USDA Agricultural Air Quality Task Force (AAQTF) Meeting Notes
Thursday, September 8, 2016
Sacramento, California

AAQTF Designated Federal Official (DFO) Greg Johnson called the meeting to order at 8:13 AM PDT and welcomed the group to California. Introductions. Chief Weller was unable to make the meeting and sent his regrets. In his place, Kasey Taylor, NRCS State Conservationist (STC) for Delaware and the Acting Science & Technology Deputy Chief, will preside over the meeting. Her flight was delayed and she will arrive at 10 am.

California Agriculture and USDA-NRCS

Greg Johnson formally introduced Carlos Suarez, STC for California. He presented an overview of California NRCS air quality efforts (see slide presentation).

"I served and was mentored under Ed Burton as the California's Deputy State Conservationist from 2005-2008. I was engaged with air quality where some of the things have progressed through today. I became the State Conservationist in Florida and hosted the 2010 AAQTF meeting in Tallahassee, recalling conservations over open burning in Florida where in California it is more difficult."

The beauty and diversity of California; over 400 commodities are grown in California. He shared a short list of the conservation challenges. Promoting soil health by working with industry, UC Extension, and producers. California is by far the most regulated state in the nation. Farmers and ranchers must deal with this. Water quality and conservation in a fifth year of drought should be dealt with by building resiliency. Conservation planning efforts, as we are a technical agency, is the foundation of the agency. Tree mortality is one impact from the drought with 60 million dead trees and rising. California is on the forefront on climate change. Wherever you are on climate change, the fact is that it's happening and we need to be prepared.

He showed California nonattainment area maps, discussed California partnerships, and showed a graph of the emission reductions due to California Air Quality Initiatives. Ted Strauss assisted by explaining the nonattainment maps and mentioning that we are air quality challenged compared with other regions of the country. To address all the challenges we face, we build partnerships and discuss the issues to help the farmers and ranchers. Partners identify the resource concerns and seek our assistance to help finding ways to address them. NRCS, under the Farm Bill, has developed practices to support the NAAQS. Everything we implement or plan has a science component to it.

In 2015, the California Air Quality Initiative was used for a variety of practices that benefit air quality, resulting in about 700 tons of emission reductions from 2015 projects. Mr. Suarez expressed appreciation to Tom Hedt, Ted Strauss and Johnnie Siliznoff and recognized the partnership over the years. California is the only state with an air quality team within the NRCS. From 2009-15, NRCS has invested over $147 million in California air quality, in addition to the producer's investments. California farmers have reduced NOx emissions equivalent to taking 900,000 motor vehicles off of California roads.

Mr. Suarez discussed State Implementation Plan (SIP) creditability efforts for voluntary emission reductions from replacing off-road mobile farm equipment. SIPs have always relied on compliance-based emission reductions. Applying voluntary-based and creditable emission reductions toward the

San Joaquin Valley SIP could help the state avoid adopting new regulations. We work with farmers and ranchers on a voluntary basis, so we have to make sure the information provided to EPA and San Joaquin Valley Air Pollution Control District (SJVAPCD) needed for SIP has creditability, but we also have to protect producer confidentiality in accordance with the Farm Bill. The SJVAPCD and NRCS programs together have resulted in reducing over 12.49 tons/day from replacing off-road diesel-powered mobile farm equipment, where the SIP goal was 5-10 tons/day NOx by 2017.

Mr. Suarez ended his presentation with a video of a tractor at a scrap yard, mentioning how Chief Weller had operated equipment that demolished a high-emitting tractor.

Q – Jon Slutsky: I like the voluntary aspect of the program. How do other segments in the area contribute? You've done a great job with reducing agricultural NOx emissions, but how has this impacted ozone locally and have other industries done the same?

> R – Ted Strauss: Richard Corey from the California Air Resources Board may discuss more about this, but our efforts are definitely improving ambient ozone concentrations. Tomorrow, you'll hear a presentation from the SJVAPCD about the challenges with the ozone and PM2.5 NAAQS. A lot of the emissions inventory is from mobile sources, and farm equipment is a mobile source. As long as we can keep this program voluntary and show that the emission reductions are there, we will make things better. The ozone numbers have decreased significantly over the years and air quality has improved. We can see the mountains on some days, that is, when there aren't any wildfires happening like there is now. However, PM2.5 has become a bigger issue than that of ozone, mainly due to stricter attainment deadlines. The SJVAPCD is developing a 5 percent reduction plan as the result of missing the attainment deadline for the 65 microgram PM2.5 NAAQS. More attainment deadlines coming up. Other industries have stepped up to the plate, as we have some of the most stringent regulations in the nation. Overall, we continue to make progress with improving air quality.

C – Kevin Abernathy: These partnerships between stakeholders, NRCS, and the regulatory agencies is a model that we are extremely proud of. The task force has also been instrumental in making this work. We would not have made as much progress without them.

> R – Carlos Suarez: What everyone has achieved in the state through the partnerships was instrumental and we're showing the results. There were challenges and we made tough decisions. I feel proud of the partnership commitment for making this work.

No more questions or comments.

California Air Resources Board (ARB)

Greg Johnson introduced Richard Corey, Executive Officer of ARB. He also introduced Kasey Taylor, who just arrived and began chairing the meeting.

Richard Corey offered an open invitation on questions or issues the task force members may have. There is not always agreement from a policy standpoint. From a foundational standpoint, the NAAQS requires good data, sound science, a clear understanding of the economics, and the best minds around to weigh in. This all requires a close relationship with stakeholders. If there is a disagreement, there should be a good explanation as to why. All this leads to good outcomes.

ARB is the state agency in California charged with achieving the health based air quality standards. Unlike other states, California has unique authority under the federal Clean Air Act to establish motor vehicle standards, fuel quality standards and consumer product standards. This work has a 50 year history, beginning with engine performance emission standards and fuel quality standards. We have a close relationship with the 35 California air pollution control districts. Some have mentioned the San Joaquin as one of the 35 larger ones; South Coast is the largest. The air districts have air quality permitting enforcement authority over stationary sources, where ARB has primary responsibility over mobile sources and climate pollutants. The lens through which the agency is working is driven by criteria pollutants and their health-based standards - PM2.5, PM10, and ozone. In California, we are also dealing with toxics and GHG's. Federal requirements and state laws get into these through regulatory and incentive based means to achieve emission reductions and reach GHG targets.

The role of the agricultural sector and our relationship is an effective working relationship. Many issues are not understood very well. Soil health and nitrous oxide related issues need further research. The role and recognition that incentives have played. ARB is a regulatory agency that develops regulations and manages incentive programs. There is never enough money and how do we direct funds in the smartest way and leverage them. Working with industry and local air districts we've made tremendous progress. Carl Moyer - $1 billion since 1998, transportation dollars through Cap and Trade proceeds. We have some real challenges ahead.

Using the ozone target as an example, the progress is undeniable. People come from all over the world to observe the air quality improvements in California. Just a few decades ago we had Stage 3 alerts, then two and one – 200+ days per year where children were to stay indoors and serious health-related consequences at those levels. We haven't had a Stage 1 alert since the 1990's. We're not completely there because we still have poor air quality in a number of areas within the state, such as SJV and South Coast. But I don't miss the opportunity to talk about progress. The role that industry has played, regulations, voluntary actions, technology… all have played a role in this and it is important to point that out. The science has evolved and the standards have become tighter over the years. We have a tighter ozone standard at 70 ppb, where South Coast has a 2037 demonstration. From a NOx standpoint, we need an 80 percent reduction from base level to meet the 2031 75 ppb demonstration. We're getting about half-way there by virtue of turnover of equipment. One measure ARB is focusing on is new engine standards on heavy duty trucks. We are working with manufacturers on a national standard, not a California standard. Working with EPA – pushing EPA on a national low-NOx 0.20 g/bhp engine. Looking at cleaner fork lifts. Continued role on incentives.

The last legislative session, in context of climate, SB32 – 2030 GHG target bill was passed. This significant 40 percent reduction is required in a short timeframe, about 5 percent annually. Developing the Scoping Plan to develop the road map over the next year or so. Then, SB1383 calls for a reduction of short-lived climate pollutants and directed ARB to work with the industry on how to achieve a 40 percent reduction in methane emissions. Appropriated funding because there was a recognition of barriers with respect to dairy digesters. The low-carbon fuel standard can clear the hurdle of capital outlay. The value of low-carbon fuel credits from dairy digesters is so high that the revenue stream provided that the capital outlays cover the economics. We need to continue working with the short-lived climate plan implementation - SB1383 implementation as well – as well as the SIP.

Working on the SJV and South Coast SIP for the ozone standard due later this year. Put out a mobile source strategy document focused on NOx reductions. Have been criticized by some over the significant

role of incentives. There are regulations in the SIP, no doubt. Trying to do the full accounting on existing revenue streams for incentives, identifying the gaps, and where are the opportunities for attracting additional dollars – private, local, state, federal.

This year – 2016-17, is perhaps the most significant year from a planning perspective. Getting plans laid out and a game plan on how to meet ozone, PM2.5, and GHG related standards. Recognizing the role the mobile source sector plays and sticking in the right balance with respective regulatory actions, the time frame for those actions, the role of incentives, and the need for robust engagement. We want to make sure we get this process right. We need to maintain a close working relationship with the agricultural sector. I am confident we can build on the successes we've already achieved.

As a final comment, the role of the agricultural sector to the California economy cannot be overstated, and is a key principle in designing a strategy. A strategy that leads to leakage that could possibly result in even greater emissions is not an outcome that ARB is going for.

Q – Cynthia Cory: The Governor is expected to sign SB32 today. Can you talk briefly about what ARB is planning to do on a more international level? There is nobody in the world doing what we are doing, not only with GHG but with criteria pollutants. We always say that we're leading the world. Can you talk a few minutes about what is being done to get China and other places in the world to follow?

> R – Richard Corey: There is an achievable path for ozone in the SJV. I've heard the claims that the Clean Air Act and standards are unachievable and that the economy will crash. I think it needs to be determined by the facts and the data. This is an area we should continue to talk about. In respect to climate and climate policy, California represents about 1 percent of the global GHG emissions. What are the strategies for where the emissions are coming from and how do we reduce the emissions? The vast majority of GHG reduction measures have also resulted in reductions in criteria pollutants.
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> As I look at the mobile source strategy document, at measure by measure for the SIP, the strategies for NOx and PM are a greenhouse gas strategy as well. There isn't a week that goes by that we don't have visitor from another state or country. Many regions we work with, including Mexico, China, and India, have significant AQ issues and face incredible challenges. PM2.5 levels are 30 times what we have here. You must have the ability to measure, count and report so that you can figure out where to commit the emission reductions. They are looking at our fuel quality, as it is pointless to introduce clean vehicles if the fuel quality damages the equipment. Much of the efforts have been on clean fuel and enforcement. I am encouraged by certain jurisdictions, not necessarily over entire countries. Beijing has a huge AQ program and are taking real and measurable action. Investments by other countries are helping drive-down the costs of new technologies.
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> Making investments in battery technology, which has an application in the light-duty sector and certain heavy-duty sector. You're not going to have a zero-emission technology across the board in every heavy-duty application... everyone here understands that. But understanding the complexity of the heavy-duty sector and in a number of applications we will continue to rely on liquid fuels for a very long time. Where are the areas where we can move to lower-emitting fuels and technologies? This is an area the international folks are working on. Investments in feedstocks, such as renewable diesel is an area where we see opportunities. There are economic benefits due to a lower carbon footprint and this will also tend to reduce NOx over

traditional diesel. The low-carbon fuel standard can provide those investment opportunities, because regulation alone isn't going to do this. There are commitments out there, but we have a long ways to go.

