planning and Community Right to Know Act (EPCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Reporting to EPA is required for both episodic and continuous releases of regulated substances by facilities that meet certain criteria.

## C. Air Emissions from Dairies

The National Research Council of the National Academy of Sciences, in its 2003 report titled *Air Emissions from Animal Feeding Operations: Current Knowledge and Future Needs*, identified these air pollutants from animal feeding operations in general, not specifically from dairies. The report identified: Ammonia (NH<sub>3</sub>); Nitrous Oxide (N<sub>2</sub>O); Nitrogen Oxides (NO<sub>x</sub>); Methane (CH<sub>4</sub>); Volatile Organic Compounds (VOC); Hydrogen Sulfide (H<sub>2</sub>S); and Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>). In addition, the Task Force identified Methanol, a Hazardous Air Pollutant, and Odors as important emissions.

## D. Human Health Impacts and CAFOs

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There is very sparse research regarding human health issues related to dairy CAFO air emissions. No Oregon industry-wide data was presented to the Task Force. However, the National Institute for Occupational Safety and Health completed a study on a large, federal Oregon dairy and no issues were found concerning worker health. In contrast, occupational health problems associated with exposure to emissions from swine and other animal CAFOs have been studied and recognized since 1977. This data gap is important to fill, in order to better understand, and protect human health.

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Potentially, if inhaled, at sufficiently high concentrations, each of the emissions types associated with CAFOs could be harmful to human health. Health impacts may be acute (e.g., coughing, headache, nausea) or chronic (e.g., respiratory disease, organ dysfunction, cancers). One of the emissions, methanol, is recognized as especially hazardous to health. Even at moderate concentrations, inhaling methanol can cause permanent optical nerve damage, as well as dizziness, nausea, and upper respiratory distress.

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- Comment [g1]: Although not demonstrated in Oregon these statements are not theoretical. How about saying, "There is a potential for the following effects."

Theoretically, the following can be said:

**1. Worker Health**

Because of their proximity to emission sources, people on-site at dairies (i.e., workers, residents) have the greatest risk of experiencing health effects. For example, even though the level of hydrogen sulfide emissions from dairies is typically low, it is potentially concerning to dairy CAFO workers because the chemical is highly toxic at low concentrations.

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**2. Community Health**

Little is known about health effects on nearby people that are a direct result from dairy air emissions. As with worker health, research in this area is needed to identify, quantify health risks, and determine appropriate measures to protect human health.

**3. Odors**

Odors, while generally considered a nuisance, may cause health effects when exposure is under extreme conditions over an extended period. Sensitive individuals experience these effects at lower levels than the general population, and odors are known to cause changes in behavior. Research in this area is needed to identify, quantify health risks, and determine appropriate measures to protect health.

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**E. Environmental Impacts**

Air emissions from dairies, together with emissions from many other sources, contribute to the following environmental effects:

1. Visibility Degradation: Ammonia plays a key role in the formation of small sulfate and nitrate particles leading to haze pollution, thus degrading scenic vistas in our wilderness areas, National Park, and the Columbia River Gorge Scenic Area.
2. Acidic Deposition: The same pollutants that affect visibility (sulfates and nitrates) can also increase acidic deposition, increasing risks to ecosystems and cultural resources.
3. Climate Change: Methane is a potent Greenhouse Gas (GHG). The role that methane emissions from Oregon dairies play in overall statewide greenhouse gas emissions is not well understood.

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In summary, dairy operations have the potential to release several different kinds of air emissions that under certain circumstances could contribute to public or worker health problems, and to environmental degradation. The extent to which this occurs in Oregon is currently unclear because of uncertainty in quantifying air emissions from dairies (discussed below).

**F. Quantifying Emissions from Oregon Dairies**

DEQ estimates air emissions from all types of sources. A compilation of emissions estimates from all source sectors is known as an "emissions inventory." These inventories are routinely developed by DEQ and updated over time to reflect changing conditions. Each source category in the emissions inventory (such as transportation, industry, burning, and agriculture) has its own state-of-knowledge and level of uncertainty inherent in its emissions estimate.

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In the absence of a national emissions estimation method, DEQ currently estimates dairy emissions by simply multiplying the number of animals reported for each dairy operation by a fixed amount of emission per animal for each air pollutant, using the best available factors from the scientific literature. This methodology does not reflect what occurs on Oregon dairies as it assumes that emissions are the same each day and that mitigation practices are not in place. This method is Using the current methods and understanding their limitations, initial estimates of statewide dairy emissions indicate that they are a portion of Oregon's ammonia and methane statewide emissions inventory, but a relatively small portion of other emissions.

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In 2006, the National Air Emission Monitoring Study (NAEMS) was initiated to address the lack of scientific data needed to estimate emissions accurately from individual agricultural operations, including dairies. It originated from a voluntary air compliance agreement (also known as a consent decree) between the EPA and the pork, dairy, egg, and broiler industries. Livestock producers have provided the financial support for the NAEMS so that emissions data can be collected at select sites to:

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1. Accurately assess emissions from livestock operations and compile a database for estimation of emissions rates, and
2. Promote a national consensus for emissions estimation methods/procedures from livestock operations.

This study is being led by Purdue University and researchers are currently collecting data at twelve dairies across the nation. While interim results from these studies will provide useful information, improved national guidance on estimating emissions from individual dairies will not be available until approximately 2012. EPA has said that the results from this research will be used to construct the official method for estimating CAFO emissions, and that it will be of sufficient quality to be used in regulatory decisions.

