WORKGROUP FOR GLOBAL AIR PERMIT POLICY DEVELOPMENT FOR TEMPORARY OIL AND GAS DRILL RIGS

MEETING

October 30, 2015

Anchorage, Alaska

Present:

Denise Koch, Chair
Gordon Brower
Alison Cooke
Tom Damiana (telephonic)
Alice Edwards
Wally Evans
Corri Feige
Robin Glover
Deanna Huff
Randall Kanady
Joshua Kindred
John Kuterbach
Ann Mason
Mike Munger (telephonic)
John Neason
Julieanna Orczewska
Mike Peters
Tiffany Samuelson (telephonic)
Alan Schuler (telephonic)
Rebecca Smith (telephonic)
Brad Thomas
Barbara Trost
Tom Turner

P R O C E E D I N G S

(On record at 12:30 p.m.)

MS. KOCH: All right. Hello everyone. This is Denise Koch. It's 12:30, so we're going to start our drill rig workgroup meeting.

Thank you very much for all coming. We have Alice Edwards who is our former Director of Air Quality had planned on being here and she's now our Deputy Commissioner. She'd planned on being here. She might be coming in a few minutes late. But I started as the Director of Air Quality in April and that's why this time you see me here chairing the meeting instead of Alice.

I wanted to first off welcome the workgroup members here and members of the public as well. I've come to this workgroup process kind of midstream, but I'm looking forward to kind of keeping the momentum and moving the project to the next steps.

I do want to mention that we do have a transcriptionist here. The meeting is being recorded. For people who have come into the room please note there's a signup at the front and that way if you put in your email and that information we could keep you apprised of the workgroup progress.

I would also ask for people to please, just in terms of logistically, put your cell phones on silent or vibrate, that sort of thing, so we don't get interrupted.

And then I also just wanted to start with some introductions and first of all start with the workgroup members,

then we'll go to the technical subcommittee members and the members of the public and others who are on the phone. So I already somewhat started. I'm Denise Koch. I'm the Director of Air Quality. Prior to -- I started in April of this year. Prior to that I worked in the private sector as an environmental consultant and before that I worked at DEC in the Division of Water and was very involved with another workgroup process which was the NPDS, now APDS, primacy assumption process. So maybe we'll go around the table.

UNIDENTIFIED FEMALE: Sure, sure.

MS. FEIGE: I'm Corri Feige, Director of the Division of Oil and Gas. I too started in late April of this year and so I'm stepping in here midstream as well, filling the position of Bill Barron who was the previous DOG director. My background prior to joining the Division has been about 18 years of oil and gas exploration and development, a lot of drilling site stuff, North Slope and Cook Inlet. So, you know, bringing more of an industry side to things as well. So I'm eager to get caught up on the work that's been done here and help move forward.

MS. KOCH: I guess you're kind of at the table.

MS. HUFF: I'm Deanna Huff and I work for DEC. I'm on the Air Nonpoint and Mobile Source Group and I'm an engineer with the State and I work as a modeler and I do modeling analysis in addition. And so I will be presenting not this one today, but the next presentation. And I'm on the technical committee

subgroup, not the main workgroup.

MR. KUTERBACH: I'm John Kuterbach. I'm the manager of the Air Permits program for DEC.

MR. KINDRED: I'm Josh Kindred. I'm environmental counsel for the Alaska Oil and Gas Association.

MR. BROWER: Good morning and -- or afternoon. Gordon Brower with the North Slope Borough. I work as the Deputy Director for the Planning and Community Services. Been with the Planning Department for about 24 years with the Borough and most of my time with the Borough's been oil and gas review. But under our Deputy Director I oversee community development, land management and central offices.

MR. TURNER: I'm Tom Turner. I'm with DEC and tech services in the Air Quality Division. My role here is to provide support for the workgroup. I also have a co-partner in that with DNR named Jim Shine. He can't make it today, but I talked to him. And so for logistical things, transcripts, stuff like that, I may occasionally remind people. Thank you.

MR. THOMAS: I'm Brad Thomas. I work for ConocoPhillips handling all environmental media, most recently as a permitting supervisor. And I'm here representing the industry through the Alaska Support Industry Alliance.

MS. KOCH: Okay. Thank you. And then the next group I wanted to introduce was the technical subcommittee. Just for reminder, Dea has already introduced herself but she's part of

that technical subcommittee. Barbara, maybe.....

MS. TROST: I'm Barbara Trost. I'm with the Department of Environmental Conservation. I'm the manager for the Air Monitoring Program.

MS. KOCH: Okay. Thank you. And then on the phone I know we have at least Alan Schuler.

MR. SCHULER: I'm Alan Schuler. I'm in the Air Permits Program and I do air quality modeling review.

MS. KOCH: Great. Is -- do you know if Tom Damiana or anyone else is on the line?

MR. THOMAS: I do not. We can check. I don't know.

MR. DAMIANA: Tom Damiana is here with AECOM. I've been supporting the technical subcommittee with modeling analyses and interpretation. And I also have here with me Tiffany Samuelson who is also helping with the modeling in support of the technical subcommittee.

MS. KOCH: Great. Thank you. Anyone else on the line?

MR. MUNGER: Yeah, this is Mike Munger. I'm the Executive Director of the Cook Inlet Regional Citizens Advisory Council or CIRCAC is the acronym and I'm representing NGOs on this workgroup.

MS. KOCH: Mike, thank you very much for calling in today.

MR. MUNGER: No problem at all.

MS. KOCH: All right. Then I just wanted to go around the room to others in the audience, introduce themselves please.

MR. PETERS: I'm Mike Peters, Doyon Drilling's health safety environmental manager.

MR. KANADY: I'm Randy Kanady with ConocoPhillips. Over the years I've worked both environmental issues and engineering issues with ConocoPhillips. Currently I'm a drilling engineer with ConocoPhillips and I've been with this workgroup since its inception assisting Brad with the drilling and technical details.

MR. NEASON: John Neason, HSC (ph) and rig operations for Nabors Alaska Drilling.

MS. ORCZEWSKA: Julieanna Orczewska. I do drilling environmental compliance for Hilcorp.

MR. EVANS: Wally Evans. I'm the environmental air quality specialist for Hilcorp.

MS. COOKE: Alison Cooke with BP, air compliance advisor.

MR. TURNER: Anybody else on the phone?

MS. KOCH: Did somebody else -- kind of looks like everybody's.....

MR. THOMAS: (Indiscernible) Barbara?

MS. TROST: I already.....

MS. KOCH: Barbara introduced herself as our technical subcommittee member. Okay. Well, thank you very much everybody. I also just wanted to talk a little bit about some of the -- just the way we'll proceed with this meeting. We're going to keep the same sort of format that we've had in the

past. So this is mainly going to be a forum for -- we're going to have a discussion between the workgroup members. We're going to have some presentations. We'll have the technical subcommittee representative give a presentation. There'll be questions and answers for the technical subcommittee. If there are members of the public who also have questions what we'll do is -- I'm going to make sure that we have plenty of breaks during the day and then during one of the breaks you could go to any of the workgroup members and kind of bring your concerns or questions to a workgroup member and then after we reconvene after the break then a workgroup member can bring that up that way.

I also want to just mention the purpose for today's meeting. It's been a long time since this workgroup has met. The last workgroup meeting was in May of 2014. But a lot of work has happened on the technical level. So we've had a lot of smart people put in a lot of hard work on the technical piece. That's included DEC staff as well as AECOM staff who have done a tremendous amount of work and have contributed a tremendous amount of expertise to this effort and I felt that enough technical work had been done and enough consensus had been reached, although maybe not consensus on every single issue, but we're very close and it seemed that there -- enough technical work had been done that it was time for the technical group to report out the work that they've done to the workgroup before

they get even further down the path and, you know, we don't want two years to pass in between meetings and then everyone has to remember what's happened in the last meeting.

Let's see. So for -- I just want to run through the agenda really quickly and I'm going to ask the workgroup members if they have any comments or they want any changes. So this is kind of the introductions and agenda review section. Then I will hand the meeting over to Tom Turner. He's been helping me with logistics for this meeting and in addition to logistics he is going to provide a little bit of the history of -- a short presentation on the history of this workgroup since it has -- there have been a number of meetings that have transpired over the years and we do have new members, including myself. Then we'll -- then the next technical presentation is going to be given by Dr. Deanna Huff and she's going to frame some of the technical issues and talk about some of the work that's been done and some of the technical conclusions. Then we'll probably take a break because that's -- her presentation is pretty dense. There's a lot of information there, so we might just need to kind of take a break at that point and that might also be a good point for members of the public to talk to a workgroup member. Then we'll reconvene. Then Brad, I assume that you are going to give that presentation, the modeling -- he's going to give a modeling summary and next steps presentation. Then we'll go -- lead into a policy discussion, a discussion about what the next

steps are. Then we might -- I'll kind of judge it, but we might need a short break there and then we'll talk about action items, the meeting schedule and essentially, you know, what are our next steps and establishing another workgroup meeting.

So I'll stop there and see if any of the workgroup members have any comments on the agenda or any additions or changes.

MR. BROWER: I just -- it would be good to maybe talk a little bit about what the original intent over the course of time and, you know -- I know the technical subcommittee's been busy doing and were tasked to do certain things and then the overall arch of what the goal is. I think some of the intent was to provide some -- maybe some legislative direction on the mobile drill rig air program and it would be good to recap some history about why the group was formed and what the goal was.

MS. KOCH: I agree and that's actually why I asked Tom Turner, because he's been involved with the group since the beginning and I haven't, to give some of that history that he's -- he's going to talk about that in his presentation. Maybe we could go through Tom's presentation and then if there's more discussion after Tom's presentation we'll take a break and we can talk a little bit about -- speak to those issues, you know, what was the incentive, what's the reason for this workgroup and what's the goal. So maybe we could start with -- we'll have Tom go through his presentation. If that doesn't sufficiently answer it then we'll have some more discussion.

All right. Well, I'm going to hand the baton over to Tom to talk about logistics and the drill rig workgroup purpose and goals.

Oh, and I'll stop for a moment. Our Deputy Commissioner has just joined us.

MS. EDWARDS: Hi.

MS. KOCH: Alice Edwards.

MS. EDWARDS: Alice Edwards. Just sitting in today trying to do a little transition since I worked with you all in the past, so let you guys carry on. Sorry I was late.

UNIDENTIFIED FEMALE: No problem.

MS. EDWARDS: Thanks for flagging me down, John.

MR. KUTERBACH: No problem.

MS. KOCH: Tom.

MR. TURNER: Hi. This is Tom Turner with DEC. Welcome everybody. It's good to see you all again. I'm going to go through the logistics stuff one more time of little details. First off, remember we are being on transcript and so I'm asking everyone to speak up clearly, distinctly. If I get a flag from the transcriptionist I may step in and ask you to repeat names and stuff like that. And I have permission to do that and I've done it in the past, so I get to do that this meeting.

First off, for a sound check. I don't know if we got everybody else on the phone, so for the transcriptionist is there anybody on the phone that did not identify themselves

earlier?

MS. SMITH: Rebecca Smith in the Juneau ADEC office.

MR. TURNER: Okay. Anybody else? All right. Hearing none, on the phone please if you need us to speak up or you need a sound check please feel free to, you know, at a, you know, pause between sentences let us know. We're also asking if you can put your phones on mute so we don't hear ruffling of papers and stuff, things like that, but most folks know that stuff.

Our documents are all posted on the web. They're on the Air Quality web page and then if you go into the permit page there'll be a hot topics on the bottom with the drill rig workgroup in.....

MS. SMITH: Actually, Tom, that hot topics point is on the main Air Quality page, not in the permits.

MR. TURNER: Great. It's on the main Air Quality page. That will link you to the workgroup and have all the documents there. For the workgroup members, since we haven't met for awhile I provided pink envelopes because that's what we had in storage and they're -- it's good to use up stuff. And in there you have your agenda, all the presentations and the workgroup members for your quick reference if you need that. And for people in the room, we also have handouts in the back. For people signing up here, please have all the new people in the -- that are not in the workgroup sign up in the back just so we can update. And I think I know everybody on the phone, so you don't

need to do that. Except for Tiffany. If you can send your email to Tom Turner, tom.turner@alaska.gov, we'll get you on the list serve. Let's see.

MS. SAMUELSON: I'll do that. Thanks.

MR. TURNER: Okay. Handouts. AECOM. Okay. For inside the building we have one primary exit out that door which is the way you came in. This is a secure building once you go outside, so we ask for people to sign in at the front desk if they have not. If you need to go to the bathroom when you go out the door turn to your immediate left and there is a little code on the door and it's 555. That will take you to two bathrooms for each gender. Also for safety moment, it is Halloween so please watch for kids so you don't hit them. Don't wear scary costumes that will freak people out too much. Make sure you check your candy to make sure that it's been wrapped. So that is the safety moment. I was kind.....

MR. THOMAS: There's kids in the building too, right?

MR. TURNER: There will be children in the building. Thank you. The DEC is having it go from floor to floor, so please be conscious of that. And I think I have anything else. We have one new member joining us and I will identify -- you want to go ahead and identify yourself, Ann?

MS. MASON: Ann Mason with SLR.

MR. TURNER: Okay. Any questions on logistics? That was fun.

Okay. Now for Gordon and everybody else we're going to start going to the quick 30,000 foot level of intro -- you know, about why we're here, what's going on, a little bit of a history.

So slide two please. So the group was -- the formation of the workgroup was established in 2013. It was trying to bring a broad scope of people to look at these drill rig issues and how they operate. So we brought in the Citizens Group of the North Slope Borough and the other citizens advisory group, Cook Inlet Citizens Advisory which is CIRCAC). Mike is the representative for Cook Inlet and Gordon is the representative for North Slope. These two areas were picked because that's currently where we have drill rigs operating. The oil and gas industry was represented by AOGA, Alaska Oil and Gas Association, and the Alaska Support Industry Alliance. These are the primary groups that represent the broad spectrum of people involved with the industry from the big oil companies down to the drill rig and support service companies. And then we have two primary resource agencies. The first resource agency of course is the Alaska Department of Natural Resources and the Alaska Department of Environmental Conservation.

Slide three. And just another note. I am going to kind of power through these because there's a lot on the agenda. So this is just a big overview.

UNIDENTIFIED FEMALE: And then we have the printouts.

MR. TURNER: And we have the printouts. So the workgroup members, I've already mentioned some of them, but it has changed a little bit. Gordon still was here, Mike's here. Joshua is with the Oil and Gas. The original member was Nikki Martin. Brad has been with the Support Industry Alliance. We have a new member. Corri, welcome to the group, formerly William. And of course now we have Denise in the new group and thank you, Alice, for your guidance in the past. So that is the current workgroup members.

Slide four.

MS. KOCH: Don't forget Mr. Kuterbach.

MR. TURNER: He's kind of hanging around. My apologies to my direct. So why did we get together? And again, this is the 30,000 foot level. Industry came, you know, to both the agencies and they -- requesting a review of the regulatory process of how we are currently regulating drill rigs. Some of this came from difficulty of demonstrating compliance with the new one hour standards that went in, particularly on Title V permit applications, and there was always this request through industry to provide as much flexibility as possible for drill rig operations since there's a fair amount of logistics moving things in and out.

Slide five. And then the other side of it is what are we running into. We're running into the Clean Air Act requirements because that's why there are permits. And everybody has agreed

from day one if you look at other transcriptions, everyone agrees we're here to protect air quality. So that's in some ways the purpose of this group on a big picture level. The State has to follow the State Implementation Plan which we call the SIP and that contains measures to prevent violations of air quality standards. And so whatever we do, whatever we come up with as a group, what you come up with as a group we have to make sure that we can get through the SIP. There was also what they call the PSD program and that has other types of limitations that are required for protecting air quality. And then the other factor we have to consider is the Title V permit program and this is authorizing operations at multi temporary locations and how would these drill rigs come on and off Title V facilities.

Slide six. So the current mechanisms we have where we have air quality permits is we have general permits for -- which we call the MG-1 and industry's fairly familiar with that. We have minor program -- minor permits for portable oil and gas operations. And these are required for construction or relocation unless authorized under Title V operating permit. To obtain a permit, and this we'll get into the technical discussion later, they must conduct ambient air quality analysis which is a long word to say modeling. So for us term discipline people ambient air quality analysis is modeling. They can also sometimes use general permits for location. We also have

requirements within our PSD permits and then we also have requirements with our Title V for temporary operations. This is only required with operations that have applicable air quality requirements on Title V facilities and it requires compliance with all applicable air quality standards which could cook us back into the one hour standards earlier. And for reference, since it's highly technical about air permits I'm going to reference John Kuterbach if you'd like to add anything.

MR. KUTERBACH: Well, it's applicable air quality standards in increments for the Title V sources. It's -- is the only adjustment I'd like to note there. And ambient air quality analysis, while it is typically modeling and that's how we've done analysis for a SIP program there -- we do have the ability to look at other ways of doing the air quality analysis. The requirement really is to ensure that new or modified equipment, that the State has mechanisms to prevent violations of ambient air quality standards.

MR. TURNER: Thank you, John.

MS. KOCH: Tom, could I add or ask one other question of John? Is it the first three, do those require -- can you go through what would require a SIP change versus a Title V change?

MR. KUTERBACH: Well, all of these elements are part of our air quality control strategy within our federally approved State Implementation Plan for attainment areas. So any change to what our requirements are there would have to be ultimately

approved as a change to our State Implementation Plan.

MS. KOCH: And approved by EPA.

MR. KUTERBACH: Yes.

MR. TURNER: Thank you. Slide seven. So according to the transcripts, just to refresh everyone, this was what was established as the goal of the workgroup. And I think it bears, as Gordon's requested, to be repeated again. To develop informed recommendations to improve the air regulatory process for temporary drill rigs with particular focus on predictability, operational flexibility, and compliance with air quality standards.