Q – Jeff Collett: California has many Class 1 areas. How does the regional haze regulation tie in with PM2.5 standard? Is that going to get you closer to meeting both objectives?

R – Richard Corey: By virtue of the direct PM and NOx measures and the role that secondary PM plays, the path for regional haze is an extension of those measures. I can provide you with more information.

C – Kevin Abernathy: ARB in comparison with the San Joaquin Valley APCD. One of the reasons the stakeholders have had a good relationship with our local air districts is because we have good contacts with our elected officials. The ARB Board members are Governor Appointees and not elected officials. The state legislature has passed mountains in their legislations and establishes timelines that lose progress. Whether we have the time to apply good science is questionable. There is expertise around this table. Tie in the work that ARB has been doing with the work from ARS and other USDA agencies. On a stakeholder perspective, I have to think hard of my members who are in the process of building much larger dairies out of state. Over the years, we've had an uncompetitive disadvantage with our neighbors, to where how many cows will it take to break the camel's back? We are getting closer to that tipping point where California agriculture, especially dairies, will give up. We are concerned, and willing to do what it takes to get to where we want to go.

R – Richard Corey: The ARB Board has 14 members. Several Board members are elected officials, but some do report to the Governor. New legislation is adding two new Board members, to total 16. EJ focused members are appointed positions. I trust the process. There are definitely concerns on timing. The effective way is full honest exchanges in terms of underlying data and analysis, what do we understand about the economics and leakage related issues. Everyone loses if industry experiences leakage

No additional comments or questions.

California Department of Food and Agriculture (CDFA)

Kasey Taylor again apologized for the Chief being unable to attend the meeting and for her being late due to travel issues. She introduced Jim Houston, Deputy Secretary with the California Department of Food and Agriculture.

Jim Houston gave a brief introduction and comments on California agriculture. He opened his discussion with his love of physical books. He asks whether technology has made society a better place. How important agriculture has been to our civilization. We need some things that are timeless, such as farming, that can connect us to the past and show us where we have come from. I don't think people understand or appreciate the risks and efforts farmer take. I grew up in Fresno and am aware of the air quality issues in the San Joaquin Valley. Our kids and society must find a way forward and preserve agriculture. He talked a bit about SB 1383 and was really pleased with that process. ARB, agriculture, advocates, and non-traditional legislators were working together to solve problems. Not just command and control direction. It was recognized there is a need to preserve agriculture in this particular situation with an understanding of the pathway to get there. A command and control approach would

lead towards an exodus that would not help the environment and would hurt the communities in which they thrive, and that would be a tragedy.

Finding ways for incentive-based pathways for moving forward, to continue to farm and yet still attack the problems is an important model. I envision a future in which these technologies are deployed in terms of digesters and the infrastructure in the San Joaquin Valley is much more secure. I'm allowed to be California biased and I'm a big fan of the USDA.

California agriculture is a leader that we all should be very proud of. We stand at the top throughout all of human history. Our agricultural operations are efficient, environmentally conscious, and pay our workers higher wages than anywhere else. Agriculture is not indifferent to our other societal issues, but it really is a product of the market place in which they operate. Farmers are price takers… there is limited ability to set the market. The California Ag Statistics were released last week and commodity prices have dropped. The world sets the prices, and I don't think we're better off getting our food from other countries like Chile, China or Mexico. I think we're better off getting our agricultural products from California and the rest of the world get their products from California.

C – Kevin Abernathy: You had mentioned SB 1383 and I wanted the task force to know that your leadership in getting ARB staff out to the dairies was very important to us and the stakeholders in that process. We reference CDFA numerous times on numerous occasions in regards to oversight from the ARB. You instinctively were very critical in the process and I want to thank you for your leadership.

Q - Charlie Stanier: California set ambitious goals for methane reduction. If leakage does occur, does it get counted as reductions?

> R – Jim Houston: In regards to leakage, no. It's how you classify as leakage. For instance, we have reduced the number of cows in the state for the first time in a really long time. Dairies had a great year in 2014, but they had five bad years before that and had a bad year since. While this does not necessarily address leakage, it does impact the methane target for dairies. To the extent we lose cows, yes that would count. In regards to leakage, it is my understanding that no, they will not count. I'm looking at Cynthia!
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> R – Cynthia Cory: It's a good question. As the greenhouse gas regulation is written, leakage is not allowed. The baseline year is 2013. A fundamental and very important point we got in the bill was that in consultation with CDFA, there can be a revision if we are not achieving the technical feasibilities or lack of financial incentives. Environmentalists are opposing this portion of the bill. Given check-points or critical review, or "opportunities for cooperation", if we didn't get that we would be regulated to achieve 40 percent methane reduction. We have an opportunity to stop and get a reality check.

No additional comments or questions.

Review of Previous Meeting and Actions

Kasey Taylor turned the meeting over to DFO Greg Johnson.

Greg Johnson had distributed the draft minutes from the April 6-7, 2016 meeting in Washington DC to everyone last week via email. Everyone confirmed receipt and time was provided for discussion. No

additional comments were made. Bill Norman motioned to approve the minutes; Kevin Abernathy seconded the motion. Minutes were unanimously approved. The approved minutes will be posted on the AAQTF website.

Greg Johnson thanked all the speakers for their timeliness. He also took a moment to thank those involved with setting-up yesterday's tour by recognizing Kevin Abernathy, Cynthia Cory, Johnnie Siliznoff, Ted Strauss, and Greg Zwicke.

Greg Johnson expressed another note that came out of the last meeting and discussions with the Chief. This is a federal advisory committee. Task force members are welcome to take photographs, but posting on social media is not appropriate. We may have photos and some videos available from the tour.

Tomorrow morning is a public comment period. A sign-in sheet is available at the doorway for anyone from the public who wishes to provide up to five minutes of comment.

Break at 10:00 AM. Kasey Taylor brought the meeting back to order at 10:18 AM.

Wildland Fire and Air Quality

Kasey Taylor introduced Pete Lahm, USDA Forest Service (see slide presentation). Mr. Lahm's presentation covered several topics, including:

- Trends in prescribed fire
- National Ambient Air Quality Standards and fire
- Exceptional Events Rule and fire
- Regional Haze Rule and fire
- Research needs
- National Wildfire Coordination Group Smoke Committee recent work
- Wildland Fire Air Quality Response Program update

Q - Marguerite Tan – We've had challenges to get prescribed burning done. Not burning the number of acres that need to be burned, especially in high risk areas due to limitations on moisture and wind. Realistically, under the new smoke management plans, are we going to be able to burn anything after that? Are we just going to get further and further back? Are we looking forward to more catastrophic wildfires in the future?

> R – Pete Lahm: It is a state-by-state thing. A state that understands the exceptional events rule and that fire is part of the ecosystem is willing to expend funds and go through an Exceptional Events demonstration when there are recorded exceedances. The willingness is state-by-state and location-by-location, and built on trust. There are more people and challenges on the public perception side. There are more expectations on the public with these activities. You can't hide the smoke, but we need to be talking about it more proactively. The SJVAPCD saw this with smoke from the Rough Fire last year and noticed that they need to do something different, by taking greater risks with prescribed fire activity. They are starting to do this. If we can do this in California and the San Joaquin, we should be able to do this everywhere.

Q - Cynthia Cory: Everyone saw yesterday our poor air quality. Too bad we didn't see a beautiful air quality day, because we do have them. Right now is wildfire season. We have to deal with this with agricultural air quality as the NAAQS ratchets down. Do you think that Exceptional Events streamlining is going to work or are the air districts in California going year after year trying to make their case? Do you think this will wrench down on our stationary sources in California and the San Joaquin Valley because of this issue?

> R – Pete Lahm: Through the wildfire response program, I've committed that the air advisory group provide documentation of the smoke impacts from wildfires and background from wildfire. That's one important step because it costs the air districts and others a lot of money for tracking these wildfires and their impacts, and it's not easy. I wish EPA would take on this task because it is beyond region, beyond air districts, beyond the state in terms of level of impact. Someway to address that level of impact. If the Exceptional Events rule moves forward as proposed, then there is progress. Otherwise we may be going backwards.

Q - Sally Shaver: Can you inform us about the committee that came about from the OMB discussions? What level of people are on that? Air quality people or people with ecosystems benefits backgrounds?

> R – Pete Lahm: No, I can't answer that question.

Q – Karelyn Cruz: Have you looked at the relationship with air quality, atmospheric deposition, and water quality when dealing with the water issues in California.

> R – Pete Lahm: The Forest Service has looked at air pollution contribution as a whole into the forested areas. Working closely with EPA on critical loads. In terms of wildfire contribution, the linkage has been minimal at best. It is a research gap and question. The science on how that critical load occurs post fire is a critical piece of uncertainty.

No additional comments or questions.

Particulate Matter Sampling Research

Kasey Taylor introduced Ron Lacey (Texas A&M University).

Ron Lacey started his presentation first (see slide presentation). He summarized Dr. Brock Faulkner's work:

- Large Particle Penetration during PM10 Sampling,
- Low Volume TSP Sampler Performance, and
- PM2.5 Sampler Performance.
- A fourth project, not in today's presentation, is in cooperation with ARS in Lubbock, Texas, that is looking at performance of particle size distribution comparisons.

Conclusions:

- Did see large PM20-25 penetration in the PM10 sampler. A potentially big impact for agriculture. The difference suggests that larger particle penetration really are not contributing to health concerns, but will affect the regulatory impacts.

- The low volume TSP samplers is not performing as we previously assumed. We need to look at that more closely. Could be under-sampling.
- I think is worth further evaluation of the PM2.5 design parameters. Perhaps not a huge impact for agriculture.

Next steps for Texas A&M –

- Determine the net effect of sampler performance on agricultural operations for PM10 and PM2.5.
- Emission factor development and NAAQS enforcement.
- Fill positions left from Dr. Faulkner and Dr. Parnell.

C - Charles Stanier: It's a misrepresentation that large particles have no health effects. They may have different health effects, such as asthma exacerbation.

> R – Ron Lacey: This is not my area of expertise and I shouldn't have commented on that at all. Good comment.

C – Lingjuan Wang Li: We also looked at distributions from poultry houses and they do not appear to fit a lognormal distribution. There is huge uncertainty.