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## IV. Recommendations:

The Task Force respectfully makes the following recommendations:

### A. Program Development

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The EQC, working with ODA, DEQ, and DHS, should adopt the following “Oregon Dairy Air Emissions Program” (Program) in its administrative rules, as authorized by ORS 468A.020(2)(c) (SB 235). Over time, Program adjustments should be made, as needed, to implement the intent of these recommendations.

### B. Guiding Principles

The Task Force strongly recommends that the following principles be used as the basis for Program development, implementation, and compliance:

1. Establish initial goals focused on reducing ammonia, methanol, and odors, and instill public confidence in the Program.
2. Make technical decisions based on a review of the available existing science.
3. Allow flexibility for dairy farmers to make decisions that are compatible with their operations and other environmental obligations.
4. Ensure Provide economic feasibility and stability for dairy farmers.
5. Model program implementation after the development of Oregon’s CAFO Program to prevent water pollution, which was phased from a voluntary program to a regulatory program in a gradual manner as information and experience were obtained.
6. Encourage early, voluntary action and efforts to go beyond requirements.
7. Tailor program over time to the realities of the state budget, and regularly review and update it as more is learned about dairy emissions.
8. Ensure level playing field and equity for all Oregon dairy producers within Oregon and in the Northwest.
9. Consider Recognize that the Clean Air Act, the Clean Water Act, and the Occupational Safety and Health Act still apply.
10. Create a solution that all interests can support.

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### C. Program Elements

The Task Force strongly recommends the following elements be used as the basis for Program development, implementation, and compliance:

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1. Apply to all existing Grade A dairies in Oregon that have or need a CAFO permit.
2. Based on a Best Management Practices (BMP) approach using California and Idaho models as points of reference and the recommendations of a Dairy Air Advisory Committee (DAAC) as

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specified in section IV. D., below. The BMPs should:

- a) Include structural and management practices to reduce air emissions while considering other impact factors specified herein;
  - b) Establish clearly defined targets that are economically feasible for Oregon dairy producers;  
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  - c) Provide guidance on implementation.  
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3. Start as a voluntary program, known as “Phase I” at the completion of the Dairy Air Quality Task Force process. Move into a state mandatory program during “Phase II,” pursuant to the conditions and schedule contained below and as adequate resources to implement and administer the Program become available. New dairies should be required to comply with the Program upon startup.  
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4. ODA and DEQ develop an interim list of recommended air BMPs in collaboration with ODFA, OSU Extension, NRCS, and stakeholders identified for DAAC. Collect and assess baseline data about what is currently occurring on Oregon dairies to decrease air emissions as soon as practical after the creation of an interim list of air Best Management Practices (BMPs). This data set should be as inclusive as resources allow.
5. Level of implementation, monitoring, and compliance be provided for dairies that may change over time as resources and research results become available.  
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6. Tax incentives should be provided to encourage dairies to meet BMPBMP targets established for Phase I [and should go beyond the minimum requirements in Phase II. Tax Phase to create an incentive for early action. Any proposed tax credits should be transferable to a third party and should be phased out over time. If tax credits are adopted by the legislature, DEQ or ODA could administer the tax credits. Tax incentives will require approval of the Governor and legislative authorization. They should be subjected to the usual restrictions (e.g. only available for voluntary capital investments made for the primary purpose of reducing emissions).  
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7. DEQ, ODA, DHS, NRCS, OSU, and the OSU Extension Service, working with the industry, should provide technical assistance, education, and outreach, as follows:
- a) develop and maintain technical expertise in BMPs to reduce ammonia, methanol, and odors.
  - b) provide technical assistance to dairies in selecting BMPs that are compatible with water quality and other factors pursuant to the Guiding Principles.
  - c) develop and distribute educational materials encouraging dairies to participate in the program and hold a series of meetings held around the state to describe the program to all dairy producers.  
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  - d) provide information to dairies about potential federal requirements, including the potential for methanol emissions to trigger Title V permitting.
  - e) provide information about dairies, emissions, and health to the public, the media, and neighboring communities.
8. ODA should determine compliance, provide technical assistance, and conduct any  
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enforcement. annual If funds are available, ODA should periodically report to EQC and Board of Agriculture concerning the use of BMPs.

#### D. Dairy Air Advisory Committee

DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee (DAAC) to advise and make recommendations about Program implementation and details. While the overall Program direction is within the purview of the EQC in consultation with ODA and DHS, DAAC should be structured and empowered as follows:

1. A balanced committee consisting of individuals with knowledge of the dairy industry, air emissions, and the public interest. For example, representatives from OSU, OSU Extension Service, NRCS, ODA, USDA, DEQ, DHS, ODFA, dairy farmers, health, and environmental groups.
2. Use of consensus decision making. If no consensus can be reached, a majority and minority report should be prepared.
3. Make implementation recommendations for both Phases that are designed to accomplish the Program guiding principles and program elements in a fashion consistent with these recommendations.
4. Have, if it desires, subcommittees to manage the work, (e.g. a technical committee and a policy subcommittee), each with balanced representation.
5. Create a program that accommodates the diversity of the Oregon dairydairydairy industry.
6. Recommend BMPs as soon as possible, including:
  - a) Structural and management approaches to reduce ammonia, methanol, and odors;
  - b) Guidance for the implementation of the BMPs;
  - c) Tiers based on dairy size/resources (for example, 700 cows and above could be one level, 200 - 699 could be another level, and less than 200 cows could be another level); and
  - d) Phase I and II goals for each tier and emissions type.
7. Evaluate BMP effectiveness on air emissions while considering other impact factors like compatibility with water or land quality issues, affects on other air emissions and livestock health. DAAC should also consider existing third party standards when evaluating BMPs. To the extent possible, the menu should be coordinated with BMPs developed by neighboring states, particularly Washington.
8. Consult with DEQ, ODA, and DHS on procedures and criteria for evaluating the potential for public health risks from any air emissions from dairy operations. These procedures could be used, as needed, if public health concerns at specific dairies need to be investigated. Criteria and procedures to be discussed may cover topics such as emissions estimation, air quality analysis methods, and risk assessment procedures.
9. Report regularly to DEQ, ODA, and DHS on the progress and success of the Program.