Slide eight. So, an overview of what the workgroup did. They started to meet in June 4th of 2013 was the first meeting and they had a series of the workgroup meetings, there's also been subcommittee meetings, through May of 2014. This is the first time we've gotten back together as the workgroup since 2000 -- May of 2014. The first thing is this is a big subject and we have citizens groups and we have people with different perspectives and so the workgroup says what have we got out there. So the first thing they did is they review existing drill rig permitting process which I had a quick slide on. There was extensive slides and presentations on what is the whole permitting process and what's required that are all on the web page. They also wanted to look at what are these air quality standards which we've referenced before and will get

referenced several times forward because of those are the standards that the flexibility and what the regulations look like have to go against or be compared to. They also had discussions on all kinds of subjects. They were looking at all different ways of looking at it. So one thing that they wanted to do is what other states are doing and so there was presentations and research on what other states are doing of protection of air quality standards as they relate to their drill rigs. And there's a whole pattern of how people did that in different areas. They also looked at review of industry's air quality monitoring data which was presented at various times, but I believe in the November meeting. So you could follow the dates. Basically the July and August meetings were the review of the drill rig permitting process, quality standards and in November we're looking at the monitoring data.

Slide nine please. So what did the workgroup do? They looked at the stuff. They did extensive research. There was a lot of effort from both industry and the agencies that put in it. The workgroup has been asking some really great questions when you look through the transcripts of, you know, how this could work. They looked at different types of alternatives to regulations. There was a possible registration program. There were general permits. One of the things that was presented was an exit out program. There also was a discussion about can they change the regulations based on monitoring based demonstrations.

Then we started to get into the technical aspects of how drill rig operations work, the types, different types of air protection models. So there was a lot of discussion over what's the overall scope of what we're doing with regulations and also some of the technical aspects.

Slide 10 please. So based on these two different types of concepts on the December meeting there was a discussion about forming two different subgroups. The first concept was can we come up with options for the regulations and what would that look like. The second subgroup was a technical subcommittee. The reason is, is what we're going to run into, and it's kind of at the end of the presentation, is what do we need to present to EPA in order to convince them that we're protecting air quality from the current standards that have been in place since 2005, what are we going to do to protect air quality and what does that look like. It's going to get technical. It's going to be about modeling, demonstrations, can -- industry wanted to know if monitoring could work. And so in May of last year which is the last time the workgroup got together they decided that the options and review of the regulatory process was going to put on hold until the technical subcommittee had a chance to work through these extensive technical issues they're talking about which now brings us to this ninth meeting of the group. The subcommittee got together, the technical subcommittee, and they reviewed industry's monitoring data that was presented. They

looked at existing modeling methods and datasets. They developed and reviewed new modeling approaches. One key element here is there was an agreement to focus on the North Slope data because that's where the data was rather than looking at Cook Inlet. I am not going to get into all that technical stuff. It is really -- I'm a regulatory person, not a technical person and there was plenty of highly qualified people in the room and on the phone that will discuss that later.

Slide 11 please. The technical's mission statement which was, according to the transcripts of April 2014, is the drill rig technical subgroup shall determine whether the available monitoring and modeling data is sufficiently accurate, representative and complete to reasonably conclude that drilling activity anywhere in the state is unlikely to cause ambient air concentrations greater than the NAAQS. And if these conclusions cannot be made recommend what additional data or limitations on the conclusions are needed to assist in developing and finalizing programmatic approaches that would provide protection of ambient air quality standards and reasonably address air quality planning requirements. I thought it was important to read both of these outlines and, again, to remind people why we're here.

Slide 12. So Dea will get into this in her slide and Brad can also kick in, but the technical subcommittee met between January '14 all the way through October '15. There were highly

qualified experts, engineers and doctors. They -- there was both industry and DEC. They reviewed the monitoring data. They reviewed modeling approaches. There was an extensive amount of work and there was quite the process of back and forth, good discussion between professionals about what would be the technical aspects to look at.

Slide 13. And this is what we're going to run into with the technical group and with our group is the State must be able to put -- must get by and show within our State Implementation Plan what we need to do in order to change it. And the big key here is getting this through EPA. And so again, the State Implementation Plan is what in effect is the overall viewpoint and plan of how we're going to protect air quality which we all agreed at the first meeting is why we're here.

Slide 14. And these are kind of the key elements of that and this is where I kind of -- because they're going to have to be in regulations or how are we going to get by EPA and I will remind folks several times on that. It has to be -- it's a federally approved requirements. Any changes to the SIP or the Title V program have to be approved by EPA. We have to follow the Clean Air Act requirements. We have to demonstrate that the revised control strategy, whatever that may be, will ensure compliance with air quality standards. The demonstration has to be made with using EPA approved air quality models and you will get some of that reference within the technical group where

they're trying maybe new models and we have to go back and demonstrate to EPA that they're so good. But that's because they're looking at that particular bullet. It must -- the SIP must ensure compliance with air quality standards for any operational scenario, which is a key, and the existing rules remain federally enforceable until change is approved by EPA. And just for everybody's reference, that is a time process. You have to follow the steps by step and it always is a requirement every time you bring somebody new in you have to demonstrate your technical expertise, you have to explain what's going on. And so it is a process.

Slide 15. Next steps. Well, that's up to the workgroup, but the technical presentation will be provided today. We'll discuss technical committee's findings. We can begin discussing the various operations or changes to the Alaska Air Quality Program and then we'll have to look at the next steps of how to present it to EPA for comment.

Slide 16. My name's on here. Please call me, contact me with any information. I can assist anybody outside if the workgroup members need stuff. Again, everything's been posted on the drill rig workgroup website, so all that information's there. So that is the 30,000 foot level and to reference Gordon, was that sufficient?

MR. BROWER: Yeah, I think that really brings us back to where we (indiscernible).

MR. TURNER: Okay. At this point.....

MS. KOCH: It brings it all back for you?

MR. TURNER: That brings it all back. So.....

MS. KOCH: (Indiscernible).

MR. TURNER: .....now we're focusing back to October 30th, 2015, and I will reference back to the Chair, Director Denise, to advance.

MS. KOCH: Okay. So before we go to Dea's technical presentation were there any other workgroup members that had any questions or comments based on what Tom presented?

UNIDENTIFIED FEMALE: I think two new people might have joined.

MS. KOCH: Okay. So we've been asking people just to identify themselves. Could you introduce yourself?

MS. GLOVER: Sure. I'm Robin Glover. I'm with BP and SLR.

MS. KOCH: Okay. Is there anyone else?

UNIDENTIFIED FEMALE: And I think on the phone.

MS. KOCH: Someone on the phone. Someone on the phone join us? Someone who hasn't identified themselves already? Guess not.

UNIDENTIFIED MALE: Homeland Security.

MS. KOCH: Okay. And before Dea gets started I just wanted to mention that Dea's presentation because it's going to be so technical and there's so much information on it we're

going to take a slightly different approach and that is we're going to -- after Dea goes through the information on her slide we're going to pause and make sure that -- see if people have any clarifying questions or comments on the slide before we go on and that way you don't have to keep your comments all the way to the end. There'll be another period at the end of her presentation where you could ask questions again, but I'd ask to let her get through the material on her slide and then we'll pause and take other questions.

MR. THOMAS: So after each slide we can ask questions.

MS. KOCH: Yeah, after each slide.

UNIDENTIFIED FEMALE: If you can get ready.

MS. KOCH: Hold it till the end of the slide.

UNIDENTIFIED FEMALE: Yeah.

MS. HUFF: (Indiscernible) crazy. Everyone's ready? Again, I'm Dea Huff with DEC and Alan Schuler and I worked on this presentation together. We're both part of the technical subgroup committee and we worked the most with AECOM directly on the technical analysis. So I'll be giving the presentation and Alan's on the phone, so -- and so is AECOM so we can answer any questions I'm sure that come up.

The first slide -- and we have handouts again in the back for those of you that are here and on line you can see it. But this is an -- just a simplified overview of the technical workgroup timeline. And I'm not going to go through every one

bullet by bullet, but the point of this was that a lot of work's been done and it's been an (indiscernible) process and a collaborative process to go through all of the assumptions that were made in the modeling analysis, the monitoring data and working together with industry, DEC and consultants in other agencies. So this timeline just kind of goes through the technical workgroup and some of the milestones that we had and different presentations that we were giving to each other and the technical workgroup and then internally as discussions moved forward. John.

MR. KUTERBACH: Yes, I have a question about your slide.

MS. HUFF: Okay.

MR. KUTERBACH: What's the difference between the green and the blue?

MS. HUFF: So the green is what -- anything that DEC was doing or presenting and the blue is AECOM or industry and what they were presenting. And together we're the technical workgroup and so I'm presenting as the technical workgroup and the conclusions that we made as a group.

So there's kind of a lot, some busy slides, but -- this is -- when we -- when I first joined the group I only joined the technical subcommittee at first to review the monitoring data. This is industry data that was provided by industry of monitoring data up on the North Slope. And this table is a summary of all the data we were given to review from the

beginning and it includes the wellheads, the drill rigs, the pads and the time that they were there, so an episode description. So we looked at the number of rigs, the rig hours operated, the power, whether it was on or off grid. We looked at the one hour NO_2 concentrations. We looked at the maximum fuel, gallons per day, that were given by all -- with all this data, the maximum NO_2 that was recorded at those sites during that time and then some wind speed direction because we started to look at what direction the ambient concentrations were coming from and making sure they were in fact coming from the drill rig so we were characterizing the right emissions and concentrations.

So that's just an overview of all of the different data that we were able to look at. And so when we were done reviewing this data we gave a presentation to the technical workgroup on the phone and DEC's conclusions regarding that set of data on the previous slide was that there were no violations of the one hour NO_2 NAAQ in these datasets. The data could be considered adequate for determining that drilling under similar North Slope conditions, similar number of rigs, fuel use, meteorological conditions, duration, type of drill rigs, et cetera, would not cause a violation. However, from this -- from the data that we were given we could not conclude that it was adequate that drill rig emissions -- that the air quality NAAQS would be protected under any scenario would not threaten the one

hour NO_2 standard.

So that was our conclusion based on the data that we were given and so together we decided that the technical.....

MS. KOCH: Dea, Dea.

MS. HUFF: Yes.

MS. KOCH: We talked about having a pause maybe after some of these.

MS. HUFF: Yes. Sure.

MS. KOCH: Could you go back to the.....

MS. HUFF: Yeah.

MS. KOCH: .....this is a significant slide, so let's just stop here and just make sure. Does anyone have any questions or comments so far, any of the workgroup members?

MR. BROWER: That third bullet, the data are not adequate to conclude that drill rig emissions under any scenario will not threaten the one hour. You couldn't make that determination?

MS. HUFF: Right. Because the monitor data we believe didn't threaten the NAAQ, but under -- so this data under these fuel uses and gallons per day. But, for instance, if you were to use or have 10,000 gallons per day for a drill rig, we can't tell that from this dataset. And so we just wanted to be certain that the conclusion we came to was for -- under these conditions there was no violation, but there was no other data at higher gallons per day or under any other drill rig scenario. It wasn't -- it didn't cover everything and so that's why we

decided to include modeling.

MS. TROST: Maybe to clarify. This goes back to what Tom was saying is that not only do we have to show what happened in the past, that it didn't violate the standard, but what we were trying to do with the data is to show that even in the future it would show that there's no -- no type of operations were using the drill rigs that would potentially cause violations. And that -- for that we just didn't have enough data.

MR. BROWER: In making that kind of a statement when you have another one above that that there was no violation of the one hour, is there some kind of catch 22 in between that I'm not catching of what we're trying to accomplish? We're saying that no violations were detected or could be detected or could be made.....

MS. TROST: I think.....

MR. BROWER: .....but at the bottom we can not make a conclusion that emissions under any of these scenarios that would not threaten the one hour.

MS. KOCH: It looks like John wants to respond.

MR. KUTERBACH: Yeah. I think what we're trying to say here, and correct me if I'm wrong please, is that the monitoring data that we have was representative of certain operations and certain conditions, but under other conditions that monitoring data couldn't predict whether or not other conditions would still comply. So what we found was as drill rigs are currently

operating and these -- this was adequately represented of the current conditions, but if those conditions changed that data could not prove that there would not be a violation under different conditions.

MS. TROST: Maybe to make it clearer. On the North Slope currently the way things are operating there we don't think there's any concern with air quality standards, but we cannot say that for Cook Inlet and we would not be able -- using this data we would not be able to say for any other place in the state using this data.

MS. KOCH: Alice.

MS. EDWARDS: I just wondered if someone could remind me what the level of the one hour NO_2 standard is. I know it's a three year average, I know it's the 98th percentile, but what is the level of that standard? What -- in part per billion.

MS. TROST: A hundred PPB.

MS. EDWARDS: Hundred PPB. Okay.

MS. HUFF: Yeah. And yeah, I have some more slides on that. And so this is kind of where the workgroup started.

MS. EDWARDS: But if you go back one slide to the monitoring data.....

MS. HUFF: Yes.

MS. EDWARDS: .....there are values, maximum concentrations that are over 100 parts per billion. It's just that you don't have enough of them to violate standard, but the

concentration itself could get that high.

MS. HUFF: You're.....

MS. EDWARDS: Right?

MS. HUFF: It's a probabilistic.....

MS. EDWARDS: It's a probabilistic (indiscernible).

MS. HUFF: .....(indiscernible) average standard.....

MS. EDWARDS: Yeah.

MS. HUFF: .....so it's not very straightforward.

MR. KUTERBACH: I think if you look at the next slide and I think Gordon's actually -- no, not this slide. The one before it.

MS. HUFF: Sorry.

MR. KUTERBACH: On the third bullet where it says under any scenario, that is confusing.

UNIDENTIFIED FEMALE: Yeah.

MR. KUTERBACH: Because there are scenarios where it does demonstrate compliance, the monitoring data.

MS. HUFF: Yeah.

MR. KUTERBACH: But it doesn't demonstrate compliance under all possible scenarios.

MS. HUFF: Yeah. That gives me some better language. That would be (indiscernible). Okay. Thanks a lot.

So in order to move forward with that conclusion the workgroup agreed that modeling was the best option to fill in the data gaps and provide guardrails to figure out what those

maximum gallons per day would be that you could go up to and not have a violation of the NAAQ that would cover all possible situations that we would drill -- that drilling would happen under. Modeling was previously used to demonstrate compliance with the annual NO_2 standard under the Minor General Permit and the source specific permits, both the minor and the Title V. However, initial modeling runs had showed that commonly used approach of assuming continuous year-round operations did not demonstrate compliance with the one hour NAAQS. And as a reminder, the one hour NO_2 standard went into effect April 12th of 2010.

MS. KOCH: Dea, I just wanted to add one comment. For the first bullet where you say the technical workgroup agreed that modeling was best -- the best option for filling the data gaps, that's specific to the North Slope.

MS. HUFF: Yes.

MS. KOCH: Right? I just wanted to bring that up since Barbara had mentioned in the previous slide.....

MS. HUFF: Well.....

MS. KOCH: .....that all -- it doesn't represent all possible scenarios, but for this (indiscernible).

MS. HUFF: I think going forward the plan was -- yeah, this is all North Slope. That's all we had and so.....

MR. THOMAS: That's all we've completed so far.

MS. HUFF: That's all we've completed, yeah.

MR. THOMAS: Cook Inlet is next, so.

MS. HUFF: Okay. And so just a couple things we've already kind of been talking about. The one hour NO_2 standard's based on a complex calculation. It's a three year average of the 98th percentile of the daily maximum one hour NO_2 concentration. The technical workgroup therefore used a statistical approach for the one hour NO_2 demonstration. They con -- we conducted initial runs with AERMOD dispersion model using -- and decided to use a Monte Carlo statistical approach, a TRANSVAP tool that AERMOD develops, to post process the AERMOD results. The workgroup also decided to use the same approach for the one hour SO_2 standard which is also a probabilistic standard.

MS. KOCH: Any other questions at this point?

MR. TURNER: Just a clarification. You originally ran with AERMOD because that is the EPA standard?

MS. HUFF: It's what's used for permitting.

MR. TURNER: Thank you. And then the Monte Carlo approach, is that an EPA?

MS. HUFF: No, it is not and we're going to get into that.

MR. TURNER: Okay. Thank you.

MS. HUFF: Yeah. It's a way of dealing with that we set on the other side. The one hour standard, drill rigs don't operate every single day of the year, most of them, and so it was a way of dealing with a non-continuous source for a three

year probabilistic standard. So to develop that -- to work out that standard you have to have emissions on or off, but if you just run continuously the whole time that's not representative of the drill rigs. And that's why the Monte Carlo statistical approach that we're going to get into used this TRANSVAP tool to post process the AERMOD runs.

MR. KANADY: Was also one of the issues to address the fact that not all engines are running flat out 24 seven in the TRANSVAP?

MS. HUFF: No. TRANSVAP just took the AERMOD modeled outputs and it simulated the on off scenarios for the drill rigs and it decided when they go on and off and moving from pad to pad and it didn't -- and then we did -- the model runs had five wells per pad.

MR. THOMAS: And by doing it that way it was made conservative. And just to address what you said, Tom, your question. AERMOD was used initially and with the TRANSVAP approach. So AERMOD's the base model in any case, so it's still being used. The statistical application is -- well, it's applied to the results of the AERMOD model run.

MS. HUFF: Sorry. And that's post process. I should have explained that.

MR. KANADY: Thank you.

MS. KOCH: And before you go on I would ask that the questions come from the workgroup members and that we'll take a

break after Dea's presentation and that'll be an opportunity for people to talk to the workgroup members and pose their questions that way.

MS. HUFF: Next slide. And so going on with the -- after the one hour standard and deciding to use this modeling approach we talked about drill rig categories. The North Slope was the initial modeling focus. Cook Inlet's to follow. The technical workgroup decided on categorizing the North Slope drilling operations into four scenarios. So this was proposed and agreed upon with the technical workgroup and the four categories that are covered for the North Slope are routine drilling on isolated pad, routine drilling on a collocated pad, developmental drilling on an isolated pad and developmental drilling on a collocated pad. And you can see the description off to the right. The routine drilling includes onshore routine infill drilling, sidetrack drilling at a detached pad, exploration and delineation drilling. The routine drilling is onshore routine drilling and sidetrack drilling at a collocated pad and then developmental is onshore developmental drilling at an isolated or collocated pad.

I'm just pausing to see if anyone has any questions.

MR. KINDRED: It may be beneficial to explain why you made the distinction between developmental drilling and infill drilling as far as.....