C – Kelley Green: Regarding the larger particles, I was on the EPA Clean Air Act Advisory Committee during the last PM NAAQS review. One issue with particulate is that the word doesn't mean a lot. You have soil particulate, diesel particulate, all these different particulates. There is general recognition that there are more harmful particulates and less harmful particulates. Agriculture and any of the rural crustal-based emitters kind of gets a double whammy. The health studies are based on different cities that placed monitors out to measure what the levels are. Then looking what the health impacts are and drawing a line between health impacts and levels. We're getting a double hit because the larger crustal particles are the ones of least concern in the scale of particulate and yet the large crustal particles have problems with the samplers. This is what we've been trying to communicate for a long time. We understand that particulate is a more complicated pollutant than others, but we need recognition that we are talking about different materials when you get into the crustal ranges and need a way to account for that.

> R – Ron Lacey: We did a study back in 2005 or so looking at the TSP from a cattle feedlot. Crustal was about 50 percent of the TSP composition. It is a significant part of the PM.

Q - Marguerite Tan: How would one account for those areas where there is an ag-urban interface if the urban and rural distributions are so different?

> R – Ron Lacey: We need more data and more money for research. We call it urban encroachment, looking at it on an agricultural perspective. We have a mix. That's going to be an issue.

Kasey Taylor introduced Bob Vanderpool from EPA.

Bob Vanderpool recognized Ron Lacey for his contribution. This is probably Vanderpool's third or fourth presentation to the task force (see slide presentation).

Today's presentation provided more background on PM sampling, where particles come from, how we sample and why, and the issue of perceived oversampling of PM and where these reference methods came from. There are several key questions that came up during the discussion. He summarized the experiments at the Texas A&M wind tunnel and the Texas A&M and EPA evaluations.

One message in closing. Don't use any type of methodology that hasn't been peered reviewed. Use a PM10 sampler. He suggested that we move on to other issues that EPA and the agricultural industry have. The agricultural industry has a lot of issues to work on. PM sampling is an issue that is firmly established. The issues should focus on implementation, monitor siting, and how data is interpreted. This is more fundamentally a problem than the actual monitor itself.

Q – Sally Shaver: Was the FRM tested in a wind tunnel under same conditions with the larger particles?

> R – Bob Vanderpool: Yes. We sampled anywhere from 3 to 25 microns, both solid and liquid aerosols in two micron increments. The penetration of anything larger than 25 microns is essentially zero. Anything higher than 25 microns will not get quantified.

C - Bill Norman: I want to second the comments that Dr. Vanderpool made regarding the work that Ron Lacey has undertaken and coming up after the fact in trying to complete and present what he presented today. It has not been an easy process. We know there are data points that are lacking and they are somewhere in Dr. Faulkner's files. I would be interested if we will ever find that, I'm sure we will at some point. I'm sure Dr. Lacey will need that information.

> R – Bob Vanderpool: Whatever information other researchers have should be passed on to Dr. Lacey as well.

C – Bill Norman: I also want to thank Dr. Vanderpool. This is an early issue that has gone back to the initial term of the task force. Additional work was conducted under the recommendations of this task force over the years and several attempts were made to interact with EPA. We met in your office and initiated this attempt that you and Dr. Faulkner understood. I would second your comment that this is not insignificant work. This should be the model of how we ought to be working together. Provide clarity, better understanding, but it also highlights some outstanding issues. I have the paper here that I've been studying since it was discovered. I didn't know it had been published until Dr. Lacey had forwarded it to me. A couple points. I would encourage continued discussion, because we need help as we move forward. Quoting from the paper on the "Ideal Sampling Performance" - "Rural environments are dominated by larger crustal particles. In rural settings, significant implications on regulatory compliance are dominated by crustal particles. For our regulated community, it should be noted that this is not insignificant." Though I recognize the information you provided, Dr. Faulkner also discusses the differences between the FRM and Ideal. We have to figure out through collaborative discussion on how do we adjust or reconcile those differences.

> R - Bob Vanderpool: Regarding Dr. Faulkner's paper, I served as an editor and reviewer for that journal. Unlike any criteria pollutant, such as a bias canister of SO_2, there are no standards for PM – either PM2.5 or PM10. The FRM itself is based on the performance of the sampler itself based on the ISO curve. EPA promulgated the equipment in the Federal Register that operates according to the ISO curve. Don't misinterpret that the Ideal measures the way the human respiratory system works.

R – Bill Norman: I appreciate that. He shared the history over this work. I'll come back to the point. The sampler in a high, larger particle concentration in rural settings begins to show differences. You can ignore that if you want, but I think we in agriculture, as a regulated community still have an issue. It's not nearly as great as had been identified by others… and I agree with you there. This is clarifying information. You, Dr. Faulkner, and everyone associated with this work should be very proud because of the level of cooperation, the very good thoughts that went into it, that's exactly what we were asking for when we began this study. But we still have some differences. I think we need some reconciliation in some way in certain situations in certain environments.

R – Bob Vanderpool: More of an implementation issue.

R – Bill Norman: That may be outside your purview and responsibilities. Your expertise can't be ignored and we need that cooperation. That's what I'm asking for as we move forward.

C - Kelley Green: I do appreciate the work you did with Dr. Faulkner and we miss him a lot at A&M. I agree with Dr. Lacey that we need to fill that position, but I don't think we can ever replace Dr. Faulkner. He was an amazing and unique individual. I've followed a lot of his work pretty carefully over the years. I'm probably echoing what Dr. Norman just said. I think the collaborative work has been very beneficial and has driven a lot of new work. In a lot of that new work, methods and methodologies have been adjusted based on the things you and Dr. Faulkner talked about over the years. There is a lot of data being gathered and they have changed the methodologies. There is work going on now looking at using the FRM head with the particle size distribution methodology. We've done some good work, but there is a larger amount of work waiting to be published. It may be an implementation issue. I think keeping the lines of communication open and keeping this relationship going for a while longer may provide more clarity as more information comes out. Keep talking, keep working.

Q - Marguerite Tan: The FRM uses a gravimetric mass to determine particle concentrations. How do you differentiate between the different densities of particles? I would assume that a particle from one source versus another source might have different densities in way different amounts?

R – Bob Vanderpool: Particles are different in physical size, shape, particle density, and how they dynamically behave. This is all rolled into the aerodynamic diameter. How different particle characteristics incorporate into a single common measure. That's the way the human respiratory system works. Through the PM10 head and PM2.5 fractionator, particulate separates based on inertial properties. Once those particles penetrate the head and fractionator, they fall on the filter to be measured.

Q - Lingjuan Wang Li: For the Coulter Counter, it may measure particles smaller than 2.5 microns, but it uses a different channel. We also use a different organic solvent than water to prevent particle size changes due to water solubility. My question on the PM10 sampler, it's intended to sample all particles less than 10 microns. In the coarse mode, you do have some particles larger than PM10 under the penetration curve, so you are actually sampling particles larger than PM10. Because those particles have a larger mass, won't this oversample those particles?

R – Bob Vanderpool: We were trying to recreate the performance of the human respiratory system. That's what this ISO curve is. There was a lot of research in the 1980's and early 90's on how the human respiratory system works. The performance of the human respiratory system is

not a sharp fraction on 10 microns, it follows the ISO curve. It deals with the physical airflow through a tube, the physics of particles, the particle trajectory and airflow. We're designing the sampler to replicate the human respiratory system.

R - Lingjuan Wang Li: I understand that the curve may represent the human body, but that doesn't necessarily represent PM10.

R – Bob Vanderpool: If a 15 micron particle enters the sampler then it also gets into the human lung. We are trying to protect the human lung and human health. Not a lot gets through, but those that do we need to measure to protect the public. This is what the sampler is designed and operated to do.

Q – Ben Weinheimer: In terms of the design, the samplers were designed 30 years ago and yet the properties of how the human lung works were known about 20 years ago. Is this what you're stating?

R – Bob Vanderpool: Everything up to 14 microns were known. Subsequent research is ongoing.

Greg Johnson closed out the discussion. Dr. Lacey and Dr. Vanderpool will be around for the Air Quality Standards Subcommittee meeting later this afternoon.

Break for lunch at 12:30 PM. Kasey Taylor reconvened the meeting at 1:50 PM.

Kasey Taylor thanked the A&M presenters. She encourages the dialog between Texas A&M and EPA. We want to make sure that information is shared with Greg Johnson for the breakout sessions.

Ammonia Research: NOAA Air Resources Laboratory

Kasey Taylor introduced Rick Saylor of NOAA from Oakridge, Tennessee. He provided an overview of some of their ammonia-related research (see slide presentation). He mentioned that Dr. LaToya Myles performed the majority of research and couldn't attend the meeting to present the material. Covered topics included:

- Overview of the NOAA Air Resources Laboratory
- Sources, impacts, and modeling of atmospheric ammonia
- Ammonia-related research activities at the NOAA Air Resources Laboratory
- Research needs

Q – Clint Quarles: With the research that was done on corn, was this all pre-plant, and I'm guessing it was gas?

R – Rick Saylor: I'm not sure. It was done before the corn was planted and sowed the corn two or three days later – some number of days later. What type of fertilizer it was, I'm not sure. I can get that information for you.

Q – Clint Quarles: Are there plans to replicate the study?

R – Rick Saylor: They have plans for a follow-up study. Need funding from the National Science Foundation.

Q – Jeff Collett: Applications with other situations. Different types of crops, natural ecosystems, soils, something more about model parameterization point of view. How far can we stretch the results from a single location and single crop to model something more broadly?

R – Rick Saylor: We need more data and measurements in different ecosystems, crop types, and environmental conditions. Not just in the summer when they're easy to do, but in all seasons. If we are going to try to develop parameterizations for air quality models that can be run anytime, we need more data. In current air quality models, emissions and deposition are treated as two separate processes. In the ammonia case they are not separate. They are two sides of the same coin. We're seeing sort of the same thing with biogenic hydrocarbons. There are emissions from trees and vegetation, but there is also uptake of those hydrocarbons. We need to treat these not as separate processes, but as integrated processes. That is one thing I'm trying to do with the model. Trying to sell it within NOAA that we need to start thinking about having not an emissions module or deposition module within air quality models, but have a surface-atmospheric exchange module that also includes the biogenic portion of the whole system.

Q – Jeff Collett: How do you feel about results of the models? Are we constrained on the measurement side? Should we move forward with what we have by putting them into models, or should we wait for more measurements?

R – Rick Saylor: In my opinion, we need to start thinking and putting in those kinds of parametrizations even if they're not right. We need to start building the framework and thinking how do we represent the properties in a bi-directional way within air quality models and then hopefully there will be enough data to validate and modify those models as necessary.