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10. Recommend changes to the Program, as needed over time, based on new scientific information and an evaluation of Program effectiveness. This could include updates to the emissions of concern. DAAC should not make recommendations that change the core of this recommended Program and this Task Force's intent.

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**E. Overall Program Resources**

The Task Force recommends that the following resources be provided to implement the recommended Program:

1. Tax credits for voluntary participation during Phase I and exceeding the requirements during Phase II if the tax credit program is extended;
2. Resources to ODA for Program implementation, monitoring and compliance;
3. Resources to DEQ for rule development, Program implementation, and air monitoring;
4. Resources to DHS for technical assistance, consultation, and risk communication; and
5. Funding for OSU to conduct research and development of demonstration projects, BMPs tailored to Oregon's needs, the effectiveness of BMPs, their impact on air emissions, and funds for education, outreach, and technical assistance.

**F. Overall Recommended Program Structure, Staging and Funding Summary**

The Task Force recommends that the following structure, staging and funding:

<b>July 2008</b>	Oregon Dairy Air Quality Task Force Report to ODA and DEQ.
<b>Sept 2008</b>	Task Force, ODA, and DEQ report to interim legislative committees.
<b>Oct/Nov 2008</b>	Possible Task Force reconvening based upon interim legislative committee input.
<b>Late 2008</b>	ODA and DEQ develop an interim list of recommended air BMPs in collaboration with ODA, OSU Extension, NRCS, and stakeholders identified for DAAC.
<b>Jan 2009</b>	ODA begins outreach to educate industry about the Program and encourage the use of the interim air BMPs.
<b>Jan-July 2009</b>	<p><b>2009 Legislative Session:</b></p> <ul style="list-style-type: none"> <li>a) Request initial staffing for the program: 1 ODA and 1 DEQ staff to do outreach and assistance, conduct a baseline survey, develop rules and implement tax credits;</li> <li>b) Request \$500K for research and development of BMPs that are specific to Oregon's needs; and</li> <li>c) Request tax credits for voluntary BMPs to begin in 2010 and continue through 2014.</li> </ul>
<b>Late 2009</b>	<ol style="list-style-type: none"> <li>1) EQC adopts initial program rules under ORS 468A.020(2)(c) based upon the Dairy Air Quality Task Force recommendations in section IV of this report, including: <ul style="list-style-type: none"> <li>a) Framework for Program;</li> <li>b) <u>Structure of the Dairy Air Advisory Committee (DAAC);</u></li> <li>d) Tax credits if authorized by the 2009 legislature.</li> </ul> </li> <li>2) DAAC starts. Initial focus is to refine the air BMP list. Subsequent focus is to refine the program structure.</li> <li>3) ODA conducts baseline survey of air BMPs in use in Oregon.</li> </ol>
<b>2010</b>	<b>Phase I Begins:</b>

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c) Interim air BMP list and targets for phase 1; and

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	<p>1) ODA/DEQ/<del>OSU</del><u>Upg. Outreach / Education</u> begins to encourage voluntary participation in phase 1 of the Program and provide assistance to dairies in the selection of BMPs;</p> <p>2) DEQ implements the tax credits for dairies that meet the phase 1 targets.</p> <p>3) DAAC recommends Program revisions, including revisions to the BMP list, targets and program structure.</p>
2011	<p><b>2011 Legislative Session:</b></p> <p>a) Request increased staffing for the program: 2 additional ODA staff to expand outreach <u>implementation</u>, and 1 DHS FTE (parts of three positions) to conduct risk communication.</p> <p>b) Request additional funding for BMP research and development if needed.</p> <p><u>c) Request \$500K for research and development of BMPs that are specific to Oregon's needs.</u></p> <p>DAAC continues to evaluate Program and make recommendations, including mandatory targets to apply in 2015.</p> <p>EQC revises rules to incorporate DAAC recommendations.</p>
Late 2011 and 2012	<p>ODA expands outreach and assistance, conducts follow-up survey of BMP use in Oregon, and issues <u>Annual</u> Program Report.</p> <p>DEQ continues to implement tax credits for dairies that meet the phase 1 targets.</p> <p>DAAC continues to evaluate Program, assess EPA's NAEMS preliminary results, and make recommendations as needed.</p>
2013	<p><b>2013 Legislative Session:</b></p> <p>a) Request increased staffing for the program: 2 additional ODA staff to further implementation, monitoring, and compliance.</p> <p><u>b) Request \$500 K for research and development of BMPs that are specific to Oregon's needs.</u></p> <p>DAAC continues to evaluate Program and make recommendations as needed.</p> <p>EQC revises rules to incorporate any further DAAC recommendations.</p>
Late 2013 and 2014	<p>ODA conducts follow-up survey of BMP use in Oregon, and issues Biennial Program Report.</p> <p>DEQ continues to implement tax credits for dairies that meet the phase 1 targets.</p> <p>DAAC continues to evaluate Program, assess EPA's NAEMS results, and make recommendations as needed.</p>
<u>2015</u>	<p><u>Annual 2015 Legislative Session:</u></p> <p><u>a) Request \$500 K for research and development of BMPs that are specific to Oregon's needs,</u></p>
<u>2015</u>	<p><u>Phase II begins:</u></p> <p><u>Targets become mandatory.</u></p>

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ODA implements the program, ensures compliance, and issues Biennial Program Report.