MS. HUFF: Yeah.

MR. KINDRED: .....how it affects it.

MS. HUFF: And I'll let someone else answer.

MR. THOMAS: I can do that. Developmental drilling is drilling that occurs on a pad for two consecutive years or more. Routine drilling is drilling that occurs for less than two years on a pad. Two years was selected as the -- because it's associated with the temporary construction activity threshold. So we separated it into those two categories for that reason. It turns out in the modeling it doesn't make a lot of difference, but that's why we started that way. And the collocated pad, very few of those, but those are pads that are adjacent to, abutting PSD major facilities. The isolated pads are the pads that aren't adjacent to or abutting PSD major facilities, which is most of them.

MR. KINDRED: And in its inception when we were contemplating these different categories did we have a fifth scenario that took into account offshore drilling?

MR. THOMAS: We started with offshore drilling, but the drilling that happens on platforms in Cook Inlet, that drilling is I think part and parcel of the stationary source permits and I don't think we're having any major problems to solve with those at this point. Correct me if I'm wrong. And Wally, you can tell me if I'm wrong after we've had a break, so.

MS. HUFF: Yeah. So these were the -- yeah, the final agreed upon ones. And we'll -- they'll come up again, so you'll

see what we ended up coming up with.

So in the beginning, this was August of 2014, industry modeled the one hour NO_2 impacts from a generic drill rig. That's what was proposed. It was -- conducted a separate run for each wellhead and modeled five wells per pad and I'm going to show an example of what this might look like. You -- we used TRANSVAP to assess the impacts from 10,000 combinations of modeled results. This varied when and how long the rig operated at each wellhead.

Okay. This one turned out -- it might be a little bit hard to see, but we have -- all have handouts in front of us. This is an illustration of how TRANSVAP combines AERMOD runs from a rig operation at two wellheads. I'll explain it and if we need any further explanation Tom who made this graph can -- and Tiffany can explain it also. So we have concentration on the X axis and time and days. The first one is just an example of a rig at well one. And you can see it's a continuously operating rig and so the concentration goes up and down as the rig is operating. The red is a rig operating on wellhead two, for example, and it's continuously operating. The third one is the drill rig not operating at all. And so when you add those together you can see that you have a representative drill rig simulation of a drill turning -- running and switching from wellhead to wellhead. And this is what it would look like and so this type of emissions were post processed after the model

runs to combine the different continuous operations that came out of AERMOD to make a representative result. And so that's just kind of what it would look like. You can see that the drill rig's on sometimes, sometimes it's off. Sometimes it's at one wellhead, sometimes it's at another wellhead. And 10,000 of those scenarios changing from five different wellheads is what was going on in the post processing, so.

During the past year. So that's kind of what we started. The proposal came in with all these modeling assumptions and together we went through all of the assumptions, the guidance and worked together in an iterative process and detailed technical discussions. We reviewed the EPA guidance, reviewed the datasets, changes in rig characterization, modeling assumptions and/or revised the modeling and the TRANSVAP runs. So a lot of work went into really looking at the details of the modeling analysis and if the results were conservative, representative and protected the air quality standard. And so that was the goal of reviewing these modeling results and then working together to make sure that all the assumptions were agreeable to all -- everybody, that we come to that same conclusion and goal.

So the next slide, and again this is a big table, but we just wanted to show every -- all the areas that were reviewed and the solutions we came up with. I think for this table the important column is the consensus reached as the technical

workgroup and we did go through all of the issues since that first modeling was proposed and reached solutions on everything.

And I'm going to go in a little more detail into a couple of the sections like stack and the associated structure heights and other assumptions that we made in the model. You can see it in the outstanding action items we have no for most of the issues have been resolved with the technical workgroup. The background NO_2 data did come from CD-1 which is under review with the Department currently. And so that's still outstanding, but not holding up any moving forward with policy. And then the last bullet of intermittent hourly excursions and fuel consumption I'm going to talk about in a few minutes, how we modeled that. And we're still discussing -- we agree on the methodology and the analysis of how the excursions were done, but there's still some interpretation on the actual operational days of how that would work in a regulatory context which kind of goes over into the policy discussion, but it is an outstanding item so I thought I'd leave that on there. And so I'm going to go into a couple of these issues on the left hand column in a few slides so you can see some of the real details that went into the modeling analysis and what we decided.

With the stack and associated structure heights from the table before, the modeled stack and building heights represent -- we're changing from generic, which is how we started, to a typical drill rig. And the difference in that was we surveyed

the building heights, the stack heights and stack to building height ratios from seven North Slope drill rigs that we had really detailed information on. Selected a short building stack height which would have the stack on top and then that ratio was used to calculate the stack height for that unit and I'm going to show the exact values on the next slides. The drill rig characterized the units and the ratings for the different engines are going to be shown on the following table and that was a survey of 22 different North Slope drill rigs. So we were really trying to get an idea of the North Slope typical drill rig so we could use that in the model and make sure we were within what would be drilling on the North Slope.

And so the results of the ratings and stack heights for the model.....

MS. KOCH: Dea, hold on.

MS. HUFF: I'm sorry.

MS. KOCH: I think we had a question on the last slide.

MR. KUTERBACH: Well, just a clarification.....

MS. HUFF: Yeah, sure.

MR. KUTERBACH: .....that this is a -- we call it a typical drill rig, but what we've modeled is not really any one of these specific drill rigs.

MS. HUFF: Right.

MR. KUTERBACH: Right. Okay.

MS. HUFF: Yes.

MS. KOCH: Any other workgroup questions or comments? On this slide.

MS. HUFF: So the ratings and stack heights of the modeled units. We have the unit description, the cumulative rating and that's where the 22 different drill rigs came in and the assumed stack height in meters which is height above the surface and that was from the detailed seven drills -- drill rigs that were analyzed for this purpose. And so this is what we ended up with, modeling for the primary engines, utility, small engines, the heaters and boilers. Questions on that slide?

Okay. Next slide. Again with the same part of the table, the stack and associated structure heights. This shows the assumed drill stack and building locations. The numbers one through six, I know that they're kind of hard to read up here but we wanted to show the whole pad and what it looks like when it's being modeled. One through six is the stacks and then the building IDs are A through I. And you can see over on the right hand side you have the height above the surface in meters for the stacks, each individual stack, and then its location on the buildings over on the left hand side, what that layout looks like on the pad. And this was provided by AECOM that did the modeling.

Okay. I'm looking around the room, but if anyone on the phone I guess has a question just -- that's part of the drill rig workgroup pipe up.

Okay. So the next one, important aspects of the modeling analysis. Some other things to keep in mind as we did this analysis. We continued to assume vertical uncapped stacks. There was two different fuels that was -- that we used for the one hour SO_2 demonstration, but kept the total fuel consumption constant and we are going to show the results. We had ultra-low sulfur diesel for the engines and low end point diesel for the heaters and boilers. In addition to that there were varied -- we varied the fuel allocation of each by season. The current AERMOD version changed because this analysis had taken so long. There was an upgrade in the AERMOD version and the most current version is 15181 and we used that for the one hour NO_2 which was our limiting pollutant and PM-2.5. But the previous version right before that for other pollutants and AECOM did do a sensitivity run to not redo all that work, but show that there would not be -- the results don't change for one hour SO_2 and PM-2.5.

MS. KOCH: Dea, I have a.....

MS. HUFF: Yeah.

MS. KOCH: .....question on that last bullet. So I understand that NO_2 was the limiting pollutant and that's why you wanted to rerun it or AECOM wanted to rerun it with the most recent version of the model, but why the 24 hour PM-2.5 if the sensitivity run showed that the results didn't change? Was that just to prove that the results didn't change?

MS. HUFF: Maybe Alan can answer that one.

MR. SCHULER: This is Alan. Yeah, that's right, Denise. It was just to prove that the results didn't change.

MS. KOCH: Okay. So it was almost a proof of the sensitivity analysis?

MS. HUFF: Yeah.

MS. KOCH: Okay.

MR. SCHULER: (Indiscernible).

MS. KOCH: And I should -- let's just pause with this. Mike, since you're on the phone I want to make sure that you don't have -- you haven't had any questions. I want to give you an opportunity to provide any feedback or questions.

MR. MUNGER: No, I don't have any questions.

MS. KOCH: Okay.

MS. HUFF: Okay. Moving on with some more important aspects of the modeling analysis. We used the polar -- Plume Volume Molar Ratio Method, PVMRM, to estimate NO_2. This is a non-guideline alternative modeling technique within AERMOD to estimate NO_2 that requires Department and Region 10 approval, but this approval has been previously granted in similar requests and DEC does not -- expects that they would continue to do so. The alternative modeling techniques of any kind require -- are subject to public comment. The EPA proposed revisions to PVMR2. Also this happened -- PVMRM2 while we were in the modeling process in July of 2015, but the proposal does not

require revisions to the work in progress. So currently we're just leaving it with the PVMRM.

Okay. We're getting to slide 17. Items to note regarding the TRANSVAP analysis, the results. Coming on the next slide is a summary of all of our results and pollutants. Industry provided these results originally in terms of nominal fuel consumption of gallons per day. They provided a value for each pollutant and averaging period and drilling scenario. The term nominal is undefined, but generally represents the quantity that could be burned without violating the given NAAQ.

MS. KOCH: So let's stop there because that's also I think a significant slide. Does anyone have any questions or comments on that?

MR. THOMAS: We elaborate on it quite a bit.

MS. KOCH: Okay.

MS. HUFF: So now that that's explained, the current nominal fuel limits in gallons per day. This table contains all the pollutants and the averaging period and then the four different drill rig scenarios. You can see the criteria pollutants were all modeled for compliance and -- except for lead, the averaging periods and the drill rig scenario. You have the routine drilling isolated, routine drilling collocated, developmental drilling isolated and developmental drilling collocated. And these -- you can see in red the pollutant averaging period with the smallest fuel consumption, so

therefore the limit. The pollutant with the most restrictive limit is the one hour NO_2 and it's 14,700 gallons per day and then you can see it goes down per the category, 11,400 for the routine drilling collocated, 14,700 for developmental drilling isolated and 10,700 for the developmental drilling collocated. And then down below you can see the one hour SO_2 and what those values are and then at the very bottom we have the smallest unit -- oh, sorry. The smallest limit per scenario. And so of all the scenarios the smallest limit is one hour NO_2 for developmental drilling collocated at 10,700 gallons per day.

UNIDENTIFIED FEMALE: (Indiscernible).

MS. KOCH: Going once, going twice.

MS. HUFF: So this next slide is just for comparison. You kind of heard those values for one hour NO_2 and the gallons per day. We do have a graph of the historical Prudhoe Bay fuel use from 2006 to 2011 and you can see that the highest frequency is about 800 or 900 gallons per day and then out to very few times, but it does happen up to 6,000 gallons per day. So those modeled impacts at those levels that protect the max definitely cover everything currently that -- or historically I should say that's being drilled in gallons per day at Prudhoe Bay.

MS. KOCH: Questions? Okay.

MS. HUFF: So this slide -- in addition to -- we modeled this nominal fuel use limit to be conservative in the model and make sure that we were covering transient operations that happen

on the drill rig pads. The modeled nominal daily limit was plus 15 percent and that's what we modeled to cover any excursions that might happen. Later on as the modeling went on we decided to do further modeling with the excursions to really define what that meant and what the limits would be, how much you could -- what kind of fuel you could burn and how often you could burn it above the nominal daily limit before you would violate an Act. And so that's kind of what we looked in -- that's what we looked into with the excursions and this graph I was going to say is kind of depicting that, if that makes sense. It's just a cartoon. It's not -- it's just illustrative of what could happen.

MS. KOCH: So it's not an actual (indiscernible).

MS. HUFF: (Indiscernible). Yeah. It's just -- it's not actual model data either. It's just a cartoon of how -- of kind of what happened with the modeling and that conservatism that was built into the model value, that we modeled nominal daily plus 15 percent.

MS. KOCH: Does anyone have any other comments or questions, workgroup members?

MS. HUFF: So when we decided to go forward and we were presented with the excursion modeling, it's 25 percent increase in fuel consumption to randomly occur 20 percent of the operational time. So this is in addition to the nominal daily limits that we just showed you in the table.

MS. KOCH: So Dea, so what you're talking about, those are the spikes.....

MS. HUFF: Yeah.

MS. KOCH: .....on that cartoon.

MS. HUFF: On the cartoon, yeah. Quantifying the excursions.

MR. KINDRED: Is there a reason that you chose those particular quantities, 25 percent increased fuel consumption 20 percent of the time?

MS. HUFF: Tom Damiana could maybe or Brad could answer that, but I believe it was just to try -- as a way -- we had to use something to randomly occur in the model to represent what might be happening. And so that wasn't like a sensitivity answer, it was just a -- an amount that was chosen. I don't know, Brad or Tom.....

MS. KOCH: Brad, do you have any.....

MS. HUFF: .....if you have a better explanation?

MR. THOMAS: I'll defer to Tom.

MS. HUFF: Tom.

MR. DAMIANA: No, that.....

MS. HUFF: Okay. That's it. Yeah.

MR. DAMIANA: .....no, that's it. It seemed like a reasonable.....

MS. HUFF: Reasonable, yeah. A reasonable amount to quantify the excursions. And because you -- we had to put that

into the model on top of it. You'll see on the next slide how this worked out.

So to do -- to have that randomly added on to this is how it worked. You can remember way earlier we looked at the rig being on, this is the red line illustrative, and then we have the rig being off, the blue line. So you have your on and off operation which is representative of a drill rig. Sometimes during that operation you have excursions that go above the fuel that you normally use. Those are represented by the green and the green line is 25 percent higher fuel use 20 percent of the time and made to occur randomly in duration and distribution. And so the final result is on the right and this is the total emissions in gallons per second it must be and the time of day. But it's just an illustrative purpose of how that would look, what the modeling looks like in the emissions file. So you have the hourly excursions in green on top of the already nominal daily fuel use limits and then you have the TRANSVAP post processing showing how it's on and off.

And then one more graph here. The -- this is an example, five year drill rig activity profile with excursions. And so you can see kind of the full result. We ran five years of modeling, so it's a robust modeling analysis so that you can cover all different kinds of meteorology that may occur that you wouldn't just have in one or two years. So by choosing five years it's a robust analysis. And you can see the on and off

with the excursions now and all the different years and how that might look under one scenario, but 10,000 were modeled, so.

MS. TROST: Dea, you might just want to -- because you mentioned the five years. That is based on A pad.....

MS. HUFF: Yeah.

MS. TROST: .....met data, right?

MS. HUFF: Yes.

MS. TROST: So that is -- it's North Slope -- real North Slope met data that was used or meteorological data we used for the modeling.

MS. HUFF: Okay.

MS. KOCH: Tom, was that a question?

MR. TURNER: No. I was adding up something else in -- about this, but never mind.

MS. TROST: Okay.

MR. TURNER: Thank you.

MS. TROST: Oh, looking at the (indiscernible)?

MS. HUFF: So these are the industry proposed. Then you have the -- kind of the final summary slide. Not final for the presentation, but of the fuel use limits. We have the excursion limits and we have the nominal limits. So now you have the allowable fuel consumption based on one hour NO_2 demonstration because that's our limiting pollutant. We have the proposed nominal limit for all four scenarios and then the proposed excursion limit which is about 25 percent higher fuel use 25

percent of the time. And what that looks like in gallons per day is 18,375 and 14,000 for the routine drilling collocated, 250, and then 13,375.

MR. KUTERBACH: So the values you have of the proposed excursion limit, that's simply 25 percent higher than the proposed nominal fuel limit?

MS. HUFF: I don't (indiscernible).

MR. KUTERBACH: To get to the 18,375.....

MS. HUFF: Yeah.

MR. KUTERBACH: .....you just add 25 percent of 14,700 onto it.

MS. HUFF: Yeah.

MR. KUTERBACH: Okay.

MS. HUFF: How it's distributed, right.....

MR. KUTERBACH: Okay.

MS. HUFF: .....(indiscernible).

MR. KUTERBACH: And so that daily fuel -- these are all daily gallons per day.

MS. HUFF: Yes.

MR. KUTERBACH: That would be under this scheme would be allowed 20 percent of the time. That would be 20 percent of the operating time?

MS. HUFF: The operating time.

MR. KUTERBACH: Okay.

MS. HUFF: When the rig is operating. And we do have

comments on that. It's how that would be -- how you would translate that, but that's on the next slide. So if we have no other.....

MS. KOCH: Dea, I just wanted to correct one item for the transcript. I think it was a slip of the tongue. But it's -- for the proposed excursion limit it's the allowed 25 percent higher fuel 20 percent of the time.

MS. HUFF: Yes. Sorry.

MS. KOCH: Okay.

MS. HUFF: Did I mix it up? Yeah. Sorry about that. It's what it says right there.

Okay. So the DEC comments on the proposed excursion limits. The concept of 20 percent would need to be translated into allowed operation -- operating period. And so just for example what that -- we were talking about is you could do six days within each 30 day operating period. Just because the drill rigs do operate on and off there's some translation that has to go on, like what is 20 percent of the operational time. And so that was just an example that we listed and I think Brad has more perspective on that. But it's just a comment we wanted to make and that you do have to translate 20 percent of the operational time into something to move forward with that.....

MS. KOCH: So.....

MS. HUFF: .....in operational days.

MS. KOCH: Versus just 20 percent of.....

MS. HUFF: Of everything, right. Versus 20 percent of the year straight up because the drill rigs aren't operating every day of the year. All -- not all of them, so.

The excursion analysis assumed the final fuel spikes occurred from the modeled drill rig. What we went over, the stack and associated structure heights in the model unit slides that we showed based on the survey of the 22 rigs. And so potential allowances for concurrent well servicing activities, including well fracking, would need additional consideration. And so that point is just that the modeling analysis that we all came to consensus on currently is based on everything we showed you today and the assumptions that were made.

MS. KOCH: So let's pause there and see if there are any other.....

MS. HUFF: Yes.

MS. KOCH: .....questions or comments from the workgroup for the technical workgroup.