C – Lara Moody: As you look at airshed measurements versus source measurements, I would encourage you to consider the drivers especially on poultry sites. We see trends in reductions due to practice changes in poultry houses for reducing ammonia. You might investigate some of the practices that are being done. Practices in use over the past 10 years might potentially explain some of the reductions you're seeing. A comment to add on what Clint had indicated - I know you don't have details on the fertilizer application, whether it was an industrial product or broadcast product. We need information about the environmental impacts. When you're evaluating those, then you're evaluating the best management practices.

R – Rick Saylor: I think the researchers were at the mercy of the farmers, but these are good points.

Q - Nichole Embertson: Know about the emission sources. I echo Lara by getting a holistic view point why emissions change. Many different things and practices that have been on-going. The last piece you shared, is there data with ammonia emissions from the particular field, recognizing the soil, air and water interface is important. The variability we see in studies with ammonia emissions might be a soil difference with water holding capacities where ammonia exchanges could be acting quite differently. As you noted there was rainfall, were they doing both wet and dry deposition monitoring?

R – Rick Saylor: It was just ammonia concentrations above the canopy for most of the period and a few concentration profiles within the canopy on the set number of days, and ammonia flux measurements above the canopy as well. Just the gases. They didn't have the resources to measure total ammonia or particulate ammonium, only had the resources to do the dry, gaseous ammonia.

Q – Nichole Embertson: You were talking about the previous network sites? Those were both wet and dry?

R – Rick Saylor: No. Those were gaseous ammonia and PM2.5 ammonium. It wasn't deposition, just concentration measurements. No fluxes there.

Q – Phil Silva: You mentioned the under-prediction in couple of sites in Colorado and California. Is the under-prediction sort-of across the board? If you could check the data, do you think you would see high variability between some places that are very well predicted than in other places?

R – Rick Saylor: I sort of mentioned this in passing. Another study we've done recently in the domain in the Southeastern US, we see the opposite behavior where we don't have enough ammonia. The measurements are less than the model. It's opposite from what we see in Colorado. I think if we have the data all over the US I think we would have a lot of variability. We don't have a good handle on ammonia emissions nationwide.

No more comments or questions.

Short Break at 3:00 PM.

Air Quality Regulatory Update from EPA

Kasey Tayler introduced Allison Costa of EPA.

Allison Costa provided an overview and updates to regulatory programs. Ms. Costa's presentation covered the National Ambient Air Quality Standards (NAAQS), and spent time on the PM2.5 State Implementation Plan Requirements Rule that was finalized and signed about a month ago (see slide presentation).

Meredith Kurpius of EPA Region 9 also spoke to the task force. She mentioned that Kerry Drake, who usually attends the task force meetings, is on detail. She is filling in through the end of the year. She has many years working on air quality issues in Region 9 from a technical standpoint and not directly with the agricultural sector. She hopes to have a better understanding of the general air quality issues to answer questions of this area.

C – Kevin Abernathy: Would you please give an overview for the task force members. When we talk about the upcoming plan, the complexity over the number of plans we're working on.

R – Meredith Kurpius: We're talking about California and mostly the San Joaquin Valley. I'll focus there, though there are other areas. Just to give you a sense of the air quality issue, the concentrations in the San Joaquin Valley are higher than just about anywhere in the country. Ozone is up there, but really it's PM2.5. The design value for the 24-hour standard is 79, so it's

not even close to the 1997 standard. We're trying to get below 35. The annual standard design value is 22.2. The 1997 standard is 15 and the 2012 standard is 12. We have a long way to go. We're in a situation where EPA approved a Moderate Area Plan for the 2006 PM2.5 standard and in two months we have due a Moderate Area Plan for the 2012 PM2.5 standard. By the end of December, we have due the 5 percent plan for the 1997 PM2.5 standard. With the Moderate Plan, the District asked for a "bump-up". So next August, we have due a Serious Area Plan for the 2006 PM2.5 standard. They keep building on each other. Ozone has a similar cycle, with the 1-hour clean data determination last spring, but not yet meeting the 8-hour ozone standard.

I agree with a comment Richard Corey made earlier of some mention of the Clean Air Act being broken. I don't think we're there yet. There are challenges that are specific to the San Joaquin Valley that isn't happening anywhere else in the country. Some are probably related to agriculture, many are probably not. We must work through these various challenges. There is fabulous work that NRCS is working on in terms of replacing tractors and incentives. We want the reductions to come in a way that agriculture can keep moving smoothly. We don't really want a command-and-control approach. But knowing that they are so far above the standard we really need to get things going. We will rely on the partnership where we can keep working together. NRCS has set the tone where partnerships can work together.

Q – Marguerite Tan: What is the source in Utah?

R – Meredith Kurpius: My understanding from EPA Region 8 is that it is related to wintertime wood smoke.

C – Kevin Abernathy: A point of clarification. When a group of us stakeholders working in collaboration with our partners from the San Joaquin Valley on the Clean Air Act, it's more with the time of the process you just described, not really changing the Clean Air Act and its protective health measures. It's more with the process and the thousands of staff hours with working on multiple plans.

R – Meredith Kurpius: The staff hours are at every level, including EPA. We get litigated on almost every action. We must follow prescriptive guidelines and deadlines in the Clean Air Act. If we skip any of those, it's an easy way to lose a lawsuit. We try to create some flexibilities with timing. For example, we have multiple PM2.5 plans and we are looking for a way to combine them with ARB and SJVAPCD even though the deadlines don't quite line up. Looking at how to delay one and expedite another to end up with one plan instead of three by next summer.

Q – Kevin Abernathy: On Exceptional Events, we're hoping that the guidance document is coming out soon. Do you have any level of confidence that we may be able to place wildfires under Exceptional Events? Our monitors are all looking good until we have a heavy fire season when we lose our abilities to meet the standards. Do you see any changes with the new guidance coming out?

R – Meredith Kurpius: In EPA Region 9, we've concurred on more Exceptional Events than in any other region. Some were on wildfires, including the 2008 wildfires that were in El Dorado, Mariposa – the mountain counties above the San Joaquin Valley. So we've concurred on those with the PM2.5 designation. The challenge with the San Joaquin Valley is that when the wildfires are occurring during high periods of PM2.5, we need appropriate tools to figure out what is the wildfire component versus the base PM2.5 levels. I think with speciation data, we have the tools to do that. With the annual PM2.5 standard, removing the summer impact of the

wildfire component won't reduce levels below the standard because of the high wintertime influence. None the less, I've been talking with ARB and the District about finding a way to quantify what the actual impact is for planning purposes. One being what is an annual level without the wildfire influence value. You can do that without the Exceptional Events concurrence. If you want to avoid an exceedance, that is an Exceptional Event concurrence situation. If you want to adjust a baseline, that is not an Exceptional Events concurrence. So, how would that look? You don't want to get rid of the summertime because that is the lower time when you really want to add those values in with the annual. We do need to find a way to better account for wildfire. It will not help the 24-hour standard because that is driven by the 98th-percentile value driven by wintertime values, which are not wildfire impacted.

C – Charles Stanier: One comment on the greenhouse gas emissions pie, there is a huge slice with electricity. Electricity is used in the other sectors – agriculture, houses, and commercial buildings. It's tied in with all sectors.

No additional comments or questions.

Break at 3:38 PM. Kasey Taylor brought the meeting back to order at 3:52 PM.

Kasey Taylor introduced Mike Wilson, NRCS Climate Smart Agriculture

Mike Wilson shared his past experiences taking soil samples from the Sacramento Delta, and gave a brief of the ecology of the Sacramento Delta. Once was the largest wetlands in the Western US. He then presented Climate Smart Agriculture (see slide presentation). Covered topics included:

- Agricultural issues now and in the future
- Creating resilience and transformation in agriculture
- A summary of the USDA Climate Hubs and its partners
- Regional vulnerability assessments
- Delivering climate information to producers
- USDA Conservation Practices
- USDA Building Blocks

Q – Bill Angstadt: The Secretary came out with the Implementation Plan. In these next three years, specifically FY2017, you said there is to be additional Technical Service Provider (TSP) funding. What does this budget look like, how will these funds be allocated to the states, and where is the money coming from?

R – Mike Wilson: We don't have a FY2017 budget yet. That is being decided by NRCS leadership.

R – Kasey Taylor: Mike is spot on. This is a key priority for both the Secretary and the Chief. They will be looking at FY2016 as the benchmark. Some states had significant gaps. We are expanding the program and partnering in with the hubs and soil health division and state conservationists to make sure we can roll this out in a concerted effort. We are looking at both FY2016 and FY2015 for those benchmarks and try to move forward to meet that goal in FY2017. The concerns we have, and more of a challenge, this is a transition year where we will likely be

looking at continuing resolutions. We're hoping for a full budget by second quarter. It may come before then, but when we start off on an election transitional year we have the continuing resolution and potential for sequestration. Realistically, we won't have a budget until, say, middle January or early February. Anything before then would likely be a baseline allocation.

C – Lara Moody: Reminder to look-over the draft recommendations before our session tomorrow. In 2011 or 2012, the 590 standard for nutrient management was used for incentive payments. The standard was re-done by building in the "4R's". The Fertilizer Institute and partnerships with other industry associations have spent the last six years increasing awareness of the use of fertilizer best management practices for water quality, greenhouse gases, and others. When the climate change building blocks came up, we were very pleased to see the 4R's, but also recognized the opportunities to work with USDA for greenhouse gas emissions and water quality. The recommendations we've put forth basically recognizes opportunities that can arise for NRCS and agriculture as part of the nitrogen stewardship building blocks. Working with our committee and our NRCS contacts sets the basis for our recommendations that we put forward. The focus group met in March 2016. Talking with NRCS, this value of 64 million acres to be accounted for by 2025, adding 4.5 million acres per year with what they were referring to as nutrient management within 590. When you look at that, that's a huge amount. We know that USDA can't incentivize those practices on all those acres. We must rely on agri-business partnership to make that happen. We had a meeting on how to go about what that partnership should look like and how we collect that data. Need to document the actions on the ground to get that 7 million metric tonnes commitment. USDA only looks at the acres they incentivize, so we need to look at alternative ways. What you're seeing in the recommendations are opportunities for agriculture within the nitrogen stewardship building block and to help NRCS to apply the practice standards.

C – Bill Angstadt: That number you were looking for was from 2005-14 that NRCS influenced 26 million acres of 590 plans. So that includes croplands and livestock on CNMPs. So in 10 years they've influenced 26 million acres and in the next 10 years they have to maintain those acres plus additional almost 40 million to reach that 64 million.

R – Kasey Taylor: I think what they're talking about is our local workgroup progress with how those recommendations move forward through the state technical advisory committee. What we get from that group is where we should be prioritizing resource concerns and how we would like that funding to be moved through a fiscal year. When we start looking at that, it is not specific to a program as it is program neutral, focused on the resource concern. From there we know an estimate of what that state may receive in EQIP. We want to make sure this ties in with a healthy conservation plan and when we start looking at all these wonderful tools that are all byproducts of a good conservation plan. We want to make sure that is in place and tied in with a long-term objective specifically for that landowner. This is what we try to do, never trying to eliminate the forefront by working at the local level with the partnerships of conservation districts and their lead with helping us identify and prioritize what the key focus areas are going into the fiscal year.