DAAC continues to evaluate Program and make recommendations, as needed.

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## V. Conclusion

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Winter 2008 Agency budget requests, if accepted, would be part of Governor's Budget¶  
Early 2009 EQC adopts relevant portions of the Program¶  
Fall 2009 ODA/DEQ use new hires to prepare for DAAC to start after funding has been approved¶  
Fall 2009 ODFA expands outreach to encourage the use of the interim air BMPs.¶  
Early 2010 ODA begins collection of air BMP using OSU Extension, ID, and CA practices as a starting point. Baseline survey completed and begin outreach and education.¶  
Late 2010 DAAC meets two times to evaluate Program and make recommendations as needed.¶  
2012 DAAC meets two times to evaluate Program and make recommendations as needed.¶  
Late 2010 DAAC recommends full Program elements.¶

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**6/18 Edits to**  
**6/17/08 Final Draft**  
**With Redlined Comments**  
**Received To Date**  
**for**  
**Oregon Dairy Air Quality**  
**Task Force Report**  
**For 6/18/08 Meeting**

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Post-6/12/08 Subcommittee Meeting¶  
With Andy's 6/15/08 Edits¶  
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## **Executive Summary**

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Sb started

Our process

Worked through tough points, represents a good balanced product as a result of a good process and encourage Leg GUV to provide bank to support implement these package recommendation ongoing support

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Key results

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[Update at End of Process]

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## **I BACKGROUND**

Until 2007, Oregon law exempted agricultural operations from air quality regulations with the exception of field burning in the Willamette Valley. In the fall of 2005, several environmental and public interest groups petitioned the U.S. Environmental Protection Agency (EPA) asserting that Oregon's air quality program was deficient because Oregon statute exempted agriculture from regulation if those regulations were necessary to comply with the Clean Air Act.

Senate Bill 235 addressed the inconsistency between state and federal law by allowing the Oregon Environmental Quality Commission (EQC) to regulate agricultural operations to the extent needed under the Clean Air Act. The Bill directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA) to enter into a Memorandum of Understanding in order to implement federal Clean Air Act requirements for agriculture. In addition, it established a Task Force on Dairy Air Quality, which was charged with studying the emissions of air contaminants from dairy operations and presenting findings and recommendations to the DEQ and ODA by July 1, 2008 for reducing emissions from dairies. The findings and recommendations could include technical studies, voluntary actions, regulation, and proposed legislation. The recommendations are not limited to current requirements of the federal Clean Air Act and may recommend that the EQC adopt rules beyond the authorities in the Clean Air Act. The Task Force Charter can be found in the Technical Supporting Document as Appendix \_\_\_.

The Task Force's work plan follows:

- A. Study the emission of air contaminants from dairy operations, including but not limited to, emissions regulated under the Clean Air Act.
- B. Study available data on the emission of air contaminants, including but not limited to, the United States EPA national air study of animal feeding operations.
- C. Determine the problem(s) that need to be solved.
- D. Formulate a plan to reduce emissions.
- E. Identify the option(s) to reduce emissions:
  - 1) voluntary measures, including education, demonstration projects, and incentives;
  - 2) regulatory measures;
  - 3) legislative measures or funding; and
  - 4) other recommendations.
- F. Select the solutions(s) for fixing the problem(s) and accomplishing the goals by taking into consideration:
  - 1) The diverse nature and economic viability of dairies and the economic contribution dairies make to the state economy;
  - 2) The impact that federal Clean Air Act regulations have, and that actions to address air emissions would have, on Oregon's dairies in the Pacific Northwest markets;
  - 3) The protection of human health, the environment, and scenic and cultural resources; and
  - 4) The impact of available alternatives on other environmental media, energy, the cost of producing dairy products, and the feasibility of implementation.
- G. Make Other Observations and Recommendations

The Task Force began its work in January 2008 and has studied the air emissions associated with dairy operations, including but not limited to, emissions regulated under the Clean Air Act. It has evaluated

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alternatives for reducing air emissions, and explored voluntary measures, including education, demonstration projects, and incentive options, together with regulatory and/or legislative options for emission reduction.

This summary report provides a broad overview of the Task Force findings and the information related to quantifying, managing, and reducing air emissions from dairy operations. The Technical Support Document (TSD) accompanying this Report provides considerably more detail and served as the foundation for discussions and inquiry for the Oregon Dairy Air Quality Task Force. However, the TSD is intended background purposes only. This summary Report contains the final Task Force findings and recommendations. It can be found at [provided web link]. The TSD also contains the Task Force Meeting Notes.

FIX

In brief, the Task Force found that under certain circumstances, air emissions from dairy operations might become subject to regulation under the Clean Air Act. However, the current uncertainties in our quantitative knowledge of air emissions from dairies make the application of Clean Air Act requirements difficult. There is a need to improve our understanding of emissions from dairies and improve our ability to quantify these emissions, especially if those estimates are to inform future regulatory decisions. While we build our knowledge and certainty of dairy emissions there is also a desire by the Task Force to explore opportunities for reducing these air emissions to prevent future problems from arising.