MS. HUFF: And then a tickler regarding the mundane but important program requirement. Just bring up again that any program based on this modeling analysis needs to require vertical, uncapped stack during drill rig activities. And it's a critical modeling assumption. If you were to assume that you had capped your horizontal stacks it would cause an increase in modeled impacts and lead to more restrictive fuel limits.

MS. KOCH: Any comments or questions on this one? Brad,

do you have any?

MS. HUFF: So the technical conclusions. You've seen all of the fuel limits that were proposed, but our conclusion is that drill rig fuel limits are only for the North Slope drill rigs represented by the modeled drill rig. And it may not represent operations that include additional significant sources that we hadn't thought about here because that would -- may lead to an increase in impacts. And that's our technical conclusions on the workgroup. Thanks for sitting through that. Yes.

MR. KINDRED: I have a question I guess about this general statement in this.

MS. HUFF: Okay.

MR. KINDRED: It comes with my state or caveat that I often don't know what the hell I'm talking about, but that being said that statement seems unnecessarily limiting given I guess the breadth of monitoring data and modeling that was done. Is there a particular reason this language is included? I mean is there not a reason that we could give it a greater applicability?

MS. HUFF: I think there probably is several reasons, but one of them going through the different assumptions that were made we definitely went through trying to have a representative drill rig. And so with different -- with certain ratings in the units and the pad size and all of these assumptions. And so we just want to make clear that that's what we're agreeing to so

far and if you consider -- I don't know what they would be, but twice the pad size where you'd have a larger ambient field for the impacts. I don't know, whatever it would be, but that's not considered here. Just in case it's completely out of the realm of what we modeled we want to make sure that we're talking about analysis for this. But it's certainly up for discussion and I think that it's going to be. But that was the intention was that it was for these. Like say you had an engine with double -- as we started maybe you had an engine with three times the stack height. That would have totally different downwash and impact of facts on the modeling than the survey of these drill rigs that we used. And so, you know, it's no exact limit, but John probably has better (indiscernible).

MR. KUTERBACH: Well, that -- no, that brings a question from -- in my mind.

MS. HUFF: Yeah.

MR. KUTERBACH: So what are -- North Slope drill rigs represented by the modeled drill rig, what are those, the 22 rigs or.....

MS. HUFF: Yes.

MR. KUTERBACH: And any similar rig.....

MS. HUFF: Yeah, exactly.

MR. KUTERBACH: .....to those 22?

MS. HUFF: There's -- yeah, and anything similar.

MR. KUTERBACH: Okay.

MS. HUFF: I think we don't have an exact plus or minus 10 meters. I don't think we have that. And so that's.....

MR. KUTERBACH: So this isn't just limited to.....

MS. HUFF: Yeah.

MR. KUTERBACH: .....those 22.....

MS. HUFF: Exactly, yeah.

MR. KUTERBACH: .....individual rigs.

MS. HUFF: Yeah.

MR. KUTERBACH: Okay.

MR. KINDRED: What about the subsequent statement, the additional significant sources? And maybe you can help me out. Is there something you have sort of contemplated this arena wouldn't fall under what we're trying to do here, or is it just all hypothetical, all theoretical?

MS. HUFF: No, I think mostly for now it's hypothetical and given the background maybe some changes or something like that. I know there's additional well servicing activities that Brad has been talking about that I'm not -- you know, just -- I think just making that -- making sure that we're not just saying absolutely anything goes without hearing what that is. So.....

MS. KOCH: Barbara.

MR. SCHULER: This is Alan. If I may interject.

MS. HUFF: Yeah, yeah. Sure.

MR. SCHULER: But we're looking at non-drill rig scenarios is what has brought this up. And actually what brought this up

was the question came up real late in the game about well fracking. Well fracking does not occur on a drill rig. It's a totally different stack release iteration, (indiscernible) emission unit. And we did think about that when we were doing this so, you know, that's a drill rig operation that supports drilling, but it's not a drill rig, you know, kind of configuration where you have (indiscernible) and emissions coming off of that kind of platform. And so that's what this goal was trying to get at is other types of activities that may come on, but it's not a drilling operation. Does that help?

MR. KINDRED: It does, yes. Thank you.

MS. KOCH: And I would -- I just wanted to clarify. Also for these technical conclusions, these are the conclusions that there was consensus on. Right?

MS. HUFF: Yeah.

MS. KOCH: So it's not that another significant source. If there were additional significant sources it would just have to be evaluated.

MS. HUFF: Yeah. Yeah.

MS. KOCH: And they haven't been evaluated in this context.

MR. THOMAS: And I do have in my presentation a slide that addresses this because we may have the data already available to evaluate it, so. And I'll get into that.

MS. HUFF: Yeah. And then I think then, yeah, we would do

that. But at this time I guess that's where we just wanted to -- where we all had agreed and had enough time to think about it. So it was purposeful in that way for sure.

MS. KOCH: All right. I saw Barbara, our technical workgroup member.

MS. TROST: Well, I guess I just wanted to bring you back to the point that we're not just reviewing this because we don't have enough work to do. What we're trying to do is make sure that there is a sound scientific basis for what is being proposed and what we then will have to take out, A, to the public and, B, the EPA in the approval process. And so we're going through this in a very rigorous fashion to make sure that all of our I's are dotted and our T's are crossed. And so what this slide is basically saying, from all the things that we have put into the model basically on all the model (indiscernible) this is where we're at. And so new ideas come in or if there's other things that we need to look at then those are not yet -- they haven't run through that same rigorous process.

MS. KOCH: John.

MR. KUTERBACH: Yeah, I do have -- that kind of prompted a question in my mind. So we've done a lot of very good, highly technical modeling work. We've analyzed stuff. We've used a Monte Carlo approach to address the problem. And eventually any changes we make as a result of this are going to be reviewed by EPA and they're going to review the backup data. Has anything

similar been used at EPA to evaluate air quality compliance that -- I mean are we heading down a dead end with EPA or is there some.....

MS. TROST: I.....

MR. KUTERBACH: .....some glimmer of hope from other things that have gone on that we're going to get this approved by EPA?

MS. HUFF: I think Alan could better answer that, but we have -- I have Monte Carlo and other -- not for drill rigs, but it has been presented to EPA and at the 11th modeling conference for other issues relating to air quality. So it's definitely not some totally out there method. But as far as what EPA may or may not approve, I know Alan has preliminarily spoken with them about it, Alan, and you had their reply?

MR. SCHULER: Yeah, this is Alan. Yeah, we had a conversation with Dave Bray of Region 10. The Monte Carlo approach itself, it's not been used by EPA in any approach, but I think Region 10 is open to the concept. They haven't raised any red flags with us regarding this approach. Honestly, you know, we're going to have to document everything that we -- that's done here, you know, in this technical analysis if we proceed with, you know, revising our SIP. And I'm sure that they will have questions about that, but I haven't seen any red flags from them yet. But I think they're open to it. They're open to entertaining it and it's just going to be going through

the process. Does that help?

MR. KUTERBACH: Yes. Thank you, Alan.

MS. KOCH: And while we're on the phone I just want to make sure. Mike, do you have any -- now that the technical presentation has concluded do you have any questions?

MR. MUNGER: No, I still don't. It's highly technical to say the least.

MS. KOCH: It is, it is. And that's why I thought for this one we definitely need to just stop and pause slide by slide because it's a lot to take in. Gordon.

MR. BROWER: This is just kind of squirrel caging around my mind here about representative drill rigs that are from the North Slope. And in my mind the climate up there being -- the drilling season that's -- that are typically used for drilling operations seems to suggest that it's just the highest consumption rate of any drill rig use in the state of Alaska. And it seems to me it would be a representative number for any other rig on the -- in the state.

MS. KOCH: Well, Dea, I want to ask you. Part of this model is not just the fuel use. You also have to -- I thought you also had to consider the meteorology that's unique to that location and that's why the North Slope data couldn't be extrapolated, just extrapolated to cover Cook Inlet. Is that correct?

MS. HUFF: Yeah, I think you definitely need to use local

meteorology down in that area to run the model. But as far as what drill rigs are down there versus the North Slope I would rely on you -- on other experts to talk about that, but.....

MS. KOCH: Barbara.

MS. TROST: In addition one of the things we have to consider. That's why we have not yet done the Cook Inlet is that in -- on the North Slope there's very -- other sources around. So it's not just the amount that a drill rig is able to emit. It's -- it has to also -- we have to make sure that when we locate a drill rig closer to other industries or populations that there are not other sources that conflict.

MS. HUFF: Your background would change for Cook Inlet.

MS. TROST: Yeah.

MS. HUFF: We have to add background into the -- into these calculations, so.

MS. TROST: I'm just trying to say it.

MS. KOCH: Okay. Workgroup members, any last questions? Otherwise what I'm going to do is I'm going to -- I think we're just a few minutes early. Let's take a break until about -- reconvene at 2:05. Just take a short break and then if people have some other questions or members of the public have come and talked to their workgroup member representative we'll -- I'll ask Dea first to come to see if there are any other last questions and if not then we'll move on to Brad's presentation. So 2:05.

THE REPORTER: Off the record at 1:50.

(Off record at 1:50 p.m.)

(On record at 2:05 p.m.)

MS. KOCH: All right. If I could get everybody's attention. I wish I had a gavel. I don't have a gavel. Gavel, gavel, gavel. So we're at 2:05. We're going to crack the door a little bit. I know it's hot in here. We're back on the record and before we go forward to Brad's presentation I just wanted to see if -- after the break if there were other questions that were generated. I don't know if the workgroup members have any other questions on the technical information that Dea provided. Okay. Seeing none then we'll transition to Brad's slide pack.

MS. HUFF: Okay. (Indiscernible). You want your PowerPoint first I'm assuming.

MR. THOMAS: Yeah. Yeah.

MS. HUFF: Before you get into the.....

MR. THOMAS: So what I'll present, two different things. One is the PowerPoint. It is two, four, six -- I think it's seven slides. And the point that I want to make is that the modeling's been conducted to establish the guardrails of what we call the guardrail modeling summary. Guardrails of daily fuel volumes. It's robust, it's conservative and it can be broadly applied. That's a point I really want to emphasize. I know that there are some things that the technical subcommittee,

Alan, you still would like to review and that's fair.

So our work is not 100 percent done. You know, we've still got to do the Cook Inlet modeling and get that -- consensus built around that. There's still a couple, you know, details around the North Slope (indiscernible) that we've got to resolve. So this is the intro into the robustness I guess of the modeling to show that it can't (indiscernible). One of our goals is to have any program cover diesel fired drill rigs in general in the state. So diesel fired rigs that use engines for power and heaters and boilers for heat, that's what we want to cover. You know, there are concepts of drill rigs powered by turbines, none of which operate in the state so far. Right? That -- so we'd have -- there'd have to be more work to cover those. We don't, you know, intend for this work to cover those. And there would also be work if -- the technical group would have to do if we're going to cover or use this program to cover gas fired rigs because we haven't done them yet. (Indiscernible) with that. So our goal is to cover diesel fired drill rigs as we commonly know them broad.

So you can go to the next slide, Dea. So why is the model conservative and robust? We picked the smallest pads that we know of. The small pads are exemplified by drill site 3-S in Kuparuk and CD-2, three and four in Alpine. Those are all very small pads. So we used pads of that size to -- as the boundary for ambient air. So the ambient air boundary was very close to

the drilling activity because we used the small pad size.

The second bullet -- you know, to the modeling output. When we ran an AERMOD on the rig emissions to know what the ambient air quality impacts are going to be you have to add monitored background data to the model results and the background data that we used was ambient data collected at A pad in Prudhoe Bay to cover the isolated pads and CD-1 in Alpine to cover the collocated pads. So we used different background datasets for the different pad identifiers, whether isolated or collocated. The background data -- the monitoring was conducted on A pad and CD-1 while drilling was going on, while well servicing activities were going on, but we didn't try to take that out of the ambient data that we monitored. So in the background we added the model output. You know, we're essentially conceivably double counting the emissions by adding monitored data to modeled data for the same thing. And if that doesn't make sense you can ask a question when I get done with the slide.

The engines that we used on the rigs were non-tiered engines and that means that the NOX emission rates that were modeled were higher than what they in aggregate internally are. Because over time beginning in the late 90s the engines on the drill rigs started to transition to tier one, tier two, tier three engines. We even have some up there now that are tier four interim. So the NOX emission rates from the engines are

lower now really than what was modeled. We used vendor emission data for non-tiered engines as model input.

We also in the model were conservative by having on a pad of say -- actually this is a -- there's a typo. We actually corrected this. It says five modeled wells conservatively represent 25. It should be 15. The -- you know, there's a lot of pads -- or I'm sorry, a lot of wells on a pad, but we had the rig -- and correct me if I'm wrong, Tom. We had the rig going back to the same five wells every time which would concentrate the impacts. Did I get that right, Tom?

MR. DAMIANA: Yes, you did.

MR. THOMAS: Okay. We'll assume that I did. And the model also inflated the power needed by the rig. You know, typically when a rig drills it's about three megawatt power to man, but in the model we had anywhere from five to six megawatts power to man. So we had the emissions. I think this addresses what Wally was talking to you about earlier. We really inflated the emissions in that way as well. So not only did we use non-tiered engines, but we increased the power output from the rig during the drilling. And as a result that -- you know, it's the third to last bullet, the fuel use that we modeled exceeds the, you know, capability of the modeled drill rigs potential to emit. Go ahead, John.

MR. KUTERBACH: I'll wait till you're done.....

MR. THOMAS: Okay.

MR. KUTERBACH: .....to ask you a question about that.

MS. FEIGE: And just a question regarding the scenario for the collocated is did you take a look at a scenario where you had multiple rigs operating within a very near or would that approximate your collocated? I'm thinking about, you know, multiple rigs, say three to five rigs working in maybe a, you know, three mile by eight mile area.

MR. THOMAS: What we did was we modeled all the emissions coming out of stacks that are side by side which was.....

MS. FEIGE: Okay.

MR. THOMAS: .....which inflated or concentrated impacts.

MS. FEIGE: Okay.

MR. THOMAS: So the impacts I think will be lower if you spread the.....

MS. FEIGE: Yeah.

MR. THOMAS: .....activity out over larger areas. Right?

MS. HUFF: Yeah. And I -- well, I think also we used different background for the different -- used the higher.....

MR. THOMAS: For collocated pad use.....

MS. HUFF: Yeah.

MR. THOMAS: .....we used background data collected.

MS. HUFF: So you're accounting for those other sources nearby which I think is what you were talking about.....

MS. FEIGE: Yeah. Right, exactly.

MS. HUFF: .....would be accounted for in the background.

MS. FEIGE: Okay.

MS. HUFF: And the background was higher for the collocated which is why the fuel use was lower.

MS. FEIGE: Yeah.

MR. THOMAS: Right.

MS. FEIGE: (Indiscernible) correct. Okay. Thank you.

MR. THOMAS: The second to last bullet point I actually took out of the slide deck that we.....

MS. HUFF: Yeah.

MR. THOMAS: .....wanted to present.

MS. KOCH: Just so -- on.....

UNIDENTIFIED MALE: It's on the print copy.

MS. KOCH: .....the print process I would -- process wise the copies that are back here and the copies that are in the pink folder are correct.

UNIDENTIFIED FEMALE: Okay.

MS. KOCH: So that is -- so if you wanted to look at that one. And we'll make sure whatever is posted on the website.....

MR. THOMAS: Yeah.

MS. KOCH: .....gets corrected to.....

MS. HUFF: This should be the corrected one. It could just be me. I.....

MR. THOMAS: So we -- the ozone that we modeled was appropriate for the North Slope. It's -- the ozone, just for background, it's important because when a combustion device

emits NOX, N-O-X, it's a combination of NO and NO_2. What we're concerned about is NO_2 impacts and how much NO_2 we get from the NO that's emitted depends on how much ozone's present to do that conversion.

So -- and lastly, and this gets at what Randy was talking about earlier, on our drill rig we had all of the units operating simultaneously in the model and that's not something that's typical.

So the modeling that was conducted is robust, conservative and we think should be broadly applied to cover all the rigs in the state.

MS. KOCH: So Dea, before you advance the slide. I'm going to run this just the way we did with Dea's because you also have a lot of information. So I want to take a pause and see if anybody has questions on this slide.

MR. THOMAS: John had a question.

MS. KOCH: John.

MR. KUTERBACH: So you have fuel use modeled exceeds drill rig PTE.

MR. THOMAS: We.....

MR. KUTERBACH: So, in other words, a drill rig can't do 10,000 gallons a day? I don't understand what that means.

MR. THOMAS: There's actually -- there's going to be a slide that we get to that.

MR. KUTERBACH: Okay.

MR. THOMAS: If you can hold that thought. In short though the answer to your question is yeah, we modeled more than what a drill rig can actually do. So you can go to the next slide.

MS. KOCH: Before you go to the next slide I actually have a.....

MR. THOMAS: Yeah.

MS. KOCH: .....a question on the second bullet, the background double counts drill rig sources and includes other sources. So when you were describing those other sources, those are -- those -- are those other sources typical normal operations?

MR. THOMAS: Well, it's also well servicing activities that might go along with the drilling activity. It's the -- it's just all the activity on a pad that goes around -- that goes on around a drill rig when it's there. Because when a drill rig's on a pad that's not the only thing there. There's a lot of stuff that goes on. And well fracturing goes on at the same time drilling occurs. Well servicing with wire line, slick line units can go on while a drill rig's there. So it -- the background did capture all that stuff.

MS. KOCH: Okay. Any other questions before -- from the workgroup members before the next slide?

MR. THOMAS: This is the background data that was collected at the A pad and A pad is the background data that was

used to add to the model output for an isolated pad. And isolated pads are 90 plus percent of the pads on the North Slope. Probably more than 90 plus percent. But you can see that the NO_2 that was measured on an hourly basis at A pad typically stays around -- you know, in the 10 to 20 part per billion range. But what's noteworthy on this is that there are a lot of spikes indicating that there's a lot of activity on that pad. And what we know based on the short amount of work that we performed to figure it out, those red areas are where drilling activities were occurring and that's why we had the spikes. And Tom, do those red areas also include well servicing activities? That's a question.

MR. DAMIANA: All's we really know about the red areas is that was a drilling event on the pad. So if they were doing some sort of well servicing activity as part of that to complete the well then it would, but.....