C – Anissa Purswell: You mentioned about contracting and maintaining qualified TSP's to help with some of this work with writing these plans. As a TSP, you will have challenges. More and more difficult to recertify. As a private consultant, it's hard to justify the time spent to go through that process. I encourage the NRCS to streamline or simplify that process somehow. Otherwise you will lose TSP's. We continue to be in the program mostly because of the respect and working relationships. My certification comes up for renewal next year, which is renewed every three years. With these initiatives you will need more TSP and there are states that have a very few TSP's

R – Kasey Taylor: You're spot-on. There are on-going conversations in the Science and Technology area. How do we address the needs and concerns? We're seeing this in TSP's, certification, and maintenance of those TSP's. Yes… thank you for that.

No additional comments or questions.

Kasey Taylor: The next portion of the meeting is for subcommittee members only. DFO Greg Johnson requested that subcommittee members meet in different portions of the room. More time tomorrow for the subcommittee members to meet. We will meet again tomorrow at 8:00 AM PDT.

Meeting officially adjourned for the day to the subcommittee breakout sessions at 4:42 PM PDT.

AAQTF Meeting Notes
Friday, September 9, 2016

Opening Comments and Logistics

Kasey Taylor called the meeting to order at 8:00 AM PDT. She welcomed the task force members and discussed travel logistics.

DFO Greg Johnson reviewed the agenda. There will be brief agency updates. Then at about 9:20 AM speakers will be coming from San Joaquin Valley Air Pollution Control District (SJVAPCD) in Fresno. A public comment period was announced for the morning session, and it was announced that any member of the public that wishes to may have up to five minutes to make public comment.

Summary of Day One and Charge for Today

Kasey Taylor gave a detailed overview from yesterday's meeting, noting the opportunity for subcommittee sessions. Are any takeaways that need to be brought forward? We want to make sure we can address those or place them in the minutes for additional action or accept.

No comments were provided.

USDA NRCS Air Quality Update

Kasey Taylor introduced Greg Zwicke with the NRCS West National Technology Support Center (see slide presentation)

Four NRCS air quality conservation practice standards are up for review. Practices are typically reviewed every five years. The four practices up for review are 371, 372, 373, and 375. He encouraged task force member input with the review process. He summarized the nationalized payment schedule system for developing payment scenarios and associated costs. Under two CIG projects, universities developed the National Air Quality Site Assessment Tool. NRCS contracted with Florida A&M University to provide several staff training sessions throughout the country. Recognized Jerry May is one involved with this training. Working with EPA on drafting the Conservation Measures Guide, and invited task force members to assist with its review. The goal is to have a final document by this winter or early 2017.

Q – Bill Angstadt: Is there any update on the USDA-EPA Collaborative Ammonia Research?

> R – Greg Zwicke: Not right now. April Leytem and John Walker have been working together to build-up their research plans to get that going. That's the next step for that collaborative research and that hasn't kicked-off just yet.
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> R – Allison Costa: They have finalized the plan and will test the equipment over the spring. They should begin this summer or fall.

C – Larry Jacobson: How comprehensive is the Livestock Systems Guide? I remember seeing some of it at the beginning and didn't get a chance to review. Is it in its final stages?

R – Greg Zwicke: Not yet. If you recall, we published a cropping systems one back in October 2012 with EPA. It's going to be similar to that. The goal is to have two companion documents. Obviously the livestock side will touch more on some of the new and emerging issues, like with ammonia.

Q – Larry Jacobson: As many species as possible will be covered?

R – Greg Zwicke: It is not necessarily species specific. We tried to look at different areas. Kind of the way NAQSAT does with animal housing, feed management, and those sort of things. That way more than by species.

Q – Ben Weinheimer: For the four standards that are up for their five year review. What is your estimated timeline for those making it into the Federal Register?

R – Greg Zwicke: The Combustion Systems Improvement is the first one we'll be doing. The goal was to have that done this year, but that's not going to happen. We plan to review the four in phases. So now we're looking at the Combustion System Improvement for next fiscal year, at some point in FY17. It will be out for Federal Register review and we can let the task force know when that happens.

Q – Clint Quarles: As a producer, I cringe watching a running tractor getting picked-up and dropped that are nicer than the ones that I have. Can you give a brief overview? I think I understand you chuck-out the high emissions producing engine and hypothetically replace it with a newer tier. How do you value that piece of machinery? Can you give an overview of that?

R – Greg Zwicke: As far as how that works in the payment scenario? Yes. That doesn't come into account. We've tried different methodologies in the past and trying to come up with a cost that includes that hasn't really worked programmatically for us. We found an American Society of Agricultural Biological Engineers standard, a professional standard that looks at the costs of ownership and operation of equipment. The way the new methodology would work is we would take the cost of ownership and operation over the practice lifespan of our Combustion System Improvement practice, which is 10 years. Look at the costs that the producer would incur if the older tractor, an average of the older tractor, would be operated over that 10 year timeframe and compare that with the costs of purchasing and operating the new tractor over that 10 year timeframe. There are costs associated with that, not looking at each individual tractor and coming up with a value and trying to figure out what that is to the producer, but it is more of taking the average older tractor and looking at the cost between that and the new tractor. As far as the destruction goes, that is part of the way the program was set up. When we first started the program, the thought was to go ahead and not necessarily destroy the whole tractor. The program actually started with irrigation engines, and so we would cut holes in the block. Nobody would be able to use them again. As it turns out, California has a similar state program and they were finding irrigation engines that were running that had welded patches. So when that happened it sort of changed the game in California. To avoid that, complete destruction of the older equipment was required.

C – Kevin Abernathy: To put this in context, it is troubling. The joke that goes around in most of the agricultural circles is that they can't wait for our tractor replacement program to kick in because that means other states can get tractors really cheap. The reason for doing it that way, Mary Nichols, the

ARB Chairman, has been gung-ho on developing a tractor rule where all California farmers would have to replace their tractors with the latest-greatest technology. In an effort to stave-off regulatory requirements, we implemented the tractor program which was voluntary and incentive-based. Because of the work we saw, we've been able to stave-off a regulatory command-and-control process here in California with that program. It has been more than double the effectiveness of the regulatory program through voluntary incentives that ARB wanted to implement. It has been a fantastically well implemented program here in California.

Q – Clint Quarles: Not to belabor the point, but in any agricultural publications you can buy a computer system that will plug in and I can modify it by bypassing the system. If an inspector comes by, it can return to normal by unplugging it, throwing it in the tool box. Is there a program to see that people are actually using the control technology on the newer tractors when the availability to cheat is so prevalent? $300 and you're adding horsepower when it happens. A lot of guys will buy the smaller equipment, put a chip on it and run it. When the dealer needs to come out it's returned to normal by unplugging it.

R – Ted Strauss: I've never heard that happening with tractors. There is so much control equipment tied to the exhaust system alone that even changing the programing you still have to deal with the regenerator, the catalyst, and DEF solution. I don't know the answer, but I think that is unlikely to happen. Modifying the programing might impact the manufacturer's warranty. Besides, we would have no way of knowing that the programming has been changed.

C – Clint Quarles: I don't want to get a farmer into trouble, but do a Google search and in 15 seconds and you'll find something that will problematically eliminate that. The computer system saves all the initial programming. You can turn it to factory and it will trick the computer into thinking it wasn't messed with. It's highly prevalent, but I'm not saying that I own one. I can tell you that guys are doing that specifically on combines and tractors. It's more than a Volkswagen cheat test. It's easy to do.

R – Greg Zwicke: Something like that could destroy the voluntary program. You either do the right thing voluntarily or you're going to have a regulation. When it comes to the regulatory side, NRCS won't be involved at that point. I hope that folks that are participating in our program wouldn't be doing that because that opens up a whole other can of worms that can really destroy the good work we've done here in California.

C – Johnnie Siliznoff: Roger Isom, a former task force member, had brought to his attention an advertisement from an agricultural magazine to bring your NRCS tractor to this recycler either dead or alive… sort of like a Western promotion. Even task force members are watching out for us.

C – Kelley Green: I want to complement you on this program. I think it's been a model. The NRCS side of it with the whole idea of switching-out engines has become a lot more prevalent than people think. We have several programs in our area where you can switch-out trucks and different things, and they all require the motors to be destroyed. We found it to be a very valuable tool in cost effectiveness, because in some points at different airsheds the large industries can chunk-in some money to change out engines that is way more cost effective than upgrading their own plants. As we keep chasing the smaller and smaller reductions all over the country these are the kind of things we really have to do.

We've been hearing a lot about that program over the years and have used it as a model. Very well done.

> R – Greg Zwicke: Thank you for that. Just to add, because of the controversy and difficulties we've had internally with this program, we've kept the availability to California and Arizona. If the new methodology does get approved by the Chief, it's a national methodology. We're using national numbers, we're using a nationally applicable standard. It does open the availability of this type of work to be done in other areas as well.

No additional comments or questions.

USDA ARS Air Quality Update

Kasey Taylor introduced Marlen Eve to present the USDA Agricultural Research Service (ARS) update.

He mentioned six months ago that the new national program 212, Soil and Air, was just rolling out. ARS divides their efforts into 17 national program areas through the agency. The 212 was merged with two programs to include soil health, conservation tillage, cover cropping, nutrient management and all the aspects of soil and agronomic management, as well as air quality with manure odor, ammonia, methane, nitrous oxide, and the greenhouse gas emissions. I cover the mitigation side of the climate change arena. Charlie Walthall covers the adaptation things through the national programs he manages through 216, which is with sustainable production systems. The new 212 has in fact rolled out. The projects have been approved and all of them have been certified through the peer review process. I know there are still a few that require modification and additions, so a few are still in the pipeline. This fall, those projects will begin to be implemented. The next time we meet I will be able to give a better presentation of some of those projects that are just getting off the ground.

The soil and air program is within the Natural Resources group in the Office of National Programs. We have about 450 scientists total within Natural Resources at 60-some locations. I think the soil and air arena has somewhere around 240 scientists at about 30 locations. Our annual climate change budget at ARS is about $45 million per year. That covers GRACE-net, REAP and other data efforts, as well as the climate hubs and our climate change research. The air quality portion of our research is about $14 million per year at ARS.

One priority is to get national program leaders out of the silo mentality of thinking. More thinking collaboratively. How can we work across boundaries? Part of that is reflected in strategy with filling vacant positions. Preparing to fill three vacancies within the Natural Resources area. The national program leaders were queried and began to look for strategic gaps in coverage for a more team effort and collaborative ability to reach across subject areas. The result of that is we just hired a soil biologist-microbiologist national program leader, and are in the process of hiring an engineering national program leader. Both positions will cut across boundaries to bring more expertise to soil biology and engineering, both important in the air quality arena. We are also in the process of bringing on a new water national project leader. Our staffing is doubling right now in the Natural Resources corner of the building.