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## **II. TASK FORCE MEMBERS**

- Two members of the Senate, appointed by the President of the Senate:
  - Senator Betsy Johnson
  - Senator David Nelson
- Two members of the House of Representatives, appointed by the Speaker of the House:
  - Representative Debbie Boone
  - Representative Jackie Dingfelder
- One representative from the Oregon Department of Environmental Quality (DEQ), appointed by the DEQ Director:
  - Andrew Ginsburg, Air Quality Division Administrator, DEQ
- One representative from the Oregon Department of Agriculture (ODA), appointed by the ODA Director:
  - Lisa Hanson, Deputy Director, ODA
- One representative from the Department of Human Services (DHS) having expertise in public health, appointed by the Director of Human Services:
  - Gail Shibley, Administrator, Environmental Public Health , ODHS
- Three representatives, appointed by the governor from the dairy industry:
  - Dan Bansen, Dairyman, Forest Glen Jerseys, Forest Glen Heifer Ranch, and Forest Glen Oaks
  - Martin Myers, General Manager, Threemile Canyon Farms
  - Dr. Mark Wustenberg, Vice President, Dairy Services Tillamook Creamery Association
- Three representatives, appointed by the governor from environmental-public interest organizations:
  - Jeremiah Baumann, Environment Oregon
  - Dana Kaye, Executive Director for Oregon Chapter American Lung Association
  - Kendra Kimbirauskas, Friends of Family Farmers
- Two representatives, appointed by the governor from institutions of higher education listed in ORS 352.002 having expertise in science and technology relevant to air emissions generated by dairy operations:
  - Dr. Jim Males, Department Head Animal Science, OSU
  - Dr. Jim Moore, Professor Emeritus, OSU

### **III Findings**

#### **A. Oregon Dairy Farm Overview**

There are currently more than 60,000 dairy farms in the United States. Seventy seven percent of these dairies have herds of less than 100 mature cows. The remaining dairies provide 77% of all milk sold in the United States. To place Oregon within the national context, as of December 31, 2007 there were 331 permitted dairy operations containing 116,335 milk cows. All dairies in Oregon that provide milk for public consumption (Grade A licensed) are permitted by the ODA Confined Animal Feeding Operation (CAFO) Program. Of the 331 permitted dairy operations, 39 are registered as large federal concentrated animal feeding operations (CAFOs), meaning that they have 700 or more dairy cows.

Oregon dairies are an important component of the state's economy. Milk products were the fifth most valuable agricultural commodity in Oregon in 2006 with a farm gate value of \$329,574,000. Oregon dairies range in size from 25 to 16,000 milking cows and produce both conventional and organic milk; most are family farms and a few are corporately owned. Dairy production in Oregon spans across the state with at least one permitted dairy operation in 27 of Oregon's 36 counties. Currently, dairy production systems in Oregon include pasture-based production systems, partial confinement in free stall barns, total confinement in free stall barns, and dry lot operations.

During the last decade, the increased cost of fuel, feed, and transportation have had a direct effect on the cost of operating a dairy and, therefore, net dairy income. Milk price volatility has become greater in recent years, and this increased volatility has added significant challenges for dairy farm businesses. The number of dairy operations in Oregon has remained fairly constant over the last several years but following a national trend, the Oregon industry has seen smaller farms ceasing milking operations or consolidating and the newer operations coming into production tending to be larger than the ones going out of business.

While the three new dairy facilities registered to the CAFO Permit in the last five years are all located on the east side of the Cascades, a large geographic movement or relocation of facilities does not seem to be occurring in Oregon at this time. This is because niche marketing of artisan cheeses and organic production have provided opportunities for dairies to remain in their current locations and current sizes.

There are significant regional differences in the conditions under which Oregon dairies operate. These include variations in climate (i.e. temperature, humidity, rainfall) and site characteristics (soil types for growing crops, availability of grassland for feed, etc.). The variation in these conditions affects what types of approaches and challenges operators evaluate when considering changing the production system to address existing and future environmental regulations.

#### **B. Environmental Regulations**

Today's environmental requirements for large dairies are primarily driven by the EPA under the authority of the federal Clean Water Act (CWA). The Oregon CAFO program began in the early 1980s to prevent CAFO wastes from contaminating groundwater and surface water. When the program began, the DEQ was the permit issuing and enforcement authority, and the ODA acted as program administrator and investigating authority. This relationship has been modified and changed over time so that currently ODA operates the program under Memoranda of Agreement (MOA) with DEQ and EPA.

All CAFOs that require a permit are required to prepare an animal waste management plan. This plan is a detailed description of facilities and operations with respect to containment, treatment, storage, and disposal of waste including wastewater. The plan also describes how compliance with permit conditions and water quality laws will be achieved and maintained. The level and amount of information required

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will depend upon the size, complexity, and other specifics of each facility. This program has been very effective (LISA language)

Other states have recently begun regulating dairy air emissions through permitting and by requiring the adoption of “best management practices.” These regulations have targeted specific emissions of local concern.

## **Current Regulations for Air Quality in Oregon**

### **1. Federal Clean Air Act**

- a) National Ambient Air Quality Standards (NAAQS) – The EPA establishes standards to protect public health, including sensitive people. State and local air agencies determine if these standards are being met, and devise emissions reduction strategies in any location where standards are exceeded.
- b) Hazardous Air Pollutants - Congress provided EPA with a list of hazardous air pollutants and EPA has identified categories of sources for control of these pollutants. Currently, dairies are not one of the identified categories, although methanol emissions may be large enough to require an air quality permit.
- c) Regional Haze – The Clean Air Act requires air agencies to protect visibility in wilderness areas and National Parks. Visibility degradation in the Columbia River Gorge Scenic Area, however, is not subject to authorities in the Clean Air Act.

### **2. Oregon Air Program**

- a) Air Toxics – Oregon has established a program to complement the federal approach by focusing on urban areas where many smaller sources contribute to air toxics concentrations that affect public health.
- b) Nuisance – DEQ has the authority to identify and reduce certain nuisance odors through existing rules. (OAR 340-208-0300). However, this state authority does not include odors from agricultural operations under ORS 30.930. Finally, odors are not subject to regulation under the Federal Clean Air Act.