MR. THOMAS: Okay.

MR. DAMIANA: .....we don't know that.

MR. THOMAS: So this exemplifies what I said earlier, that the background data that was added to the model output also includes measurements collected when a drill rig was on a pad. So this is where the double counting is occurring because all that data was used in the model. We didn't try to back out the drill rig data. So I'll pause there and anybody.....

MS. HUFF: While we pause, I actually have your old --

somehow it did not get transferred, so the next slide's not -- so I'm just going to go out and get your new updated from the (indiscernible).

MR. THOMAS: Okay. Okay. Yeah, we actually made an ozone error.

MS. HUFF: Just give me one second. Sorry about that. It was a last minute error.

MR. THOMAS: We made an error with our ozones. We had to take those slides out, so.

MS. HUFF: What's the -- I know what I'll do. I can just go to the website.

MS. KOCH: This may be a good cookie break for anyone.

MS. HUFF: Sorry. I just don't want to show any (indiscernible) information and then.....

MS. KOCH: We need the right presentation.

THE REPORTER: What is the last name of Tom on the phone?

MR. THOMAS: Tom Damiana, D-a-m-i-a-n-a

THE REPORTER: Thank you very much.

MS. HUFF: Still the old one. 2:30 p.m. Okay. Rebecca, where is the drill rig website?

UNIDENTIFIED FEMALE: You can get to it from the (indiscernible).

UNIDENTIFIED MALE: (Indiscernible).

MS. SMITH: Let's see. Go to -- go not to our intranet. Go to.....

MS. HUFF: (Indiscernible).

MS. SMITH: .....go to air quality.

UNIDENTIFIED MALE: You want to check your (indiscernible)?

MS. SMITH: But it'll work -- go to workgroup right there. You were just on it.

MS. KOCH: Tom is leading her there.

MS. SMITH: Click on the main workgroup page for additional information. That link right -- just right there. Yeah. And then it's under the documents for today's date. Scroll down a little. That one right there.

MS. HUFF: Sorry about that. I just don't want to show the wrong info.

MS. SMITH: There you go. And -- yeah, (indiscernible).

UNIDENTIFIED FEMALE: It's not on the screen.

MS. HUFF: Oh. Let's see. Because it's not (indiscernible).

MS. SMITH: PDF, so you'll just probably have to scroll.

MS. HUFF: Yeah, it's just not up on our.....

(Whispered conversation)

MS. SMITH: Dea, do you want me to send you the PDF?

MS. HUFF: No, we got it. This is something else.

MS. SMITH: And you have the -- not the PDF, the PowerPoint?

UNIDENTIFIED MALE: No, we got it.

MS. SMITH: That's PDF on the web page.

MS. HUFF: I was just trying to.....

UNIDENTIFIED MALE: (Indiscernible) access to Outlook. You.....

MS. KOCH: Hold on. Hold on just a second. We're having a weird feedback, so let's work through that.

UNIDENTIFIED MALE: (Indiscernible) the feedback.

UNIDENTIFIED FEMALE: I have no idea what that is.

(Whispered conversation)

MS. KOCH: If someone has a cell phone next to the phone when they're calling in maybe move your cell phone.

UNIDENTIFIED FEMALE: Okay.

MR. THOMAS: Sounds like it went away.

UNIDENTIFIED FEMALE: Got it.

MR. THOMAS: All right.

UNIDENTIFIED FEMALE: We're good.

MR. THOMAS: Okay. To continue, the next slide, slide four in the handouts. This too is a cartoon. It's not meant to depict anything really. It's just to show a concept. When a drill rig operates and the red line is to -- meant to depict a drill rig's actual operation it fluctuates in power demand over time and that's what the red line shows. But when we actually modeled the rig, which is what the green line shows, we had it running flat out at maximum for the times that it was being modeled. But in reality it's going to fluctuate over time up

and down in the power demand. That's what this is meant to convey. And again, in the title you can see that it was modeled 20 percent beyond the potential to emit of the rig. So the emissions modeled were very conservative.

MS. KOCH: Okay. Before we advance does anyone have a question on this slide? John.

MR. KUTERBACH: So potential to emit is all sources operating full out, that's the maximum emissions they could have.

MR. THOMAS: Yeah.

MR. KUTERBACH: He's nodding his head.

MR. THOMAS: Yes. Yes.

MR. KUTERBACH: For the record.

MR. THOMAS: You can go on. Yeah. This next slide gets at the pad size and it's a depiction of the pad size modeled compared to real pads on the North Slope. And the pad that's closest in size to what was modeled in this case is drill site 3-S there on the top row, second from the left. But if you compare it to pad sizes in Kuparuk and Prudhoe Bay you can see that the pad that we modeled is considerably, sometimes, you know, a fourth the size. It's considerably smaller. Go ahead.

MS. KOCH: Seeing no questions? No.

MR. THOMAS: And this, John, gets at the modeled amount of emissions. We had the representative drill rig there on the left in that table and the PTE for that would be about 12,000

gallons a day. So we just added the 20 percent to that to arrive at that 14,700 gallons per day. So we modeled quite a bit more, so a lot more horsepower.

MR. KUTERBACH: Okay. I understand that. I understand that. Is the modeled amount greater than the PTE of any of those 22 drill rigs that actually exist, or it's just greater than the modeled drill rig?

MR. THOMAS: Tom has spent more time looking at that data, so I'll punt that question to him. Did you hear that question, Tom?

MR. DAMIANA: I did. I think that what we put on the bottom panels there are the distribution of inventories that are out there. I'm going to say that of those 25 drill rigs I would guess that the amount of fuel use, that 12,000 kilo gallons, is probably very close to the PTE. I doubt there are any out there that are much bigger than that. What we've kind of done, and I think those four panels depict it, is we plotted up in histogram form there the various emission units from among I guess 22 rigs in this case. And you can see that in the upper left histogram we're talking about.....

MS. KOCH: Tom, can you pause for just a minute? Dea, is it -- when you're mentioning the histograms these are very small on our screen. I just want to see if -- is there a way to zoom in so we can follow along with what you're talking about, Tom?

MR. THOMAS: Well, and also while you're doing that, Tom,

I might be able to short circuit this by answering John's question a little bit differently. There was a reason why we did this. You know, we do -- we did model more than the PTE of a single rig, but we want to account for dual rig operations, for example.

MR. KUTERBACH: Oh, okay.

UNIDENTIFIED FEMALE: Right.

MR. THOMAS: Because there are times when there's two rigs working on a pad at the same time.

MR. KUTERBACH: So it's greater than the PTE of one rig.....

MR. THOMAS: Yeah.

MR. KUTERBACH: .....but not greater than the PTE of the rigs that might be at a site.

MR. THOMAS: Correct.

MR. KUTERBACH: Okay. Thank you.

MS. EDWARDS: Can I ask a question?

MS. KOCH: Yeah. Former workgroup member.

MS. EDWARDS: I was just wondering on the 22 rigs, how variable are the gram -- the specifications of those rigs? I mean because we're looking at sort of a representative rig. I'm just wondering was there a lot of variability in those 22 rigs that you looked at as far as the different parameters that feed into the model?

MR. THOMAS: It's part of the back and forth to land on

the modeling assumptions. That was actually objectively looked at. So Dea, do you handle that?

MS. HUFF: Yeah. We just looked at it the other day. Alan sent the parameters of where we're at, Alan, for the stack heights.

MS. EDWARDS: I just wondered if there were outlying outliers regarding even the 22 rigs that might.....

MS. HUFF: We're not -- it's not.....

MS. EDWARDS: .....change how your model came out.

MS. HUFF: I think it's somewhere in the middle.

MS. EDWARDS: I was just curious where the details.

MS. KOCH: It sounds like, Alan, you were going to pipe up there?

MR. SCHULER: Yeah, I was just going to say that we weren't looking at the history. We were looking at the stack parameters. But this gets into the 22 rigs which is a larger survey and from what I remember looking at that from a year ago there is a wide variety of rigs out there for both heights of units and count and capacity. In that 22 pool. And I don't know -- you know, the -- I don't know if it encompasses all rigs either. I know BP has the Liberty rig that they had made that was a monster rig which went belly up later on. So I can't say 22 rigs encompasses everything that's ever happened on the Slope, but there is a wide variety within that pool, if that helps.

MR. DAMIANA: Well, I think that -- this is Tom Damiana. That the panels that are kind of hard to see do depict that variability.

MS. KOCH: Dea, is there any way to make these bigger?

MS. HUFF: It's a PDF, not a PowerPoint.

MS. KOCH: Okay.

MR. KUTERBACH: Hold down the control key and see if you can scroll up on the touch pad.

MS. HUFF: You should just be able to make the whole -- I'm just trying to see if we can get rid of that (indiscernible).

MS. KOCH: Oh, and I forgot, you're pulling it off the web, so you probably can't (indiscernible).

MS. HUFF: Yeah.

MR. TURNER: Yeah, it's just a -- it's a PDF.

MS. KOCH: Okay.

MR. TURNER: So she has limited capabilities of playing with it.

MS. HUFF: I have.

MR. DAMIANA: Well, I guess I can kind of summarize. I mean there -- what those histograms show is that, you know, in terms of the primary engines there's anywhere from 2,000 horsepower on a rig, you know, up into the 8,000 horsepower range with, you know, the bulk of it being in the 4,000 horsepower range. And so there is quite a lot of variability

and in building the what we would say conservatively representative or typical rig we took kind of a -- not a worst case, but a conservative number from each of those rigs. So the rig that we ended up with is probably -- it's got more heat on it and more horsepower than, you know, most of the rigs. The lower panel shows the heaters and it -- you know, the heater boiler capacity on the rig's anywhere from 10 million BP per hour on up to 22. So there is quite a lot of variability.

MS. KOCH: John.

MR. KUTERBACH: Yeah, I'm just trying to get my head wrapped around the -- kind of the conservativeness of it. It sounds like the modeling is conservative for a single rig. Right? Because obviously it's greater than and we used these factors where for an individual rig it may be on the more conservative side, but not necessarily for multiple rig. If you're going to have two on a site it would cover it, but wouldn't necessarily be as conservative as it is for a single rig.

MR. THOMAS: Well, except that the daily fuel volumes that we propose as nominal amounts, we would apply those on a per pad basis. So if you had two rigs on a pad I think the modeling output is conservative because you're spreading out the impacts where the model has them all concentrated from, you know, very nearby sources. But by -- if we model the rigs, you know, multiple rigs spread out I think the impacts apply actually

being no greater at all, maybe a little.

MR. KUTERBACH: Okay. Okay. Well, I see that and, yeah, that is a conservative factor. I agree with you on that. I'm not so sure that the fact that you're greater than the PTE of one rig is a conservative factor when you're dealing with multiple rigs. That's a (indiscernible).

MR. THOMAS: That's fair enough. Yeah, that's fair enough. But our intent would be to not extend the daily fuel volumes any more than what's presented here. They would stay there.

MR. DAMIANA: Well, and I guess -- this is Tom Damiana again. I would highlight that what makes it conservative within the boundaries of the fuel limits is that if that fuel limit was burned by two rigs we modeled it with those two rigs on top of each other. In reality the two rigs would be separated. That's where a piece of the conservatism comes in.

MS. KOCH: But would that -- a clarifying question. Would the fuel values that were in Dea's presentation, so say the 10,700 for the most conservative situation, that would be the total gallons that you're talking about per pad. So if you had two rigs it's not that you have two rigs that are each using 10,700 per (indiscernible).

MR. THOMAS: Then they'd both be limited to that.

MS. KOCH: They'd be sharing that.....

MR. THOMAS: Right.

MS. KOCH: .....that cumulative total.

MR. THOMAS: Right.

MS. KOCH: Okay.

MR. DAMIANA: Yeah, and in (indiscernible) we would have models of two rigs situation and we'd have put a reasonable separation between those rigs. We -- that number could have gone up. So that is a conservative piece of this.

MS. KOCH: Any other questions on this slide or does anyone want to see any of the other histograms? Just Dea, maybe if you could show the ones on the right, see if anyone -- now that they're visible if anyone has any questions about those. Okay, seeing none.

MR. THOMAS: Okay. Move on to the next one which is the Word document.

MS. HUFF: Okay.

MR. THOMAS: So what I did just to get us started and thinking about what we think a drill rig regulatory program would look like within the air program. I went ahead and cut and pasted 18 AAC 50.502 into a Word document and added a paragraph. I just called it 18 AAC 50.502(d). And that may not be the right letter to pick, but when Dea pulls it up you can see how conceptually, you know, we see the program looking on the basis of all this technical work. And I -- so when you look at this, you know, conceptual feedback is welcome. I don't anticipate -- I mean I do anticipate that there's going to be

tweaking of this language, that DEC's going to have to make it, you know, work for everybody. But this is just in concept what we see it looking like. So we don't have to spend time talking about the details, but I'd rather hear feedback on the concept.

MS. KOCH: Can you maybe walk us through this?

MR. THOMAS: Yeah. So if you can.....

MS. KOCH: Maybe not everyone's read it already.

MS. HUFF: I'm going to try to get all of -- this is a -- let me get one view.

MR. THOMAS: There you go.

MS. HUFF: This and I can move this up and kind of (indiscernible).

MR. THOMAS: So the existing 502(c)(2) which requires that -- if you could scroll up a little bit, Dea.

MS. HUFF: Okay.

MR. THOMAS: The existing 502(c)(2) require -- this is the paragraph that requires drill rigs to get a permit. So I just added -- you know, we don't propose to change that. That's going to stay there as an option, but by adding this exception provided by paragraph D we're just drafting the regulations to provide another option to getting a minor Title V permit. So then you can drop down into the paragraph D. So what I've drafted here are some pretty critical modeling assumptions. Ultra-low sulfur diesel in the engines, fuel sulfur limited to .15 percent in heaters and boilers. The vertical and cap stacks

-- vertical and uncapped stacks, I'm sorry. And then paragraph three would be the nominal daily fuel volumes for the North Slope drill rigs. And that's exactly the same numbers that Dea had in her presentation. And then paragraph four would be -- that's my attempt to translate the excursions into regulatory language.

MS. HUFF: And that is 20 percent.

MR. THOMAS: Yes.

MS. HUFF: For everyone, that's switching back and forth, one and five.

MR. THOMAS: So it's -- so we have it so that we can go up to -- let's use the collocated pad example. You can go up to 13,375 gallons per day once each five calendar operating days, but you can never exceed 73 days in a year doing that. Seventy-three days in a year is of course 20 percent of the year. But we broke it down to, you know, operating days to make it I think workable. And I also added a paragraph -- you know, if you operate 24 days instead of 25 I added a paragraph that says down here in paragraph D which is on the next page. You would just, you know, round up to the next number that's a factor of five and that's the number of excursions you get. But again, you can't exceed 73 in a year.

MS. HUFF: And 73 is 20 percent.

MR. THOMAS: Seventy-three is 20 percent.

MS. KOCH: Tom.

MR. TURNER: So from a reg standpoint you get -- and I'm thinking jumping ahead of what the compliance people would do. You would get one exceedance to these limits of A through D.....

MR. THOMAS: Correct.

MR. TURNER: .....every five days.

MR. THOMAS: Yeah.

MR. TURNER: And then you'll only get -- you get 73 of those a year.

MR. THOMAS: That's right. So it's a combination of two.....

MR. TURNER: Yeah.

MR. THOMAS: .....one per five and then no more than 73 in a year.

MR. TURNER: Okay. Up to 73 a year then.

MR. THOMAS: Yeah, exactly. Exactly.

MR. TURNER: Okay.

MS. KOCH: And would those be consecutive days, so you couldn't say in a 10 day period have just a nine and 10 being the excursion?

MR. THOMAS: I think you could. I don't know, do you -- I'm not sure if that matters, does it?

MS. HUFF: It's -- probabilistically I don't know.

MR. TURNER: That's not how the reg would read.

MS. HUFF: Yeah.

MR. THOMAS: That's not how it's drafted.

MR. TURNER: The way it's drafted is you only get.....

MS. KOCH: Okay.

MR. TURNER: .....you get one every five. If you want two days -- I mean 10 days and add two at the end you would not be in compliance.

MS. KOCH: And that's the way (indiscernible).

MR. THOMAS: Oh, actually yeah -- no, yeah, you're right, it's one in five.

UNIDENTIFIED FEMALE: (Indiscernible).

MR. THOMAS: One in five, not one in 10. I'm sorry. So.....

MR. KINDRED: So if we're taking this approach you're saying that the way this is articulated if some jet operator who didn't have any excursions days one through eight and then had two back to back he would be in violation of how this is articulated.

MR. THOMAS: That's the way it's worded right now.

MS. KOCH: That's the way it reads to me. That's why I was asking that question.

MR. THOMAS: That's the way it's worded right now. And that's -- and like I said, this is my attempt banging on a keyboard on one -- you know, one afternoon. So this language could and should be refined.

MS. KOCH: And I appreciate that it's a Strawman and.....

MR. THOMAS: Yeah.

MS. KOCH: .....this is a good springboard for.....

MR. THOMAS: Yeah.

MS. KOCH: .....the discussion.

MR. KINDRED: And Brad, from a practical standpoint is it likely that you're going to see excursions bunched together, or are they really sort of random occurrences?

MR. THOMAS: They're going to be random occurrences and because they're random it's kind of hard to predict how they'd happen, but I think they're going to be also unlikely. But because we can't predict the future that's why we want them there. And I don't know if, Denise, we can let Randy or John or Mike say anything about that, but these fuel volumes are robust based on what we know. And.....

MS. KOCH: So Randy, did you want to speak to that?

MR. THOMAS: .....(indiscernible) go over those.

MR. KANADY: Yeah, I mean we've looked at historical fuel use of drill rigs, you know, pretty hard and it's -- what did we have, like one excursion? I think it was out of Point Thompson that were at 7,000 a day or 8,000 a day was the highest.

MR. THOMAS: I think at like nine, 10 or 11.

MR. KANADY: Yeah, that was the only one that was, you know, that high and most of them typically in the 2,000 to 3,000 range.

MS. KOCH: So that -- in that example that excursion in the nine -- 7,000 to 9,000 range is even below (indiscernible).