The USDA produces a national greenhouse gas inventory. Every year we're engaged with EPA with developing the annual submission, but every few years using the same data USDA puts out our own greenhouse gas inventory. The last one came out in 2011 or 12. The new version is coming out this

month. There are great improvements with a lot of input from ARS and other USDA agencies. That product has the same data as the EPA submission, but the EPA submission is driven by the IPPC guidelines with the way data is aggregated and reported. By putting out our own, we can slice it and dice it and make it more specific to the agriculture sector, to commodities, and various states or regions across the country.

Highlight a couple of efforts that are going on in air quality within ARS: I've been to about eight or nine locations to talk to scientists and have learned a lot about what's going on. As an example, our scientists in Bushland, Texas are a livestock research unit. They've deployed new instrumentation where trays of manure in a shed with controlled temperatures and environment and controlled water measure real-time nitrous oxide sampling. They have a hood that goes over the trays that they can roll in and out of the shed to get the sunlight effects. The key is the instrumentation provides real-time with some sort of gas exchange technology. We are beginning to fill-in the gaps between some of those sampling periods with nitrous oxide research. Another example of what their scientists are doing at different locations are using laser technology to measure methane coming off of confined feeding operations. Scientists are looking at deploying this research on grazing land and grassland settings. Looking at methane emissions specifically from our grazing animals. A lot of our effort has been focused on our feedlot animals.

In Beltsville, a scientist is working collaboratively with a researcher from the University of Maryland on small-scale digesters that small dairies could utilize to potentially produce energy, but not nearly as expensive or complicated as what we think of currently with anaerobic digestion. One scientist is working on composting dairy manure as a containerized system to control all of the gases. Another researcher at the Beltsville Dairy is an animal nutritionist that is placing dairy cows onto a scale weighing exactly what they eat and tracking that through the entire system. Though not specifically an air quality scientist, the researcher is doing great stuff with how the food energy and diet that animal is consuming is partitioned out towards milk production, manure, or gassed-off.

"I look forward to our next meeting six months from now when I can show some slides and give some details on the new projects that are just getting rolled out. Anyone interested, I can get you in touch with those scientists."

C – Kevin Abernathy: I would like to know more about looking at some of the science you will be doing on transitioning away from confinement to open. One of the protocols in the Scoping Plan from ARB on the Short-Lived Climate Pollutants is they want California's 1.8 million dairy cows to convert to rotational grazing pasture. We've focused on it from the efficiency standpoint as far as inputs, compared to productivity. We know that productivity decreases significantly when you go to grazing. That is something I would like to know more about.

> R – Marlen Eve: I've been challenging our scientists to be looking at that. There must be some things we can do in terms of minerals and additives, dietary supplements that could have an impact on feeding efficiency in the diets that are consumed in those grazing environments. I've been asking those questions when I'm with our scientists and challenging them to start thinking about how we can improve the efficiencies of our grazing systems.
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> C – Kevin Abernathy: We've been currently working with putting together the structure with a team at Texas A&M by looking at different efficiencies or trying capture through our manure management process on some of the efficiencies with carbon collection and where we are at

with the overall scheme of that. Also included Dr. Robert Hagevoort from New Mexico State University that I would consider to be one of the nation's top nutritionists to also look at the enteric side. There should be a way for you to collaborate with some of the university folks that are actually working on the behalf of stakeholders.

R – Marlen Eve: Yes, let's explore that.

C – Kevin Abernathy: Then finally, we did the original cow bubble studies in 2003 when SB700 was passed. Dr. Mitloehner at UC Davis was the first to actually measure feed intake and measure what come out of the North and South end of the cow. I would recommend that your research individual take a look at that study, as there were recommendations for further research that came out and we've done more on the farm level. That would be a great starting place for the individual to fill some of the gaps.

R – Marlen Eve: I think I've seen some of that work. I'll take another look at that.

No additional comments or questions.

USDA NIFA Air Quality Update

Greg Johnson introduced Karelyn Cruz with USDA-National Institute for Food and Agriculture (NIFA).

Karelyn Cruz said she is relatively new to NIFA, replacing Greg Crosby (and previously Ray Knighton) that some task force members may have met before. Because there are some new members to the task force, she wanted to provide a brief overview of what NIFA does.

They have an annual budget of $1.5 billion. NIFA offers both capacity and competitive grants. The Agricultural Food Research Initiative (AFRI) is their flagship program. Also have foundational programs for research.

NIFA invested about $40 million from 2009-14 for air quality. Of this, $10 million goes toward capacity grants and $30 million for competitive grants. NIFA's programs are in response to the Farm Bill. NIFA has no legal authority in selecting the established stand-alone programs. If we want to make air the priority as a stand-alone program, that needs to come from our stakeholders or through the Farm Bill. Nevertheless, we support air quality.

Another program is the National Atmospheric Deposition Program (NADP), a collaborative effort among federal, state, tribal, local governments, universities, and private companies. The budget is about $1.8 million per year. This is a monitoring network of five different monitoring sets across the country and territories to monitor different gases, like ammonia, nitrogen, mercury, and others.

We respond to research. I heard the discussions and am interested in hearing about research needs. This is good to know as we go through our competitive process. Another way to influence the process is by becoming a reviewer in the competitive grant process. Please contact her if anyone is interested in becoming a reviewer.

The Small Business Innovation Research Program (SBIR). The first site we visited on the task force's field trip was a bioenergy project. This is the type of small businesses we are interested in. We like to

support small businesses that are doing research or partnering with research institutions. New technologies and innovation or a technology that is already established for different purposes may be part of this program. Working with land-grant universities, research institutions, and with small businesses. More information is available on their website.

Q – Ben Weinheimer: Welcome to the meeting and good luck in your new position. Just to clarify, NIFA funding is $1.5 billion per year and the air quality investments amount to $40 million over the five year period total from 2009-14. Is that total or per year?

R - Karelyn Cruz: That's total. I don't have the numbers for 2015.

C – Ben Weinheimer: So roughly $8 million in air quality invested per year in the $1.5 billion budget.

R – Karelyn Cruz: Yes

C – Ben Weinheimer: ARS's numbers of $14 million per year for air quality under a roughly $1.2 billion ARS budget. One of our on-going concerns here as a task force has been the continued dwindling capacity. I know you mentioned capacity and competitive grants being two parts of that. We've just seen a huge contraction overall across the US in all of these programs related to air quality. When we start to look down the road I think it's short-sighted on all of our parts to realize where we might be 10 years from now whenever we still have these unanswered questions related to characterizing air emissions and mitigation practices. We are far from over dealing with the conflicts between the public and, our business as an example, livestock operations, where we will continue to need new and more information related to air quality and how to deal with it. You've probably seen some of our previous recommendations from this task force on efforts to try to continue to influence the ability to put more resources towards air quality. I guess we'll likely come out of this meeting again to emphasize those recommendations. We're fortunate to still have some premier air quality scientists as part of this group, yet as they try to develop new graduate students and keep the pipeline full, they can only do that if we have the resources to keep those projects funded and continue to answer those questions we have out there. Hopefully you can report back at the next meeting because we can't emphasis enough how much we're shorting this area and we will really be up against some battles to come. It's not a supply chain that you just fill the gap with when we've shorted it so much in terms of the people and growth of new faculty in all of our teaching education and extension programs.

R – Karelyn Cruz: The work is pretty strict, as we respond to whatever is in the Farm Bill. We don't have much say. One recommendation from a previous meeting is to have a line-item just for air quality. We cannot do that because we respond to the Farm Bill.

R – Marlen Eve: At ARS and probably NIFA as well, the accounting is tracked with codes. I mentioned that ARS had operated in silos, and each silo has its own coding. As soon as we get these new people on board, I want to make sure our coding is updated. As we are looking at collaboration, cross-cutting research, if that research touches air quality I want to reflect that in the way we're coding. We've been challenged to connect better with NIFA and others and make sure our budgets are being strategically utilized. That our work is not duplicating, but complimentary. I agree with you that we don't want to see those number dwindle. We want to

make sure this remains a priority. The action plan for the new NP212 titled Soil and Air reflects lightly on air. It's a lot about soil and little about air. These are some of the things I'm trying over the next couple of years to rectify to build into the program strategically. I've read the recommendation and I look forward in coming meetings to report our progress.

C – Bill Norman: NIFA was created in the 2005 Farm Bill out of the CSREES, the National Cooperative State Research, Extension and Education Service. When that was created, there were certain priorities established, but it's up to the Chief Scientist to create the priorities. The first priorities were nutrition, diet, other issues, and our agricultural processing, agronomy, weed science, entomology, programs that were sponsored under the older programs from the CSREES. All the money was focused into these four or five priorities in four or five year lengths. So the money was committed and there was no new money coming. It took a change in administration of NIFA under the current leadership to get back on track to provide enough support from a capacity standpoint to support the scientists who've been working in areas critical to agriculture for many years. So, you had a gap there. It didn't fit into well-defined priorities that were established. That's been changed some now since someone who is familiar with the land grant system understands how to make things work. The money that's being addressed in these issues is minuscule and very frustrating, both in NIFA and ARS. Marlen and I had a good discussion yesterday about his visit to the gin lab in Lubbock and most of the support and equipment that is there is very valuable. Something on the order of 40 or 50 research papers have been published so far out of multi-state sampling project over a number of years. That was all done with equipment that was either boot-legged, gifted, or purchased by grants from industry or other sources. Not specifically supported in a great monetary way from ARS directly because there is no program project at that site that fits into the area. The scientists there understood the stakeholder needs and stepped-up and created them. It's a valuable lab with mobile equipment that can be sent out to handle this work. A tremendous resource. It's still frustrating that there isn't enough emphasis put on this area as has been talked about here this morning and we continue to fight for additional funding. ARS has been flat-lined basically for almost 20 years. $1.2 billion is a lot of money. But it was at $1.1 or $1.05 billion 20 years ago and we're still at the same level. The effort behind the creation of NIFA was to create the equivalent of the National Institution of Health (NIH). How much money does NIH get in compared to NIFA? We would like to see $1.4 billion in AFRI [Agriculture and Food Research Initiative] alone. We're thankful that we're at $700 million. It ought to be 2, 3 or 4 times that amount. This is something we need to continue to work on. Press for additional support for research through whatever agency. From my commodity group, we preach a balanced approach. We don't want to see 100 percent of that money going into competitive grants. There is a place for it, but there is also capacity building that has to take place. You need the lab, technicians, and staffing and equipment to support the scientific effort. Need the intermural support with ARS.