### **3. Other Federal Authorities**

- a) Occupational Safety and Health - Worker health concerns are within the authority of OR-OSHA, which has established standards for exposure.
- b) Emergency Planning and Community Right to Know Act (EPCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Reporting to EPA is required for both episodic and continuous releases of regulated substances by facilities that meet certain criteria.

## **C. Air Emissions from Dairies**

The National Research Council of the National Academy of Sciences, in its 2003 report titled *Air Emissions from Animal Feeding Operations: Current Knowledge and Future Needs*, identified these air pollutants from animal feeding operations in general, not specifically from dairies. The report identified: Ammonia (NH<sub>3</sub>); Nitrous Oxide (N<sub>2</sub>O); Nitrogen Oxides (NO<sub>x</sub>); Methane (CH<sub>4</sub>); Volatile Organic Compounds (VOC); Hydrogen Sulfide (H<sub>2</sub>S); and Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>). In addition, the

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Task Force identified Methanol, a Hazardous Air Pollutant, and Odors as important emissions.

#### **D. Human Health and Dairy CAFOs**

There is very sparse research regarding human health issues related to dairy CAFO air emissions. No Oregon industry-wide study was presented to the Task Force that established there was or was not a human health problem associated with dairies. However, if inhaled at sufficiently high concentrations, each of the emissions types associated with dairy CAFOs could be harmful to human health. Health impacts may be acute (immediate) or chronic (long-term). This dairy-specific data gap is important to fill, in order to better understand, and protect human health because conclusions drawn from other livestock CAFO studies are not directly transferable to dairy operations.

Research in this area is needed to identify, quantify health risks, and determine appropriate measures to protect: 1) worker health (because of their proximity to emission sources, people on-site at dairies (i.e., workers, residents) have the greatest risk of experiencing health effects.) 2) community health (little is known about health effects on nearby people that are a direct result from dairy air emissions.) and 3) odors (sensitive individuals experience these effects at lower levels than the general population, and concentrated odors over time are known to cause changes in behavior.) (Clean up grammar and sentence structure)

#### **E. Environmental Impacts**

Air emissions from dairies, together with emissions from many other sources, contribute to the following environmental effects:

1. Visibility Degradation: Ammonia plays a key role in the formation of small sulfate and nitrate particles leading to haze pollution, thus degrading scenic vistas in our wilderness areas, National Park, and the Columbia River Gorge Scenic Area.
2. Acidic Deposition: The same pollutants that affect visibility (sulfates and nitrates) can also increase acidic deposition, increasing risks to ecosystems and cultural resources.
3. Climate Change: Methane is a potent Greenhouse Gas (GHG). The role that methane emissions from Oregon dairies play in overall statewide greenhouse gas emissions is not well understood.

In summary, dairy operations have the potential to release several different kinds of air emissions that under certain circumstances could contribute to environmental degradation. The extent to which this occurs in Oregon is currently unclear because of uncertainty in quantifying air emissions from dairies (discussed below).

#### **F. Quantifying Emissions from Oregon Dairies**

DEQ estimates air emissions from all types of sources. A compilation of emissions estimates from all source sectors is known as an "emissions inventory." These inventories are routinely developed by DEQ and updated over time to reflect changing conditions. Each source category in the emissions inventory (such as transportation, industry, burning, and agriculture) has its own state-of-knowledge and level of uncertainty inherent in its emissions estimate.

In the absence of a national emissions estimation method, DEQ currently estimates dairy emissions by simply multiplying the number of animals reported for each dairy operation by a fixed amount of emission per animal for each air pollutant, using the best available factors from the scientific literature. This methodology does not reflect what occurs on individual dairies as it doesn't consider the variation of

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emissions over time, or the variation in mitigation practices that may be in place. Using the current methods and understanding their limitations, initial statewide dairy emissions estimates indicate that they are a notable portion of Oregon's ammonia and methane emissions, but are a relatively small portion of other types of emissions on a statewide level.

In 2006, the National Air Emission Monitoring Study (NAEMS) was initiated to address the lack of scientific data needed to estimate emissions accurately from individual agricultural operations, including dairies. It originated from a voluntary air compliance agreement (also known as a consent decree) between the EPA and the pork, dairy, egg, and broiler industries. Livestock producers have provided the financial support for the NAEMS so that emissions data can be collected at select sites to:

1. Accurately assess emissions from livestock operations and compile a database for estimation of emissions rates, and
2. Promote a national consensus for emissions estimation methods/procedures from livestock operations.

This study is being led by Purdue University and researchers are currently collecting data at twelve dairies across the nation. While interim results from these studies will provide useful information, improved national guidance on estimating emissions from individual dairies will not be available until approximately 2012. EPA has said that the results from this research will be used to construct the official method for estimating CAFO emissions, and that it will be of sufficient quality to be used in regulatory decisions.

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#### **IV. Recommendations:**

##### **Check abbreviations for first references**

The Task Force respectfully and strongly makes the following recommendations:

##### **A. Program Development**

The EQC, working with ODA, DEQ, and DHS, should adopt the rules to implement the following “Oregon Dairy Air Emissions Program” (Program), as a whole, as authorized by ORS 468A.020(2)(c) (SB 235). The Program consists of and is guided by this Recommendation section (IV of Report). Over time, Program adjustments should be made, as needed, to implement the intent of these recommendations.