MR. THOMAS: Well, I think -- the number 11,000 comes to mind to me. I think.....

MS. KOCH: Okay.

MR. THOMAS: .....(indiscernible) 11,000.

UNIDENTIFIED MALE: Yeah.

MR. THOMAS: Is that no?

UNIDENTIFIED MALE: That seems (indiscernible).

MR. THOMAS: Out at Point Thompson?

MR. NEASON: That was all right. That's pretty excessive.

MR. THOMAS: Okay. Well, there you go. But we got up there. Maybe not over, but we got up there.

MS. HUFF: And Point Thompson is an example of a?

MR. THOMAS: Collocated pad.

MS. KOCH: And I realize that this is a springboard for sort of questioning and I only read this on the plane for a short period of time, so it's a quick analysis. But my -- one thing that leaped to my mind is, well -- because I also have to think how we're going to implement this and how we would determine compliance with this sort of regulatory regime. And I see that in seven I think you start addressing that in terms of the monitoring and recordkeeping concept and the ability for DEC to review that information upon request. But my more fundamental question is how are we -- how would DEC even know who to request that information from -- you know, since -- versus in a general permit sort of situation. When you have a

general permit someone applies for coverage under that general permit. Even if it's a simple, you know, notice of intent DEC then knows who's in the universe so that we could go back and we could potentially request these records. I wasn't sure if you had any thoughts about how to.....

MR. THOMAS: Yeah.

MS. KOCH: .....that sort of concept.

MR. THOMAS: I don't think there's anybody who conducts drilling operations in Alaska that does not have a permit, either Title V, minor stationary source or PSD. I think all the operators of drill rigs -- well, but not the operators. That's not the right word. All the people who deploy drill rigs under contract have permits and those would be the people that have to keep these records is what I'm thinking. So if an inspector came to CPF-1 in Kuparuk, for example, they have the expectation that we have the records of the drilling activities that occurred from the previous year and they can ask us (indiscernible) and they can review them. I'm not sure if that answers your question, but everybody who drills I think has -- they're in the Adak air permitting program and in one of those three permitting venues. I don't know of anybody who's not.

MR. KUTERBACH: Well, we wouldn't know of them either.

MS. KOCH: That's the question.

MR. KUTERBACH: Because they don't have a permit.

MS. KOCH: Yeah.

MR. THOMAS: The only ones who wouldn't -- I guess that's a fair question because the ones who wouldn't might be the exploratory programs like maybe Fury comes to mind. Yeah, that -- we'd have to address that.

MS. KOCH: Who -- my concept is we need to know who's in the universe.

MR. THOMAS: Yeah, I agree.

MR. BROWER: See, to me if you're going to propose, you know, changes that was based on the number of gallons in exceedance you would want to put some sort of mandatory compliance measures that -- there are certain things that the industry provides the Borough on a monthly basis, other things that they just come in and they're reviewed for compliance and then placed into the database for that particular unit. It seems to me you could make it a mandatory process. Say you went through a registration process to do something like this. At a minimum you would have to have -- you wouldn't be out there seeking for that information I would think. I would think you would make it a mandatory requirement.....

MS. KOCH: I agree.

MR. BROWER: .....for the period of time that it's operating that the data consumption rates.....

MR. THOMAS: Are you thinking like an annual notification you're going to use this part of the program (indiscernible)?

MR. BROWER: It helps to -- and we do it for like the

wildlife department there's certain monitoring to build trends and data that's to back up needed modifications later on to something else. You build a trend and look at the data that develops it. It's a mandatory requirement for that operator to submit that data. And if the guys from the outset know that, hey, there's a different kind of a system and you're going to get a little bit more freedom here, but there's going to be little caveats come with it you're going to be required to bring to the table. And that might be your consumption rates if you're going through something like this. It's just, you know, trying to put two and two together.

MR. THOMAS: Yeah.

MS. KOCH: John.

MR. KUTERBACH: Well, we're kind of drifting into the discussion of the options, which I don't know whether that was the intent at this point.

MS. KOCH: Yeah. So we knew that Brad was going to somewhat bridge from the technical into our.....

MR. KUTERBACH: Okay.

MS. KOCH: .....into our policy.

MR. KUTERBACH: So what Brad's done here is similar to what we had as a permit by rule. We had a permit by rule for drilling before we had the general permit for drilling. We -- then we switched over when the statutes and the regulations changed requiring a permit and so then we had the minor permit

and we had the minor general permit. There may be some advantage going with either an official permit by rule designation or minor general permit designation in getting EPA approval of the mechanism. All right? Because right now our requirement that they get a permit is part of the SIP, but we have our flexibility in approving or not approving permits. The change we would be making is if you get -- say we made this a permit by rule. Well, then EPA would have -- that permit by rule would be adopted as part of our SIP. EPA would be able to approve or disapprove that permit by rule. If instead we had a general permit that we issued because we allow you to operate under a general permit the only adjustment we would make to our SIP is if you get a general permit you don't have to do the source specific permit stuff that the rules require. That may -- and we would have to discuss this with Dave Bray and the folks at EPA. The contents of that general permit would not necessarily come under EPA's scrutiny. I mean they would obviously be able to comment on it, but I don't know what they.....

MS. KOCH: Just more part of a regular public comment (indiscernible) permit.

MR. KUTERBACH: Right, I don't know whether they would have the authority to object to that permit since it's not the Title V permit. So that would be something for the options group to explore is, you know, looking at the way it is what

would require EPA review and approval and what wouldn't. And it may be different mechanisms would have different requirements for EPA.

MS. KOCH: And maybe at this point since we are shifting over to the policy discussion, which is fine and I think Brad's presentation was a good way to kind of bring us to that next point. Brad gave us a pretty specific example of some proposed language. I wanted to have an opportunity for the workgroup members, the main workgroup members, I wanted to go around the table and I wanted to at least pose this question to you and you could of course speak to also anything else that you want to. But does the workgroup -- in my reading of all the transcripts of the past workgroups there had been this options committee to start looking at some of this knitty gritty and some of what John is talking about and that group went on hold because they felt that there were technical questions that needed to be answered before the regulatory scheme sort of questions and changing the regulatory scheme questions could move forward. Does this group feel like they have enough technical information or they have the right answers to the technical questions to start moving forward on -- into more of the regulatory scheme sort of questions? Can we get to that next point?

UNIDENTIFIED MALE: I think so.

MS. KOCH: Brad, do you want to -- I mean did you want to.....

MR. THOMAS: I think we have enough. I mean there's still technical work that has to be done, some reviews that have to be done, but those can be done in parallel and they can augment, you know, what the policy group or this broad working group is working on. But I think we have enough information we can start talking about policy options. You know, if the technical group agrees an approach like this is viable I think we can start talking about it.

MS. KOCH: Gordon.

MR. BROWER: Yeah, I think there's enough information and I -- my own point of views are, you know, it was a little skewed and I was thinking we're up in the arctic. The climate kind of dictates the amount of consumption because it's just so harsh. And the developing that's going on up there and looking at the data I kind of have an opinion formed in my mind that, you know, the modeling or the way that it's created here and its presentation that you'd probably never exceed these things. There's a lot of conservativeness in there and the drill rigs' consumption is overstated in some -- to a large extent in your exceedance and what -- the excursion model that you're not capable of going there.

MR. THOMAS: Well, just to add to that. The -- these volumes would be limiting for multiple drill rig operating scenarios on a pad.

MR. BROWER: Right, yeah.

MR. THOMAS: Single drill rig scenarios you're right, they're more than what a single rig could do, but if you've got a multiple rig operation on a pad, particularly when there's no high line power available, these numbers become limiting.

MR. BROWER: I certainly think there's enough information and I know there's still the need to try and evaluate, you know, Cook Inlet and other forums, but I think there's enough information to start to leading to maybe a robust style of what the approach should be with the information that's presented. I mean you've got an example here and, you know, there should be other examples presented so we have an opportunity to, you know, gauge the value and effectiveness of that.

MS. KOCH: Thank you. Joshua, your thoughts.

MR. KINDRED: Yeah, I guess -- I mean I think I agree with Brad at this point in time. Probably what we need from the technical subgroup is going to be supplemental and I imagine that we can gather it as we move along. But I think -- and Tom may disagree with me, but I think one -- you know, one of the issues that is probably going to be most important is our -- probably articulating the excursions because I imagine that will be what will be the ultimate point of contention if we have a drill rig that has too many excursions. And one of the things that I'm having trouble wrapping my mind around given the presentation we had earlier today is it seems to me if when we did that modeling it was over -- correct me if I'm wrong, it's

an (indiscernible) over a three year span.

MS. HUFF: A standard.

MR. KINDRED: Yeah, it's the standard.

MS. HUFF: Three years.

MR. KINDRED: So intuitively it just seems like it wouldn't really matter if your excursions were grouped or not as far as violations. So I guess it's surprising to hear that we may have problems if you had excursions two days in a row. That's a minor point, but it's something that I imagine when we're going through drafting some regulatory language it may be important to be able to have that question answered. And I guess at the end of the day, you know, I think our goal or our endeavor should be to create a program that is as inclusive of traditional drill rig work or traditional activities on the North Slope as can be. And it's been reiterated time and time again that this -- these are conser -- this was a conservative approach. So I would go back to my former question which is how much malleability is there here, how much -- how do we address something that we didn't think of, whether it's a frack engine or something else. And if this is conservative enough would the technical group ever feel comfortable saying, well, we built in this cushion and certain activities could probably fall under that blanket. Now maybe that's my ignorance of the math here, but I think as much as we can we should try to create language that captures everything now and moving forward can we act

accordingly. So I guess -- but I don't know that that probably answers your question, but those are sort of some of my thoughts.

MS. KOCH: And just as a follow-up to your comments, Dea and Alan and Tom Damiana, do you think that -- I mean I agree with you. I think that we -- there -- even though there may be some outstanding technical questions we could probably start moving ahead with the regulatory regime. Dea and Alan and Tom Damiana, do you feel like you can continue on and maybe address the question of well servicing activities? I mean this seems like that's another point that you're bringing up and it just -- it hasn't been evaluated in that context, but it sounds like it's something that could be -- I'm assuming it could be evaluated if that's something that you want included.

MS. HUFF: Yeah. I mean I think it could be evaluated.

MR. SCHULER: This is Alan. I think that's something we can look at. And I don't want to stand off and talk that we have to, you know, rule it out from everything that's been done. It's just that we need to think through that in some detail. And I know I have some questions on that of how you got in there. But I think it's something we can work through and it should hold up to, you know, what's happening at this point of how to fold in the compliance to date into some kind of a regulatory program.

MS. KOCH: Okay. Thank you. John Kuterbach.

MR. KUTERBACH: Okay. Well, I -- you know, I think we have enough technical reliance on what the data we have, what it actually represents with some conservativeness, but it's undefined conservative. I mean we don't know whether does this -- is this 10 percent conservative, is it 50 percent conservative. We just have a feel that we know it's in some way conservative because it's set out in two rigs that are spread out. We have them at the same location. All right? And the other conservative factor. So I'm a little leery of saying, well, you know, we have this kind of conservative slush fund and let's throw in other stuff that we haven't looked at in that conservative thing without knowing kind of the extent of how conservative the evaluation is. So I think we've got a good idea of this is what the data fully supports and then it's a matter of what are we comfortable with beyond that as far as -- and I appreciate Brad making an attempt on the -- kind of the excursions and, yeah, the language doesn't really hit it right. But the idea there was you can't just say 73 days because it's really a certain period of the operating time that we were looking at. So we've got to get that operating concept and we have to do it appropriately. So I think as we work through some of these technical regulatory questions we may generate additional questions to the technical group saying we want to make this assumption, does the data support that assumption.

MR. THOMAS: That's good.

MR. KUTERBACH: Right?

MR. THOMAS: That's good.

MR. KUTERBACH: And so we would have to go back to the.....

MS. KOCH: So we're not going to disband -- I think your point is we're not going to disband the technical.....

MR. KUTERBACH: Right.

MS. KOCH: .....subcommittee because there may be subsequent technical questions that we'll have to task them with.

MR. KUTERBACH: Uh-huh (affirmative). And I think when we do bring in the policy group and really start talking to it I really urge us to bring an EPA representative into the group so that we can get some feedback on do they see this as a roadblock method. You know, is this going to take us 10 times the effort, can we have a small adjustment and make it easy. I think they'll be able to give us that kind of advice without, you know, unduly influencing how we proceed.

MR. THOMAS: You said something interesting a minute ago though that leads me to think that we should probably complete a step before we bring EPA into it and that step is do we need to develop a SIP amendment that requires their approval. I'm not sure we're there yet. Maybe we can do this within the existing SIP.

MR. KUTERBACH: It's -- I haven't looked at it in detail.

All right? We would have to look at the rules and see what would need to be changed. The one flaw in that ointment is that we are going beyond the EPA approved methods. All right? We got that alternative method that's going to need to get approved by EPA even if we go to group.

MR. THOMAS: That's true, right.

MR. KUTERBACH: But it wouldn't be a SIP approval. So, you know, we might be able to avoid the time delay that the SIP approval would give us, but we're not going to get EPA completely out of the mix.

MR. THOMAS: Right. But before we get EPA involved we just want to make that conclusion. We need to do the SIP amendment. Are you saying we should get them involved because of the modeling earlier?

MR. KUTERBACH: I don't have a problem with involving EPA early. I know when we talked two years ago there was a very large concern about having EPA at the table or even in the room when we did this kind of meeting. But I think there's some folks at EPA with long time experience, Dave Bray's a name that comes to mind, who could be very helpful in identifying, you know, well, gee, that's an -- been a national issue for EPA and if you go anywhere near that it's going to be a problem, whereas, you know, another method might be easier. So I would recommend that we at least have EPA, not to participate in the -- but as a resource for when we start talking about policy.

MS. KOCH: Okay. Corri, I wanted to get your thoughts.

MS. FEIGE: Sure. Well, and, you know, sort of being brand new to all of this and seeing the presentation of the technical data I like very much the fact that it's really going to touch on about 90 percent of the locations on the Slope and 90 percent of the scenarios. So based upon that and then the technical data presented I'm very comfortable with where it all falls out. I do agree that we need to do some more definition work on what those -- you know, what defines our conservative parameters and sort of, you know, what the boundaries within our calculations have been. And I think if nothing else than just to pass on the red face test when we're having that discussion with EPA. I also like, given what we've seen here in some of the draft language, the idea that we could basically augment what's already there and any of the outliers in this like, you know, for example, looking to the future with big extended reach drilling rigs which will be kind of the next wave to come which will be much larger units. Or having, you know, multiple rigs on pads and in smaller areas, things of that nature. Those are kind of the outliers, but this catches the bulk of what's out there and I see it very nicely, you know, slipping into the existing regulatory program and possibly that permit by rule with the data submittal requirement on it for compliance and monitoring purposes or some sort of NOI process if it goes more of a general permit route would be pretty effective at getting

that data in DEC's hands.

MS. KOCH: Okay. Thank you. And I don't want to forget Mike Munger on the phone. Mike, I want to give you an opportunity to weigh in.

MR. MUNGER: Thanks. Listening through this I'm -- my question, you know, when you asked if the technical data is adequate enough to go forward, it seems to me that's -- from my perspective there's been a tremendous amount of work done and I applaud the efforts of the technical workgroup. Does the -- but it seems to me the question is does the DEC feel like there's adequate enough information to go forward. And I -- you know, I believe it was Mr. Kuterbach who brought it up that said we may occasionally go back to the technical workgroup. I -- that was kind of my understanding all along, that this will be -- there will be policy issues that will have to be kicked back to the technical workgroup for more clarification. But -- so I guess I pose the question back. Does the regulatory agency in this particular instance feel like there's enough information to go forward? Thanks for the opportunity to comment.

MS. KOCH: Okay. Well, I feel like there's enough technical information for us to at least consider this next question. You know, getting back to we had that options, there was this talk about an options group that would really do things like -- and I don't think there was a mission statement for that options group, but just conceptually that an options group could

do things like look at this sort of permit by rule language, actually work on it, make suggestions to it or even before looking at permit by rule specific language backing out and maybe more conceptually looking at before we get to this step, which is a little bit more specific, what are the benefits of a permit by rule approach versus a general permit approach and think about those -- that framework. Because there may be pros and cons that John brought up in terms of, you know, they may require extra -- something might have to require a SIP process or something might not and have that sort of discussion and then maybe after you have that sort of discussion then you hone in on, okay, well, we think -- what would an actual permit by rule look like, start looking at this language. What would a draft general permit look like? We'd get into those sort of questions. It does feel to me like we're probably ready to go to that next step and have an options group start working on those sort of questions.

MR. MUNGER: Thanks for that and I would tend to agree with you.

MS. KOCH: So that leads me to another question which is it was never clear to me in the past when there was this discussion conceptually about this options group that would do this sort of regulatory work what that options group would look like. Is that every single person on this main workgroup? Is it a smaller subset?

MR. THOMAS: We actually identified the people.

MS. KOCH: Okay.

UNIDENTIFIED MALE: I think we did.

MR. THOMAS: Didn't we?

MR. KINDRED: I believe we did. I don't know if there's been significant changes since we did that, but we did have certain individuals tasked with options. Some were on technical, some were on both. But I don't think it was a lengthy process if we had to do it again.

MS. KOCH: John and Alice look like they may -- maybe they have recollection.

MS. EDWARDS: No, I was just going to say my recollection was that by the time we were all said and done that pretty much most everybody that was on the primary workgroup was on the options workgroup. And I think if I recall correctly back last spring or -- not last spring, but the prior spring when we sort of put it all on hold I think there was some question about whether we needed a separate group or not. And maybe because of the detail we're talking about we do, but I seem to recall that almost everybody was actively participating in the options group. And I'm -- and we had I think EPA providing some input to that group. But I don't recall that we had a huge -- that we were missing anybody from the table.

MS. KOCH: John.