R – Marlen Eve: Getting the funding is a collaborative effort. Our funding comes from Congress with priorities attached to it. Each year at ARS and NIFA we are asked to put-in our proposals for what goes to the Secretary and ultimately ends up in the President's budget. So we have opportunities to dream about what we would do if things were added. The flip side of that is we have to identify programs we would cut if our funding is cut. That's a painful process because we've cut everything that is not productive or useful. Everyone out there is doing a good job. I receive emails from people who are on the cut list and I don't have an answer for them. Getting things into that budget cycle is a collaborative effort. We can put things forward as ideas for the department to submit, but when our stakeholders are coming to us to talk about their priorities and then going to Congress to talk about their priorities, then things end up in the budget. In the FY17 mark-up budget, there is some additional ARS funding for new air quality work at the

ginning labs. That's largely because of stakeholders demanding it from their Congressional representatives which I cannot do. It is a collaborative process of making sure that the priorities that come to ARS and NIFA reflect what the needs of the industry are.

C – Kelley Green: If you don't work with some of these ARS labs regularly, you're missing something. We have fantastic scientists in those labs. They do work that nobody else can do that you can't get from a university or anywhere else. When he said cut-list, it made me think of one scientist who in my personal opinion is the next Dr. Faulkner. He and Dr. Faulkner worked together closely. I've watched him come out of college and through his career, and he has been on the cut list several times. That is something we need to do as industry people, we need help USDA to make sure you get feedback. We do have some very good air quality work going on at the Lubbock lab. We're trying to make it applicable to all of agriculture and not just cotton gins.

C – Karelyn Cruz: To respond to Bill Norman's comments, the AFRI challenges area priorities are climate variability and change, water for food production systems, food safety, childhood obesity prevention, food security, and sustainable bioenergy. On the foundational areas for science research are plant health, production and products; animal health and products; food safety; nutritional health; bioenergy; natural resources and the environment; agriculture systems and technologies; agricultural economics and rural communities. I obtained this through our system, which is a huge database. If not coded well, we could be missing a lot of good research. This is something we need to work on, better qualifying the data.

C – Lingjuan Wang Li: Regarding the priority schedule, we discussed in the subcommittee yesterday about the priorities and not seeing air quality. In the old days we do have air quality before NIFA. We still have research gaps and the research is much needed. There is no place in the research foundation grant that has that.

R – Karelyn Cruz: We need to work together. The stakeholders need to work with Congress, but we can also work with you on that.

R – Marlen Eve: Within air quality, for example within the NP212, a new action plan is developed every five years. Every five years we look back at what has been accomplished, develop an action plan going forward, and new objectives for projects going forward. When the new action plan is developed we have a process for gathering stakeholder input. That used to be a lot of face-to-face listening sessions and workshops. With budget cuts we went through a time where we weren't exactly sure what to do. We did some things through conference calls and call-ins, but now we have a new plan in place where there are a couple ways using modern AV technologies where we can hold events in a few key strategic locations and allow others to join in remotely. We are trying to get back into a better process of getting stakeholder comments into that in our action plan.

Q – Karelyn Cruz: How does the group take the research to the field? There is a lot of research. What is the process for policy making or advice? Is somebody actually reading the materials and trying to bring that here? How does it work… the link between research and the group?

R – Greg Johnson: We have a subcommittee structure where each of the three subcommittees look at particular areas of air quality research and evaluate where the gaps are. Making recommendations on the research gaps that need to be investigated and then bring that back to

you and Marlen and whoever else that might be receiving that. We also put it through the Department chain and making that known. It's really the more direct connections. It's the associations I think that pay-off the most where you have personal connections where it's possible to do that.

R – Kelley Green: I spend time with several scientists almost weekly. All of our conferences will generally have some of the scientists there. A lot of the labs have focus groups that bring us in once or twice a year and just get input. Most of our work is through meetings and working with them every day. Even the almond guys with the harvesters where we were talking with the California guys about this problem. The lab guys heard us talking and said that was something that has similarities with almond harvesting and cotton ginning, so let us look at that a bit. A lot of it is grounded in the research they're doing. It's just identifying needs and doing it on an individual basis. It's perhaps the most efficient way.

Q – Jeff Collett: Good luck with your new position. Concerns about lack of competitive grant opportunities in air quality. The NADP [National Atmospheric Deposition Program] is an important program from an agricultural air quality perspective. It's the only national program that looks at ammonia. We see programs come and go. I want to emphasis the importance of the NADP and express the appreciation to the scientific community of the investment made by NIFA. Is there any concern going forward over funding?

R – Karelyn Cruz: NIFA manages the NADP, but doesn't fund it. Other US agencies are funding it. Their annual meeting is scheduled in November in New Mexico. The budget appears pretty stable.

C – Jeff Collett: There is ammonia monitoring in the grant. So NIFA isn't funding any of that.

R – Karelyn Cruz: EPA, Forest Service, and other agencies are funding that effort and NIFA manages it.

C – Jeff Collett: This is something that needs to grow. I would encourage NIFA to consider bringing in more resources. There is a recommendation that might come out of the subcommittee to help support more monitoring.

Q – Juan Tricarico: Whatever specific topic we are interested in we do a great effort with cultivating those relationships with individual scientists so that we can actually know ourselves as to what is going on and participate in that process. The challenge is related to some of the things discussed earlier about those codes. In 2013, I was involved with analyzing the database that includes all the records, looking at the data from 2007-13 with special interest in enteric methane emissions from dairies. I found about 1,300 records for that period and could only find funds for amounts of money from 170 of those records. At the end of the day when I went through the whole analyses I found there was about $13 million that we for sure align with priority areas related to enteric methane. No one really understands where the funds go. Capacity building is important so that the knowledge is there. Once NIFA stops funding some of these capacity building funds, professors at universities that are judged by how much money they bring in and the number of papers they publish, will turn and look for other areas for funding resources so they can publish their research. Therefore, we lose scientists to other areas outside of agriculture. It looks to me that the process is obscure and not transparent enough. The process of how those capacity building funds are allocated is not clear. In my opinion, we simply don't

have good enough intelligence to have a really good aggregate picture of what's going on and therefore make decisions on a high level on where that should go or how to prioritize the different areas.

R – Karelyn Cruz: My understanding is that the capacity funds go to the states and the states decide how to manage these funds.

C – Juan Tricarico: That's what I've heard too. The forms are filled-out by individuals who are awarded funds. When they fill-out the records, they don't put-in the amount of money they receive because they don't know. They fill-out the form generally of their work, but cannot include anything relative to the amount. Unfortunately, I believe that the lack of transparency makes it really difficult for anybody to understand the big picture, in aggregate, what is the value that is being brought.

R – Karelyn Cruz: The previous agency I worked for was really focused on monitoring and evaluation, and tracking every dollar and measuring the impact. When I started at NIFA, I was asking those questions. What is the impact? I think the agency is now starting to move in that direction by getting things to start tracking the money and impact. So we'll have a better understanding.

C – Kevin Abernathy: In California, most of our research needs are typically because of rule obligations. Either the San Joaquin Valley or the Air Resources Board. Criteria pollutants are still the driver. USDA and others have gone climate change crazy and have diverted a tremendous amount of resources into an area that has had a lot of science done, but still has a lot more. That's under the premise that we continue to have the NAAQS standards for ozone, PM and PM2.5 lowered - that is still the driver. The Supreme Court even said that criteria pollutants are still the main driver. From a standpoint of prioritizing, we seem to have a huge focus on a driver that really isn't the driver. It is still criteria pollutants and we still need a tremendous amount of research on the criteria pollutants. As the District will say, "We leave no stone unturned." As the low-hanging fruit has been picked years and years ago, we need more and better science to find out where we're going to be able to pick from in the future. Someway, we need to be able to coordinate this body of research that is out there and the ability for us to be able to pull from that to put together a good plan for moving forward and not duplicate. Though we need to do some duplication, we also need to be very specific with how we spend the very limited resources. I want to highlight that criteria pollutants are still the driver. That is the Clean Air Act, not climate change.

Kasey Taylor closed this session and thanked everyone for the feedback.

Public Input Forum

Kasey informed the task force that no individuals signed-up to present public comments.

Air Quality Challenges and Solutions in the San Joaquin Valley

Kasey Taylor introduced Chay Thao and Aaron Tarango with the San Joaquin Valley Air Pollution Control District.

Chay Thao, Program Manager in Planning, thanked Greg Johnson and Ted Strauss for inviting him to the task force. He also introduced Aaron Tarango, Incentives Programs Supervisor. Chay Thao then

proceeded with his presentation. Aaron Tarango discussed the role of incentives. (See slide presentation). Topics they presented include:

- The San Joaquin Valley is at a critical juncture with meeting Clean Air Act mandates
- New NAAQS approach background concentrations
- Meeting new ambient standards requires enormous reductions in emissions
- No viable options in avoiding costly federal sanctions and Federal Implementation Plan (FIP)
- No stone has been left unturned, as the Valley has the toughest regulations in the nation
- Emissions have been reduced by 80 percent and an additional 90 percent reduction is needed to meet the new standards
- Voluntary incentives play an important role with reducing emissions
- Partnerships with NRCS, ARB and EPA.

C – Cynthia Cory: So discouraging. We've been doing this a long time, but this is so discouraging. It's clear that this is why the task force is even here. The Valley produces the majority of the county's fruits and vegetables and I don't know if we can keep that happening. It makes me so mad. You go and testify and watch what these guys are doing and you watch the partnerships that are happening. You stand against people who just don't care. If we don't stop this, our food is going to come from China, Chile, and Mexico. Well guess what? We won't be growing peaches, nectarines and avocados in Montana anytime soon. The standards are nothing like they are here. We have the strictest standards in the world and the safest food in the world, and they're pushing us out of this state. We tried to show you a little bit of this Valley. We have a geographic disaster. We have 80 percent of our emissions coming from mobile sources and only so much one can do about that. I cannot tell you what it's like to get the calls from those who have to get rid of their trucks that they've been taking care of for years. It's so hard to take those calls. Let them FIP us!

R – Aaron Tarango: We have actually said that. We're also at that point where we don't know what EPA wants us to do. These are background levels, meaning it's a problem if nothing is here. It's hard to explain this to people. We're fighting EPA over the standard and ARB over other things, but it's tough. This is truly at the stage where we don't know what to do. That comment is directly from our Air Pollution Control Officer, Seyed Sadredin. I get those same phone calls from the farmers driving trucks. We don't have an endless amount of money. I wish we could replace all of them, but we can't do it. This is one reason why we seek federal dollars to help fix the problem.

R – Chay Thao: We are exploring every avenue we have.

C – Cynthia Cory: I don't want to make this all California, but this is where it all started because of these issues. I don't know what's going to happen. We feel so helpless.

C – Kevin Abernathy: Everyone around this table is an agriculturalist. I feel humbled because one of the reasons we love doing what we do is because of the passion that Cynthia just expressed. The frustration does get very deep. There comes a point as whether this is the final straw that finally breaks the camel's back. The people we represent continue to hit it out of the park, but we have really have put ourselves in a corner where even the folks that rely on us from our respective commodity groups… we're at our wits end. We're right there with our partners at the District, what else can we do? We have the most exemplary story to tell of anyplace in the world and we're asked to reduce emissions by another 90

percent? At what point is enough, enough? A lot of states look at California, we are the wacko state for damn good reason. What you see transpire here over decades now will be on your front porch at some point. From that standpoint, there will be a lot of lessons learned, but I think this next lesson will be the biggest. At what point is enough, enough?