##### **B. Guiding Principles**

The Program development, implementation, and compliance are guided by the following principles:

1. Initially focus on reducing ammonia, methanol, and odors, and instill public confidence in the Program.
2. Make technical decisions based on a review of the available existing science.
3. Allow flexibility for dairy farmers to make decisions that are compatible with their operations and other environmental obligations.
4. Provide economic feasibility and stability for dairy farmers.
5. Model program implementation after the development of Oregon’s CAFO Program to prevent water pollution, which was phased from a voluntary program to a regulatory program in a gradual manner as information and experience were obtained.
6. Encourage early, voluntary action and efforts to go beyond requirements.
7. Tailor Program over time to the realities of the state budget, and regularly review and update it as more is learned about dairy emissions.
8. Ensure level playing field and equity for all Oregon dairy producers within Oregon and in the Northwest.
9. Recognize that the Clean Air Act, the Clean Water Act, and the Occupational Safety and Health Act still apply.
10. Create a solution that all interests can support.

##### **C. Program Elements**

The Program development, implementation, and compliance are guided by the following elements:

1. Apply to all existing Grade A dairies in Oregon that have or need a CAFO permit.
2. Based on a Best Management Practices (BMP) approach using California and Idaho models as points of reference and the recommendations of a Dairy Air Advisory Committee (DAAC) as specified in section IV. D., below. The BMPs should:

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- a) Include structural and management practices to reduce air emissions while considering other impact factors specified herein;
  - b) Establish clearly defined BMP targets that are economically feasible for Oregon dairy producers;
  - c) Provide guidance on implementation.
3. Start as a voluntary program, known as "Phase I" at the completion of the Dairy Air Quality Task Force process. Move into a state mandatory program during "Phase II," pursuant to the conditions and schedule contained below, and as adequate resources to implement and administer the Program become available. New dairies should be required to comply with the Program upon startup.
  4. ODA and DEQ develop an interim list of recommended air BMPs in collaboration with ODFA, OSU, (Only use OSU and not Extension throughout) NRCS, and the stakeholders identified for DAAC. Collect and assess baseline data about what is currently occurring on Oregon dairies to decrease air emissions as soon as practical after the creation of an interim list of air Best Management Practices (BMPs). This data set should be as inclusive as resources allow.
  5. Level of implementation, monitoring, and compliance may change over time as resources and research results become available.
  6. Tax incentives should be provided to encourage dairies to meet BMP targets established for Phase I and should be provided for dairies to create an incentive for early action. Any proposed tax credits should be transferable to a third party and should be phased out over time. Ask for reauthorization beyond five years for those dairies that go beyond the minimum requirements in Phase II (Clean up grammar). If tax credits are adopted by the legislature, DEQ or ODA could administer the tax credits. Tax incentives will require approval of the Governor and legislative authorization. They should be subjected to the usual restrictions (e.g. only available for voluntary capital investments made for the primary purpose of reducing emissions).
  7. DEQ, ODA, DHS, NRCS, OSU, and the OSU Extension Service, working with the industry, should provide technical assistance, education, and outreach, as follows:
    - a) develop and maintain technical expertise in BMPs to reduce ammonia, methanol, and odors.
    - b) provide technical assistance to dairies in selecting BMPs that are compatible with water quality and other factors pursuant to the Guiding Principles.
    - c) develop and distribute educational materials encouraging dairies to participate in the Program hold a series of meetings held around the state to describe the Program to all dairy producers.
    - d) provide information to dairies about potential federal requirements, including the potential for methanol emissions to trigger Title V permitting.
    - e) provide information about dairies, emissions, and health to the public, the media, and neighboring communities.
    - f) provide information of federal regulations and the new state Program.
  8. ODA should receive funds necessary to determine compliance, provide technical assistance,

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and conduct any enforcement. ODA should develop a periodic report of BMPs in use based on reports and inspections. ODA should check Program implementation and compliance at the time of the annual CAFO water quality inspection. The annual reports should be provided to EQC and the Board of Agriculture, posted on the web, and otherwise communicated to the public. ODA should communicate to CAFO permit holders the requirements for air BMPs, record keeping, and reporting. ODA should determine compliance, provide technical assistance, and conduct any enforcement.

#### **D. Dairy Air Advisory Committee**

DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee (DAAC) to advise and make recommendations about Program implementation details. While the overall Program direction is within the purview of the EQC in consultation with ODA and DHS, DAAC should be structured and empowered as follows:

1. A balanced committee with knowledge of the dairy industry, such as representatives from OSU, NRCS, ODA, USDA, DEQ, DHS, ODFA, dairy farmers, health, environmental groups and the public. The initial members of DAAC should include members of the Dairy Air Quality Task Force.
2. Use of consensus decision making. If no consensus can be reached, a majority and minority report should be prepared.
3. Make implementation detail recommendations for both Phases that are designed to accomplish the Program in a fashion consistent with these recommendations.
4. Have, if it desires, subcommittees to manage the work, (e.g. a technical committee and a policy subcommittee), each with balanced representation.
5. Create a program that accommodates the diversity of the Oregon dairy industry.
6. Recommend BMPs as soon as possible, including:
  - a) Structural and management approaches to reduce ammonia, methanol, and odors;
  - b) Guidance for the implementation of the BMPs;
  - c) Tiers based on dairy size/resources (for example, 700 cows and above could be one level, 200 - 699 could be another level, and less than 200 cows could be another level); and
  - d) Phase I and II BMP targets for each tier.
7. Evaluate BMP effectiveness on air emissions while considering other impact factors like compatibility with water or land quality issues, affects on other air emissions and livestock health. DAAC should also consider existing third party standards when evaluating BMPs. To the extent possible, the menu should be coordinated with BMPs developed by neighboring states, particularly Washington.
8. Consult with DEQ, ODA, and DHS on procedures and criteria for evaluating the potential for public health risks from any air emissions from dairy operations. These procedures could be used, as needed, if public health concerns at specific dairies need to be investigated. Criteria and procedures to be discussed may cover topics such as emissions estimation, air quality analysis methods, and risk assessment procedures.