MR. KUTERBACH: Well, two years ago when we were looking

at the options group we did not have it narrowed down as far as the technical data. We were still talking about the monitoring data and do we need to regulate drill rigs at all or can we just register them. Now that we have this we're really focusing in on a couple of options. Right? We're looking at regulations like this which could be supplemented or a general permit or maybe we could brainstorm another option. But my question is what would the options group actually do. So if what we really want is to take the options that have already been identified and flush them out a little more so people can, you know, kick the tires and slam the doors and see which one looks like it's going to run better then maybe that's what we ought to be focused on is the signing out, flushing out the details or answering certain questions such as what EPA process would be needed given the option. Can it be done without a SIP change and just get the model approval from EPA? Or -- you know, and understand the characteristics of the different options. Unless other folks think there -- that we should, you know, get together as an options group and brainstorm to see if there's anything other than these few options we've already identified I don't really see a need to convene an options group. Just use the workgroup and, you know, assign out the work.

MR. THOMAS: Well, there are options that -- I think it would be helpful if we could particularly get you to, you know, guide us on what's -- what are the pitfalls, what are the pros

and cons with this option. You know, what's involved, what's the work involved if we take this option? What's the scope and applicability of this option? What are the limitations of this option? Because, you know, I proposed language here that's -- that in my mind is broadly applicable, but I'm not sure if you're on the same page. So, you know, laying all the options out on the table and then hearing from DEC pros, cons, limitations, scope, applicability would be very helpful to me.

MS. KOCH: And what I was thinking of when I heard the -- about the concept of the options workgroup is that it really would be -- to me there's an analogy with what the technical workgroup is doing and that the technical workgroup is going and they have homework assignments, you know, and they are tasked with specific questions and they go and run the models and do all that sort of work. That to my mind those subgroups are smaller groups sometimes of the main group that actually lays out the -- does that work, does those tasks and then can come back and potentially -- one route is they could potentially report back to the main workgroup just the way the technical workgroup worked on -- you know, they had specific tasks that they worked through and they're going to have to -- they're meeting more regularly than we can have a formal workgroup meeting and then they come back and they report out to this group. That was one of the thoughts that I had of how it could take shape. John.

MR. KUTERBACH: I don't want to dominate any conversation. I want to know what the other folks. But I mean that is a good concept, but if everybody's on the workgroup we're not really getting a smaller focus workgroup to work on stuff.

MR. BROWER: I don't know if I'm going backwards here, but seems to me that we were -- had some dialogue some time ago, some -- about hearing what other oil producing states are doing to address that in their permitting world and look at the approach of -- it's similar to what we did with our revisions to Title 19, which still haven't made major strides on. But -- well, we had tasked our attorneys and stuff to see what other coastal states are doing in terms of regulatory process or various different things and then tweak and suggest changes to our own program. And it's still a long lengthy process, but that was parts of different tasking of the people to bring in ideas that may already be a well greased machine.

MS. KOCH: Okay. Tom or John, since that predates me on this committee I did think that there had been other previous work products or presentations. A lot of time has elapsed. Maybe we could kind of bring that back.

MR. TURNER: Correct. What we looked at when we looked at the other states is how do they protect air quality. So, for example, in Wyoming they have extensive monitoring set up. In the case of Texas they have a similar I believe permit by rule. I'm going off memory. California was very -- they required tier

four engines. I mean they were just like just get the non-pollutant engines. So, you know, each state had a different approach. This is interesting language, so I'm just going to ask some obvious questions. We had a -- the technical group did work. The limits that we -- there was a concern about these spikes. Right? When you looked at the data the historical fuel usage was kind of low in comparison to what we were anticipating, but that historical fuel use is running around 5,000 to 6,000. The technical evidence to the modeling shows that you can go up to 12, 13, 14. So that makes us in my mind as a reg writer goes, okay, we've got technical evidence now that says maybe that limit is a little bit lower than it should be, we can maybe go up with the limit. The big question is what to do with this 18,000 gallons. And it looks like we could do these exceedance. I'm going to call them that. You've got ways that the exceedance can be limited down, which I think you may look at. But I'm going to go off of what John's saying. Just, well, if I go off what John's saying it's like could you write a reg that you could fit -- that does require some change, but we have to get the modeling and the technical data approved, or could you actually -- do we really need to go back and come up with something else?

MS. KOCH: John.

MR. KUTERBACH: Okay. I want to refocus back because Gordon had a good point. That one of the tasks that we may want

to look at is what other states are doing and the question to you from Denise was do we already have that in some form. And I know we did some work looking at how they regulate drill rigs, but it was a little bit apples and oranges because they're more focused on areas that don't comply with ambient air quality like Wyoming which has modeling and stuff. Whereas we're trying to protect degradation of air quality, you know, prevent a problem in an attainment area. And yeah, we may be more strict than some of those other states. I don't know whether -- and this is for the workgroup. Do we want to have that to see whether or not this is needed? You know, if there's other solutions that other states have come up with, do we want to have that as one of the tasks that this policy workgroup should go into as well as narrowing down on particular regulatory options.

MR. THOMAS: Yeah. To weigh in on that, we did look at the -- extensively how other states regulate drilling activities and what we found is that most states have regulations that apply to wells when they go into production. But outside of California I don't recall finding a state that has permitting requirements for drill rigs. California has pretty stride requirements, but they have a lot of those on nonattainment. They've got -- they're regulatory strict in a lot of ways. So Alaska is outside of California the most stringent.

MR. KUTERBACH: Well, being clear here, Alaska's using permitting through -- as part of our implementation plan. Other

states have implementation plans and they may have found that in their particular situation the drill rigs were of less concern than another source and they put their focus on another source.

MR. THOMAS: Sure, sure. Sure.

MR. KUTERBACH: So, you know, I don't know how comparable it would be.

MR. THOMAS: Yeah, there's going to be inequities with each state. But, you know, you look at Texas, Oklahoma, North Dakota, Colorado, you know, the drilling activities aren't the focus of the air programs. The drill rigs just drill without having air permits.

MR. KUTERBACH: I know Col -- yeah, you mentioned Col -- Colorado is focused more on the VOC.....

MR. THOMAS: Correct.

MR. KUTERBACH: .....because they have an ozone problem.

MR. THOMAS: Right.

MS. FEIGE: Same in North Dakota with shale and.....

MR. THOMAS: Right.

MS. FEIGE: .....rig intensities, there are just none?

MR. THOMAS: Right. So that's why, you know, early on we made the proposal. We brought all the ambient air quality data to bear and proposed that that be used to drive comfort that there's no threat to ambient air quality standards and that drill rigs should therefore just be moved out of the drill rig permitting program for the technical groups, that we can't

extend that to cover all scenarios which is how we ended up here.

MS. KOCH: So I'm wondering if one way to move forward is if we approach this from what are the questions that we would want, what sort of regulatory scheme questions do we have that we need to get answered. And once maybe we hone in on those then we could identify who is on that committee, is it everyone or do we need people outside of this committee. But maybe one approach is we figure out what are the questions that we want answered, what's the charge of that group and then we could -- then we can staff it appropriately.

MR. BROWER: I have one.....

MS. SMITH: Denise, this is Rebecca in Juneau. We did do some work. The DEC presentation from August 22nd, 2013, which is on the webpage does have some of the results of some of the research that was done into other states.

MR. THOMAS: Yeah, there actually -- there should be two presentations.

MR. TURNER: Yeah, there's two. It's all there.

MS. KOCH: Thank you, Rebecca. That's what I was thinking. That could be a good place to start.

MS. SMITH: The other thing is I do have a list of who was at one point or another indicated to be on the options subgroup if that's helpful for me to read through for anyone.

MS. KOCH: Yeah, could you read through that please?

MS. SMITH: Yeah. We have Dave Bray from EPA, Bill Britt, Hilcorp. Alison Cooke and Robin have been put on that list because Alejandra used to be on that list. Corri substituted for Bill. John Hellen, Josh Kindred, you, Denise, John Kuterbach, Mike Munger, John Neason, Mike Peters, Brad Thomas and then Tom Turner as our.....

MS. KOCH: Brad just said -- it may not have been able to get picked up on, but Brad said that's a big group and you kind of stole the words right out of my mouth.

MS. SMITH: It is a big group.

MS. KOCH: I mean in terms of -- I think that there's.....

MR. KUTERBACH: I think that was a matter of uncertainty at the time and everybody felt it was better to be on the group than off.

MS. KOCH: I -- yeah.

MS. SMITH: Yeah, that may be and that's just the group that I've had as a sort of group for holding purposes I suppose more than anything else.

MS. KOCH: That is informative. Maybe just for comparative purposes when I think about the technical subcommittee, a bunch of people who were doing specific work tasks, how many people were on that committee? Can you name those members, Dea?

MS. HUFF: Just Alan and I and Brad, AECOM. Brad basically.

MR. TURNER: It started out big and got narrowed down to four.

MS. KOCH: Yeah, so it's really four or five -- five people?

MS. HUFF: Tiffany and Tom, yeah, you, me, Alan. I don't think anyone else have ever talked. Like on our extensive conversations.

MR. THOMAS: The actual work was five people.....

MS. KOCH: Five people.

MR. THOMAS: .....and then there's a lot of communication externally, but.....

MS. HUFF: Yeah.

MR. THOMAS: Doing the actual work was probably four people. I was just there helping.

MS. HUFF: Yeah.

MS. KOCH: John.

MR. KUTERBACH: Okay. We could go with an options workgroup, but I would charge the options workgroup with coming up with the questions that need to be answered and then breaking down into small teams to answer those questions. For instance, one -- if we're going to work on Brad's language breaking down to refine that and answer the questions related to that.

UNIDENTIFIED MALE: Okay.

MR. KUTERBACH: Or if it's general permit, answering the questions with that. Or any other questions we would have for

it we could do that and the policy workgroup could identify those questions and then subcommittee them out to two or three people to work and report back to the group. Or we could just do that in this workgroup that we have now, identify the questions and assign out work.

MS. KOCH: I do think that the concept is that really in the task there's only going to be probably four or five people who are going to actually do the work and then they could report back to a larger group. And I think there's kind of a fundamental of the group gets too big it gets hard to manage or it's not as clear as who does what. For other members, Mike on the phone or Gordon, do you have any preference or, you know, do we identify questions in this group and then task them out or do we identify a -- or do we keep this really large options group and charge them with coming up with questions and then identifying subcommittees?

MR. BROWER: Seems to me that you would want to have a smaller group identify and give missions to potential mechanisms that could work and then bring that back for debate and dialogue to the larger body. And I think through that you start to weed out what might be the most appropriate recommendation to ultimately provide. You know, not giving clear direction, but I think it's -- you know, I still have a issue of some other states that say it's not a problem in how they manage that and it's not a problem how many drill rigs, it's not a problem in

their state. Is it 1,000, is it 2,000 rigs in their state and it's not a problem and what do we have in the state and it's a problem, is it 29? You know.

MR. THOMAS: Yeah, to build on what you said, it's better to have a smaller group identify the issues. You know, when you compare the size of this group, six, with the size of the options group that was just named by Rebecca, a lot. This is the smallest group. And so to build on what you said, maybe this is the right group to put the questions on the table and this is the right group to farm them out, you know, when they're put on the table if they need to be farmed out.

MS. KOCH: Corri, I haven't queried you recently, what your thoughts are.

MS. FEIGE: Nope, I'm just nodding away over here. I agree that a smaller group, that's going to make it a little more concise and easy and we don't get into -- you know, we can over process it if we're not careful. I think we just have to identify the questions, determine what we think needs to go into those and then parse them out, dish out the -- you know pass them out and have folks start digging in.

MR. TURNER: I've heard two questions so far. Are we going to work on Brad's proposal and are we going to look at permit by rule. So I'm just starting on a question list.

MS. KOCH: Well, I think if -- to Brad's point, this workgroup is smaller than the options subcommittee. The

subcommittee wound up to be bigger than the main committee. So maybe we keep it at this workgroup is -- when we start this maybe list of questions that have been raised here and then we can task those questions out and then maybe have some -- whoever works on those questions report back to this body. What -- I've written down at least two questions. The question -- I appreciate, Rebecca, that you said that August 22nd, 2013, there's some information, but still we have this question, how do other states regulate drill rigs. So we could kind of pursue that question even though we have the starting point or at least refresh it in everybody's mind. That's over two years since that's been presented. This question about the pros and cons about the different approaches. So just kind of the -- structurally what are the pros and cons of the different approaches. And then under that I would -- I could see once we get a pros and cons of the different approaches then we could funnel down to actual language for a permit by rule or actual language for the general permit. I would think that we'd want to look at the pros and cons, structurally for those before we got into the more specific language.

MR. KUTERBACH: Well, I think we would need some categorization of the pros and cons just to be able to focus and be able to -- for us to understand those. So some of the characteristics that we need to evaluate is, you know, how much will it cost. Okay? Does -- will it require EPA approval? Are

there some aspects of Alaska's current SIP which prohibit us from adopting the SIP solutions in other states? Who's going to pay for it and how is it going to get paid for? Just kind of those generalized questions that we could use to evaluate pro and con on different solutions.

MS. FEIGE: So then I think the first big question that we've got to ask is before we go down that path, will EPA accept the model and the Monte Carlo solution.

MS. KOCH: You know what, that's a great question. I'm wondering if that's a policy question or if that's a technical workgroup.....

UNIDENTIFIED FEMALE: It's a technical group question.

MS. KOCH: .....question.

MS. HUFF: Well, we brought it up to Dave Bray already at EPA on our interim calls and he thought it would end up how it was going to be framed in the SIPs eval. Was what.....

MS. KOCH: So his answer was kind of (indiscernible).

MS. HUFF: .....(indiscernible) together. Yeah. But he definitely wasn't like no at all.....

UNIDENTIFIED FEMALE: Okay.

MS. HUFF: .....I didn't think, so.

MR. THOMAS: Yeah, it wasn't a red flag.

MS. HUFF: No.

MR. KUTERBACH: Of course he didn't put any of that in writing.

MS. HUFF: No.

MR. KUTERBACH: That's Dave Bray.

UNIDENTIFIED FEMALE: And he's on the record here, the transcripts.

MS. EDWARDS: I was going to say, you won't get EPA to commit to any decision point beyond -- before they actually have the whole thing in front of them.

UNIDENTIFIED FEMALE: In front of them, yeah.

MS. EDWARDS: So you can get -- you could get frames of reference from them, you can get ideas of whether there's big problems, but usually you won't get a firm yes or no on anything. That's pretty normal.

UNIDENTIFIED FEMALE: Yeah.

MS. KOCH: Okay. Well, I think John has a good suggestion. Maybe we could take a break, think about some of these things, reconvene. It's -- let's come back at maybe 3:40. All right. Thank you.

THE REPORTER: Okay. Off the record at 3:24 p.m.

(Off record at 3:24 p.m.)

(On record at 3:40 p.m.)

MS. KOCH: We're going to try and reassemble and start. We're missing.....

(Side conversations)

MS. KOCH: Once again, I wish I had the gavel. Gavel, gavel, gavel. Thank you. We are reconvening.

MR. TURNER: It's back to the workgroup, our audience I think, except for Randy who's always been kind of a quasi workgroup guy. Kind of hangs in the back.....

UNIDENTIFIED MALE: Yeah.

MR. TURNER: .....very respectfully.

UNIDENTIFIED MALE: (Indiscernible).

MS. KOCH: Our audience has shrunk. Do we still -- Mike Munger, do we still have you on the phone?

MR. MUNGER: Yes, I'm still here.

MS. KOCH: Okay. All right. Great. So there was some good discussion about different approaches. You know, I think we all are at the point where we're wanting to talk about what are the next steps. A lot of good work has been done by the technical subgroup and we want to just keep the momentum, but there are certain -- I think it's clear that there are tasks. We still have questions that are outstanding and we need to figure out how to appropriately resource those questions and who to task them to. I would throw out as a proposal if we had Brad and Josh and John and Tom take a shot at not necessarily looking at wordsmithing the particular language that you've thrown up as the Strawman, but outlining conceptually how you would translate the technical information and this technical -- those limits that have been modeled into a regulatory program. What -- and I think that's a question that maybe that smaller group can start to work on.

MR. THOMAS: I'm good.

MR. TURNER: My boss looked at me, so I'm good.

MS. KOCH: And his boss looked at him.

MR. TURNER: Yes, I got that. I'm getting both sides.

MS. KOCH: So that's how that works. So I -- the initial question of what -- you know, how would you translate the technical information into a regulatory program. And I think maybe a secondary question that might come out of that is what are the pros and cons of whatever that conceptual approach is. And those pros and cons should probably be regulatory, they should be operational, they should be cost -- you know, there should be cost -- cost should be a consideration. Time should be a consideration. If one approach is going to be much more -- a much more lengthy process. Trying to think. Maybe.....

UNIDENTIFIED MALE: Operational impact.

MS. KOCH: Operational impact. That's what I was thinking. Operationally in terms of regulatory, in terms of cost, in terms of time. I know those are pretty broad sort of questions, but maybe then that smaller subgroup can work to refine and translate what those questions are and then report back to this -- to the main workgroup. So that's my proposal. I wanted to see -- maybe I'll just go around the table and see if -- what people think about that. Corri, is that -- does that work for you?

MS. FEIGE: I like the small group idea, absolutely.

MS. KOCH: John, any thoughts? John Kuterbach.

MR. KUTERBACH: Well, I guess I'll do it.

MS. KOCH: Josh (indiscernible).

MR. BROWER: Yeah, I'm on board. Yeah. Yeah, that sounds good.

MS. KOCH: Mike, does that work for you?

MR. MUNGER: I support that.

MR. THOMAS: I'm good.

MS. KOCH: Brad?

MR. THOMAS: Yep.

MS. KOCH: Okay. I think the only other element we haven't talked about there is I'm not sure if we want to talk about the timeframe for kind of that smaller group convening and starting to move forward.

MR. KUTERBACH: Speaking of that. I'm thinking we might want to investigate whether we can get a collaborative work site, you know, like SharePoint or something that we can just work on so we don't have to sit in a meeting and teleconference and that stuff. Because with the different schedules that's going to be tough for us to arrange.

MR. THOMAS: We can do that.

UNIDENTIFIED FEMALE: Yeah.

MR. THOMAS: Yeah.

MR. KUTERBACH: Okay.

MR. THOMAS: I'll make a note. I think we have systems

like that.

MR. KUTERBACH: I know we have one, but I don't know what external access we have to it.