C – Cynthia Cory: We have so much of our ozone coming over from China and we're measuring that along the coast. And we're at our background, but keep ratcheting down on our sources when so much is coming from other places. Take everything you're doing now and go work with China and other places. That's where the emissions are coming from if you want to get down to this level. You can't create the cleanest place in the world and still have an economy.

C – Meredith Kurpius: We've worked with the District for years on this challenge and on-going situation. I was thinking about where we are with the San Joaquin Valley and air quality, and our inability to approve the PM2.5 extension request. She gave a Harry Potter anecdote... we see a brick wall and we're trying to see how to get through. The 1997 Plan had a June 30th deadline and we couldn't break through that brick wall. This was a low point I've seen in the Regional Office in many years. Ended up not being legally defensible because of the complications associated with the specific extension request for Serious Area. We are going to face this again. Hopefully we'll have more advanced understanding of the best direction to go. But I think the comments that we are at a tipping point are relevant and I'm not yet ready to say that the Clean Air Act is broken. For me, when I look at this, the San Joaquin Valley is special and different. The structure for the Clean Air Act may not be ideal for it. I'm hoping we can still continue to partner to try and see what we can do. We come here as partners. We want to be helpful where we can.

C – Kelley Green: We've watched this develop over a lot of years. I talk to Roger Isom at least two or three times a year to find out what's going on in California and I learned something this morning. That is how big an optimist Roger really is. I always thought of him as a pessimist. Now I have a better picture. This whole process has been a big concern for all of us in agriculture for a long time. When you get to the point where you got a chart saying we're this far behind in three different standards and we're likely to go through another that is lower than the last one. I think this Valley is a magnified example of what's happening all over, and that is every time we go around on any criteria pollutant it just keeps dropping and dropping. Zero is not the right answer. This is going to happen at more and more places as we drop these standards down. At the point you reach background, what do you do? I think it's a concern for the whole country as we keep going through these rounds and you're just 10 years down the road ahead of us, or how many years it is. Thank you for coming and I appreciate that clear layout on where we are. I've never seen it on one graph that has it all laid out.

Q – Clint Quarles: Can you go back to the slide with the inventory? I'm not a scientist – I get paid to be critical about everything. The things on my farming operation and my house, I go through and replace the lights to reduce my energy consumption and my bill. The ultimate way to reduce my bill and energy consumption is to turn my lights off when you're not using them. From our field trip two days ago, the biggest chunk, about half, is passenger cars and heavy-duty trucks. That's a huge reduction that you've already done. So maybe you can't squeeze any more juice out of those other ones, but we spent half the time stopped on the road the other day. If you could just keep your traffic flowing. If you could reduce driving time by half. Infrastructure to keep traffic moving. Has traffic patterns, road development, has any of that been looked at? I mean, look out the window. I've watched that on the Interstate and it's just stopped.

R – Chay Thao: About 10 years ago there were studies looking at synchronizing lights. We need transformative changes in vehicles, such as electric vehicles, that is just part of the equation. It's across the board. The mobile source is our biggest issue. We'll see where electrification goes.

C – Kevin Abernathy: There is a study that is few years old now, but there are 12,000 daily vehicle idling hours every day in the Central Valley. We're building multi-billion dollar trains to nowhere instead of extending BART [Bay Area Rapid Transit] light rail from Livermore into the Valley. People are moving into the Valley because home prices are relatively low and then getting up at 3:00 AM for a three to four hour commute to the Bay Area instead of taking BART. There are ways to potentially reduce things, but it goes back to zero emission vehicles and zero emissions transportation. There are things that can be done, but we have a Governor and he wants a legacy of building a bullet train.

R – Clint Quarles: It's still the heavy-duty trucks and if they don't have to stop. They are never going to put almonds on a commuter rail and send them down the road. They're going in a truck. If there is no water traffic available to move goods, then improve the truck line. If you can cut truck time… a dedicated truck route.

C – Meredith Kurpius: The metropolitan planning organizations for the Valley met on Wednesday with EPA senior managers to talk about this and other issues. There are highway funds available for certain cities and urban areas above certain populations. The way the San Joaquin Valley is so spread out, none of urban areas and cities within the Valley meet those thresholds to receive these funds. There is huge amount of trucking that goes through the Valley, not just from agriculture. We have ports in Long Beach and LA where traffic comes north up I-5 and Highway 99. You have a huge amount of trucking through an area that is not eligible for these highway funds.

C – Cynthia Cory: We also have a long, skinny state with almost 40 million people with an infrastructure that was built in the 1960's. It's like our water system. We have so many people and so many goods movement needs. About 40 to 50 percent of our nation's goods come through the three California ports. A lot of movement not just for California, but for the nation. They just move them up and down the Valley to their final destinations.

Q – Clint Quarles: If you're stuck in traffic, why not pull twice as much?

R – Kevin Abernathy/Cynthia Cory: We've tried. There are weight restrictions in California.

R – Aaron Tarango: We are actually for it that because it translates to fewer vehicle miles. That's part of the partnership we have with agriculture.

C – Sally Shaver: I applaud your collaboration and the work you've done. I've worked on these issues for a long time. You've made great progress and I remember the days when it was my phone that was ringing and people from the Valley were complaining to me. It's good to hear its more on the local level and you've taken control of this. I think the Clean Air Act has served us very well. We've cleaned up the air and it's in much better shape than it's ever been. But enough is enough. It doesn't matter about how clean the air is if people aren't eating, or eating the wrong thing, or no water to drink, and we can't get around and there is no economy as Cynthia said. So there needs to be some balance here. We're pretty much at background levels. We know that particulate matter and ozone are none-threshold

pollutants so zero is the answer for perfect health… and you can't get there. I would like to see the good bureaucrats and the scientists within the bureaucracy stand up and say that. This is enough. That's good enough for air quality. Furthermore in the San Joaquin, we'll give you 20 years to see if you can get lower, but we're not going to impose sanctions that don't make sense. We've spent billions that might have been better spent on a health perspective on something else. We may have killed more people in the Valley from stress than we saved from ratcheting down a little bit more on air quality standards. I'm not saying that you give up. Look at what you've done and accomplished. Let's applaud some of that and make sure we don't backslide. Why can't the scientists in the bureaucracy recognize this and say we've made a career out of there but that's not the whole world. There are other things that are important too. Let's congratulate ourselves and focus on something else, maybe. We've done enough on ozone, we've done enough or close to enough on particulate matter, there are still a lot of toxics out there, and some other things. It's not that you're going to lose your job. I do think the Clean Air Act needs revision and I would love to see the bureaucracy to say that. I understand the political realities of the day. We have an emotional attachment to these environmental laws and so afraid we will lose some portion of it or some legacy that we've created instead of looking forward. These laws have been around for 40 years or more and they've served us well. It's time to revisit those and revise them and make them better laws for the future that will serve us better. Let's put our creative minds to work on what we can do and should be doing. Thank you.

Kasey Taylor thanked Chay Thao and Aaron Tarango for coming in. Nothing is impossible. We may have a heavy lift with getting there and it may take longer timeline to achieve it, but we can do it. Thank you all for your comments.

Greg Johnson requested that subcommittee leads finalize the actions they would like the full task force to consider.

Subcommittee Breakout at 10:20 AM. Meeting was called to order again at 10:50 AM

DFO Greg Johnson said that the Charter expires in mid-April, which is separate from everyone's terms. The Charter and Terms are off-set by almost a year. If you're serving a one year term, you'll serve through January 2017. If you serve a two-year term, you serve through January 2018. Beyond that, the Charter for the task force will be initiated in the next few months. Regarding time for the next task force, target dates are late-February through early–April. Open for suggestions and locations.

C – Lara Moody: Recommend staying away from the last week of February. March opens up after all those winter-time meetings.

Q – Bill Angstadt: For those of us on the one-year terms ending in January, we would have to go through the re-nomination process. How soon can we start that if we're going to have a full task force at the next meeting?

> R – Greg Johnson: That's up for debate right now. We need to get some clarification on this. If you served six years or more you will need to wait two years. We probably won't be doing nominations at this point. That's still being decided. This is the largest task force we've had at 35. We will have 26 left after January for the next task force meeting.

Kasey Taylor opened discussion for recommendations for the next meeting. The recommendations offer the week of March 19 or March 26 in North Carolina with Kentucky as a back-up. Recognized those who served their one-year term. Kasey will reach out to the Chief for Certificates of Appreciation.

Subcommittee Report-outs, Plans and Recommendations

Climate Smart Agriculture and Sustainability Subcommittee:

Lara Moody discussed the white paper titled USDA Building Blocks: Nitrogen Stewardship Initiative. She provided draft recommendations prior to the meeting. A few updates made and are presented here.

Seven recommendations from the subcommittee. A motion to approve the recommendations was made and seconded. Motion passed and the recommendations are approved.

Air Quality Standards Subcommittee:

Ben Weinheimer provided the draft recommendations before the break. Recommend continuation from the April meeting to maintain a high priority as agenda items, such as research funding. PM sampler issues, including recognition between Dr. Faulkner and Dr. Vanderpool with their wind tunnel studies. Concerns on how the samplers are utilized could be researched, with more on implementation. FRM samplers in the field and interpretation of data.

A motion to approve the recommendations was made and seconded. Motion passes and recommendations are approved.

Reactive Nitrogen Subcommittee:

Sally Shaver presented. The subcommittee is working on three separate items: research recommendations for NIFA by reinstating the air quality focused research; list of priorities for nitrogen research; outline for a white paper on nitrogen, which is a draft and not yet polished enough. Nothing for today, but the draft recommendations will be sent via e-mail for approval consideration.

AAQTF Path Forward and Logistics

Kasey Taylor noted that all logistics have been discussed. Plan is for the third or fourth week in March in North Carolina, with Kentucky as a back-up.

Greg Johnson thanked everyone for coming and making this a successful meeting. Extended thanks to the NRCS State Office in California. He introduced Anita Brown, Public Affairs. Noted Ted Strauss and Johnnie Siliznoff for their contributions. Thanked Greg Zwicke for all his help. All the subcommittee chairs. Appreciated EPA for being here. He noted that some AAQTF members' terms end in January, so he requested that they still participate with subcommittee work through the remaining period. The subcommittees are the strength of the task force, so I hope you continue to meet and remain active through the fall and winter. As was mentioned, a vote on reactive nitrogen subcommittee recommendations will be conducted via email. Presentations will be posted on our website hopefully

within a couple weeks. He also thanked Gordon for the good audio visual support during the meeting. Finally, Kevin Abernathy and Cynthia Cory were particularly thanked for all their work on a great AAQTF tour on September 7.

Meeting adjourned by DFO Johnson at 11:30 AM PDT.