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9. Report regularly to DEQ, ODA, and DHS on the progress and success of the Program.
10. Recommend changes to the Program, as needed over time, based on new scientific information and an evaluation of Program effectiveness. This could include updates to the emissions of concern. DAAC should not make recommendations that change the core of this recommended Program and this Task Force's intent.

**E. Overall Program Resources**

The Task Force recommends that the following resources be provided to implement the recommended Program:

1. Tax credits for voluntary participation during Phase I and exceeding the requirements during Phase II if the tax credit program is extended;
2. Resources to ODA for Program implementation, monitoring and compliance;
3. Resources to DEQ for rule development, Program implementation, and air monitoring;
4. Resources to DHS for technical assistance, consultation, and risk communication; and
5. Funding for OSU to conduct research and development of demonstration projects, BMPs tailored to Oregon's needs, the effectiveness of BMPs, their impact on air emissions, and funds for education, outreach, and technical assistance.

**F. Overall Recommended Program Structure, Staging and Funding Summary**

The Task Force recommends that the following structure, staging and funding:

<b>July 2008</b>	Oregon Dairy Air Quality Task Force (With Co-Chairs) report to ODA and DEQ.
<b>Sept 2008</b>	Task Force, ODA, and DEQ report (with Co-Chairs) to interim legislative committees.
<b>Oct/Nov 2008</b>	Possible Task Force reconvening based upon interim legislative committee input.
<b>Late 2008</b>	ODA and DEQ approve an interim list of recommended air BMPs in collaboration with ODFA, OSU, NRCS, and the stakeholders identified for DAAC.
<b>Jan 2009</b>	ODFA begins outreach to educate industry about the Program and encourage the use of the interim air BMPs.
<b>Jan-July 2009</b>	<b>2009 Legislative Session:</b> <ol style="list-style-type: none"><li>a) Request initial staffing for the program: 1 ODA and 1 DEQ staff to do outreach and assistance, conduct a baseline survey, develop rules, and implement tax credits;</li><li>b) Request \$500K for OSU research and development of BMPs that are specific to Oregon's needs; and</li><li>c) Request tax credits for voluntary BMPs to begin in 2010 and continue through 2014.</li></ol>
<b>Late 2009</b>	<ol style="list-style-type: none"><li>1) EQC adopts initial program rules under ORS 468A.020(2)(c) based upon the Dairy Air Quality Task Force recommendations in section IV of this report, including:<ol style="list-style-type: none"><li>a) Framework for Program;</li><li>b) Membership and structure of the Dairy Air Advisory Committee (DAAC);</li><li>d) Tax credits if EQC is authorized by the 2009 legislature.</li></ol></li></ol>

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	<p>2) DAAC starts. Initial focus is to refine the air BMP list. Subsequent focus is to refine the program structure.</p> <p>3) ODA conducts baseline survey of air BMPs in use in Oregon.</p>
<b>2010</b>	<p><b>Phase I Begins:</b></p> <p>1) ODA/DEQ/OSU Outreach / Education begins to encourage voluntary participation in phase 1 of the Program and provide assistance to dairies in the selection of BMPs;</p> <p>2) DEQ implements the tax credits for dairies that meet the phase 1 targets.</p> <p>3) DAAC recommends Program revisions, including revisions to the BMP list, targets and program structure.</p>
<b>2011</b>	<p><b>2011 Legislative Session:</b></p> <p>a) Request increased staffing for the program: 2 additional ODA staff to expand outreach implementation, and 1 DHS FTE (parts of three positions) to conduct risk communication.</p> <p>b) Request additional funding for BMP research and development if needed.</p> <p>c) Request \$500K for OSU research and development of BMPs that are specific to Oregon's needs.</p> <p>DAAC continues to evaluate Program and make recommendations, including mandatory targets to apply in 2015.</p>
<b>Late 2011 and 2012</b>	<p>EQC revises rules to incorporate DAAC recommendations.</p> <p>ODA expands outreach and assistance, conducts follow-up survey of BMP use in Oregon, and issues Annual Program Report.</p> <p>DEQ continues to implement tax credits for dairies that meet the phase 1 targets.</p> <p>DAAC continues to evaluate Program, assess EPA's NAEMS preliminary results, and make recommendations as needed.</p>
<b>2013</b>	<p><b>2013 Legislative Session:</b></p> <p>a) Request increased staffing for the program: 2 additional ODA staff to further implementation, monitoring, and compliance.</p> <p>b) Request \$500 K for OSU research and development of BMPs that are specific to Oregon's needs.</p> <p>DAAC continues to evaluate Program and make recommendations as needed.</p>
<b>Late 2013 and 2014</b>	<p>EQC revises rules to incorporate any further DAAC recommendations.</p> <p>ODA conducts follow-up survey of BMP use in Oregon, and issues Biennial Program Report.</p> <p>DEQ continues to implement tax credits for dairies that meet the phase 1 targets.</p> <p>DAAC continues to evaluate Program, assess EPA's NAEMS results, and make recommendations as needed.</p>
<b>2015</b>	<p><b>2015 Legislative Session:</b></p> <p>a) Request \$500 K for OSU research and development of BMPs that are specific to Oregon's needs.</p>

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<b>2015</b>	<b>Phase II begins:</b> Targets become mandatory. ODA implements the program, ensures compliance, and issues annual Program Report. DAAC continues to evaluate Program and make recommendations, as needed.
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**V. Conclusion**

(Provide at End of Process)

Overall Vote

Majority/Minority parenthetical notations where no consensus on specific issues?