MS. KOCH: I'm guessing, Brad, that it might be easier for you to do that than for us to do that.

MR. THOMAS: I'll try, yeah.

MS. KOCH: The State's going to have more firewalls and.....

UNIDENTIFIED FEMALE: Right.

MR. THOMAS: Yeah.

MS. KOCH: .....it might be easier for us to go into your collaborative site.

MR. THOMAS: Okay.

MS. KOCH: But if you hit a dead end.....

MR. KUTERBACH: And I can be a troll on your blog.

MS. KOCH: We'll try and keep John in line.

MR. BROWER: Is there a timeline we want to establish or.....

MS. FEIGE: For trying to turn this around, yeah.

MS. KOCH: Yeah, I think that's a fair question. I don't know what -- I don't want to lead that too much. I want to hear what your thoughts are and maybe Mike's thoughts.

MR. KINDRED: Logistically how long does it typically take to get this entire group together? Would it make sense to set a time now that sort of gets us working, but that way we don't

have to wait until we get to a point where we feel comfortable and then have to wait six weeks.....

MR. THOMAS: Right.

MR. KINDRED: .....for schedules to work out. I mean I'm not looking for artificial deadlines for a reason. I got plenty. But it just may make more sense as far as speeding the process up.

MS. KOCH: I won't speak to that just for this meeting because that's one that I'm intimately familiar with. I think when it became clear that there was a lot of technical information and probably enough technical information to we were hitting a milestone. And when I spoke to Brad I think it was at the beginning of this month. So it took us about four weeks from the time that we both said it felt like it was time to have another meeting to actually convene the meeting.

MR. TURNER: Just real quick. Just based on the record, this time we haven't met -- this group had not met in a year. You had new players and you had to reestablish everything. In the past when we were doing it they would run about six week time period and we could -- you know, there was a we're going to meet this week and then people just blocked off that week and then we set a couple of dates and times and it was easier to do.

MR. KINDRED: Well, do we have a -- and I don't have a good sense of how long this project will take, but does it make sense given the holidays to set a schedule early in 2016 and

then that way we know what our deadline is, but it doesn't try to navigate too quickly. Is that -- is even that took quick a deadline?

MS. KOCH: John, did you have any thoughts about that?

MR. TURNER: I have a project as a key member that's due by January 15th and it will absorb a huge amount of time.

MS. KOCH: Okay.

MR. TURNER: So, you know, to do something like right after the first of the year would not give sufficient time.

MR. THOMAS: Well, to be clear though, I think -- you're talking about the next broader scheduled meeting.

MR. KINDRED: Yeah, setting that as our goal so we don't finish what we're doing and then have to wait an additional six weeks. But if we have an idea of how long we think it'll take us let's just set the meeting out.

MR. KUTERBACH: Could we set something up before the holiday to -- it doesn't have to be a full meeting where we all come to Anchorage.

UNIDENTIFIED MALE: We could teleconference.

MR. KUTERBACH: We could at least have a teleconference.....

UNIDENTIFIED FEMALE: Yeah.

MR. KUTERBACH: .....meeting of this group just to check in and see where we are.

MS. KOCH: I was going to suggest maybe closer to January

1st. I think just December becomes so difficult in terms of everyone's schedule. Typically.....

MR. KUTERBACH: Okay.

MS. KOCH: .....people will be back, you know, January 1st or January 2nd.

MR. TURNER: That -- to satisfy the times. We could -- we've done this before. It's a little bit of effort. I'll have to look at how Jeanne did it. I may need to have support on this one. But the windows of opportunity are like December 10th through the 20th and then the next one would be right after the first of the year. But the holiday period.....

UNIDENTIFIED MALE: That would be the 4th.

MR. TURNER: Yeah, the 4th. And so I mean, you know, we could look at either one of those two dates.

MS. KOCH: And maybe make it a teleconference.....

UNIDENTIFIED FEMALE: Sure.

MS. KOCH: .....so it doesn't have to be quite as.....

MR. TURNER: Yeah.

MS. KOCH: .....formal. It's easier to fit into everybody's schedule and that sort of thing.

MR. THOMAS: And then up to that date then we could -- the four of us could get together.

MR. KUTERBACH: Right. We'll work on the collaborative thing and if we have to get on teleconferences we can schedule that ad hoc as we do it.

UNIDENTIFIED MALE: Makes sense to me.

MR. THOMAS: Yeah.

MS. KOCH: So how about -- I don't know if everyone has their calendars here or if that's a follow up action that we could -- DEC, we can initiate and we can find a date that works for everyone. And.....

MR. TURNER: See if we can target at some dates then.

MS. KOCH: In early January.

MR. THOMAS: I think early January's going to be fine for me.

MR. KUTERBACH: Yeah, Tom, why don't you send out -- pick a date that first week after the holiday and send out email -- you know, an email invite and then people can respond.

MS. KOCH: I'll be -- Alice is saying aren't you on vacation. I am on vacation. I'll be calling from Mexico.

MR. THOMAS: Oh. Like.....

MS. KOCH: It'll be a long distance call.

MR. THOMAS: The week of the 4th? The week of the 4th?

UNIDENTIFIED FEMALE: Yeah.

MR. THOMAS: I'll probably be in India. So maybe the (indiscernible).

MS. KOCH: Maybe the.....

UNIDENTIFIED MALE: That (indiscernible).

UNIDENTIFIED MALE: Yeah, we (indiscernible).

MS. KOCH: Yeah, and then we have Arlene (ph). So that

gets us.....

UNIDENTIFIED MALE: A whole week.

UNIDENTIFIED FEMALE: Because you're gone -- aren't you gone from like the 4th (indiscernible).

MS. KOCH: I am. I'm really back the week of the 19th. So the 18th is Martin Luther King Day and then.....

UNIDENTIFIED MALE: And then session.

MS. KOCH: .....the 19th is session.

UNIDENTIFIED FEMALE: Session begins, yeah.

MS. KOCH: I don't think that -- I mean that should (indiscernible).

MR. THOMAS: If we do it late the week of the 4th I could probably do that. If the week of the 4th is viable. Late in the week would be probably.....

MR. TURNER: I'll check on the week of the 4th, but if not just knowing how this goes it's going to probably be then after the 20th. Just to give people perspective.

MS. FEIGE: Yeah, and I'm fine later in the week of the 4th as well.

MS. KOCH: Okay.

MS. FEIGE: Yeah.

MS. KOCH: I think I'm really the only hold up in the week of the 4th and I could try and find a way to participate.

MS. FEIGE: Skype.

MR. KUTERBACH: I like the idea of making Brad get up in

the middle of the night in India.

MR. THOMAS: It is the middle of the night.

MR. TURNER: Okay. So we'll go ahead and survey the group for the week of the 4th at the end of the week, like -- I don't have the calendar in front of me.

MS. KOCH: Thursday's the 7th.....

UNIDENTIFIED FEMALE: The 7th.

MR. TURNER: Thank you.

MS. KOCH: .....and Friday's the 8th.

MR. TURNER: So we'll look at Thursday the 7th or Friday the 8th. And just so I'm clear, Director, you're comfortable with calling in on your vacation.

MS. KOCH: Yes. I just have to -- I have to look into the logistics. I don't mind doing it. It's I need to make sure that I can -- that it's physically possible for me. I'm going to be kind of off the grid.

MR. TURNER: So that might be a key element. Otherwise if that's not the date then the next time will be the week of -- around the 20th.

MS. KOCH: Then it's the 19th.

MR. TURNER: Week of the 19th. Okay. All right. And we're going to look at teleconference? Okay. That's a lot easier to set.

MS. KOCH: Yeah. We're a little bit more agile that way.

MR. TURNER: Anything else?

MR. KUTERBACH: Well, you'll have to see about whether you need public notice for that or.....

MR. TURNER: I'll public notice it one way or the other.

MR. KUTERBACH: Okay.

MR. TURNER: Anything like this with the public involved it's 15 days that I'll public notice it.

MR. THOMAS: And I'll send a -- to get us started I'll send a meeting invite to -- for a meeting as soon as next Thursday maybe if that works for you guys.

MR. TURNER: Yeah, sure.

MR. THOMAS: Okay.

MR. TURNER: Or the following week. We'll -- you and I will get together and do that.

MR. THOMAS: Okay.

MR. TURNER: I got some -- I got a pretty big project due by next Friday.

MR. THOMAS: Okay.

MR. TURNER: Then it tapers off a little bit. They all come in at the end of this month.

MR. THOMAS: Well, yeah, and I guess I'm kind of antsy to get started because the -- it's hard to tell how big a subject, how deep a subject we can get into until we start talking about it.

MR. TURNER: We're a good group. We're going to go fine.

MS. KOCH: All right. Well, it feels like we're kind of

coming to a close. We've got these potential dates for the full workgroup teleconference either January 7th or 8th or the week of January 19th. We'll see what works for most. We've got kind of our tasked group of Joshua, Brad, Tom and John. Are there any other kind of closing thoughts or ideas before we adjourn?

MR. THOMAS: A closing thought for me is the effort that Dea and Alan put into this is appreciated. It's.....

MS. KOCH: (Indiscernible).

MR. THOMAS: So -- and Tom and Tiffany as well. I mean they all get credit. It's been a huge amount of work and back and forth and I think it just went well. There's a level of cooperation here that's commendable, so.

MS. KOCH: I do have one other question which I probably have -- I shouldn't lob out almost at 4:00 o'clock, but I will anyway. Feel like we have a path forward on -- we have North Slope data and modeling that we feel -- you know, there's a lot of consensus on. There's a path forward for looking at the regulatory changes that we could make based on this information. We still have the issue of Cook Inlet. So do we want to let the regulatory group kind of move forward a little bit, get a little traction, before we then ask the technical group to start working on Cook Inlet information?

MR. THOMAS: Well, I'm thinking the technical group is working on the Cook Inlet information. You guys don't have anything to review yet I don't think for Cook Inlet modeling,

but Tom and Tiffany, it's on their to do list if they're not already working on it. And correct me if I'm wrong, Tom, but that's what my thought was.

MR. DAMIANA: Yeah. Yeah, I mean we've -- the technical committee had met a couple of times to get, you know, some initial protocols developed for us and we've been pushing it forward.

MR. THOMAS: So it's in parallel?

MS. KOCH: Dea, do you have any thoughts or comments on that? Or Alan.

MS. HUFF: Yeah, it seems like we.....

MR. SCHULER: This is Alan. It's a question I had, if we should proceed or not. I have no problem with proceeding, but actually it's up to the subgroup if it's worthwhile or not.

MR. THOMAS: If what's worthwhile?

MR. SCHULER: Again, I presume it is, but it's not my call.

MS. KOCH: I think -- yeah, I think that Alan's just looking for concurrence from the workgroup that they should move forward on the technical piece. Barbara.

MS. TROST: One thing I would like to know is that before we move on too far and I know, you know, Tom and Tiffany have done most of the legwork, but at some point we will need to pull all this together in a write-up. And that is something that I am really concerned about because I imagine that it's going to

be quite a lot of paper. We will be having a hand in to EPA. And so we could either wait until we're completely done with the process, or we could get sort of the process started of documenting this and pulling all the information together. Because we've got the work -- the modeling is done and the power -- we have PowerPoints, but we haven't really put it into any shape or form that we can submit it to EPA. So I just wanted to hear that is something that we need to work on and who's going to be taking the lead on that.

MS. KOCH: John.

MR. KUTERBACH: I'd wait on that work until we determine what we're going to need to submit to EPA.

MS. TROST: Okay.

MR. KUTERBACH: Because it may be less than what we normally would for a SIP change depending on the solution we come up with.

MS. TROST: Well, we know we have to write the model. I mean there are certain things that we can already do. It's a matter of resources and timing I guess. But.....

MR. KUTERBACH: Okay.

MS. TROST: I mean obviously if we come up with various scenarios we might have to change what we're doing, but I think there are certain things that we know we have to write up.

MR. KUTERBACH: Then I'll defer to the person paying the bills.

MS. KOCH: I was just about to ask Brad. I mean a lot of the format of the technical group, and correct me if I'm out of turn, but AECOM has done a lot of the work. They do a lot of the modeling and then they hand that information over to Alan and to Dea and to Barbara for them to review it and to make sure that they concur with the modeling and the approach. But the actual modeling is being done by AECOM and if my understanding is correct it would make -- seem to make the most sense to me for them to take the -- for AECOM to take the first shot at writing up what they've done because they're the ones that are most familiar with that process.

MR. THOMAS: That's something we should probably talk about when (indiscernible) the processes a little bit better because I don't. So maybe that's one of the things that we can (indiscernible). If we're talking about, you know, what's the program going to look like that we ultimately pursue and then define what we're going to need to get EPA concurrence. At that point I think I can figure that out.

MS. KOCH: Okay.

MR. THOMAS: Right now I don't feel like I'm equipped to answer it.

MS. KOCH: Okay. So I think that at this point Barbara has a great point and we're just going to table it for the moment until this smaller group kind of works a little bit to figure out what it is.....

MR. THOMAS: Yeah.

MS. KOCH: .....what sort of regulatory program we want and that will -- might help to dictate what sort of documentation that we're going to need to provide that. Does that work for the workgroup?

UNIDENTIFIED FEMALE: Uh-huh (affirmative).

MS. KOCH: Mike, we're getting very close to adjourning. I want to make sure, do you have any closing thoughts or comments?

MR. MUNGER: I did and thanks. I wanted to thank the hard work that the folks of the technical workgroup have put in to getting us this information that we've looked at today. I believe when it comes to Cook Inlet, and of course I have a bias towards Cook Inlet, but I believe that this work needs to be done in parallel. If in fact we go forward with regulations it's -- you can't really write -- they're going to have to be statewide regulations with caveats for geographical locations, but I believe since this workgroup set out to do North Slope and Cook Inlet that the Cook Inlet technical issues need to be addressed frankly at the same time if we're looking at promulgating regulations. Because it's going -- there's going to be some applicability and generalities that will be statewide anyway. So again, I appreciate the work of the technical group. I'm glad this workgroup is back together and actually going forward again. It certainly has been a long time since we've

met. I believe it's an important topic that we need to get addressed and so I'm glad we're moving forward again. Thanks.

MR. THOMAS: To address what you said, Mike. This is Brad. We do intend to include Cook Inlet. So we don't -- in my mind I haven't anticipated concluding any kind of programmatic changes without Cook Inlet being involved.

MS. KOCH: It sounds like AECOM is.....

MR. THOMAS: (Indiscernible).

MS. KOCH: .....they might not have presented anything to DE -- the DEC portion of the technical subcommittee, but they are.....

MR. THOMAS: They're working on it.

MS. KOCH: .....they're still working.

MR. THOMAS: Yeah.

MS. KOCH: Okay.

MR. SCHULER: Denise, this is Alan. A quick question just for clarification again with respect to Cook Inlet. I believe we're looking at onshore drill rig activity and not offshore, but I want to double check. And the reason why I ask is there's a different air quality model that's used for offshore (indiscernible). And so if offshore becomes part of what we need to look at there are some other issues we need to start working through as well with AECOM.

MR. THOMAS: Yeah, at this point we're not looking at offshore.

MR. SCHULER: Okay.

UNIDENTIFIED FEMALE: Drill rigs are already accounted for in (indiscernible).

MR. MUNGER: This is Mike again. (Indiscernible) changes in the on or off riggers in Cook Inlet to where there used to be a fixed rig on every offshore platform to where now they're using a rig that basically can be moved around. For the majority of platforms I believe that it might be worthy to taking a look at that again before we go forward.

MS. FEIGE: The jack up rig.

MR. THOMAS: Yeah. Are you talking about a jack up rig, Mike?

MR. MUNGER: Well, not only the jack up rigs, but the fixed rigs now, they've taken the vast majority of all the fixed rigs off the fixed production platforms and then they just move a mobile rig now around to those platforms for work overs and other issues.

MR. THOMAS: Yeah, just.....

MR. SCHULER: This is Alan. I know we worked on an air quality permit with Hilcorp on multiple -- or rigs on multiple platforms. And so I don't know if they are content with that. And then of course there's other operators out there as well. So I don't know if we have an adequate mechanism for dealing with that or if there's additional issues at least from Hilcorp's perspective for the workgroup, but.....

MR. THOMAS: That's a fair thing to follow up on, so I'll -- I can check to see what the -- how drilling is currently covered on the platforms in the -- in Cook Inlet and whether or not any issues are raised by the regulatory program as it exists right now. I don't think there are.

MR. KUTERBACH: As I understand it, each of the platforms has its own permit and the drill rigs are just a.....

MR. THOMAS: Part.

MR. KUTERBACH: Yeah, it's just an operational scenario.....

MR. THOMAS: Yeah.

MR. KUTERBACH: .....under that permit.

UNIDENTIFIED FEMALE: Right.

MR. THOMAS: Yeah, so we think, Mike, that the existing drill rig permits cover the drilling scenario even if the drilling rigs move.

UNIDENTIFIED FEMALE: Yeah.

MS. KOCH: All right. Any other thoughts or comments, Mike?

MR. MUNGER: No, not at this time. Again, thanks for the work that's gone into this and glad we're going forward. Hope everybody has a safe weekend.

MS. KOCH: Thank you.

MR. TURNER: So just to quickly summarize. What I heard was the options regulatory subcommittee consists of John

Kuterbach, Brad, Josh and Tom. That they're going to begin looking at these various options. Brad's going to look at SharePoint, some type of a shared technical site. The next meeting for the large workgroup will be January 7th and 8th. Tom to start looking for a email, preferably teleconference, but it's going to be dependent on whether or not Denise can attach to it. For Cook Inlet they're.....

MS. KOCH: Or it would wind up being the week of January 19.

MR. TURNER: Correct.

MS. KOCH: If 7th or 8th doesn't work.

MR. TURNER: Thank you. For the data for Cook Inlet, that's going to be a parallel process that's going to be continued, but Brad is going to go check and see how Hilcorp's currently covering it, but I'm pretty sure it's covered by existing permits. We're going to wait on the EPA write-up until such time the options subcommittee sees what's required. Did I miss any other action items?

UNIDENTIFIED FEMALE: I don't think.

MR. THOMAS: One to propose. Do you think it's worthwhile to engage Herman at Region 10 now about the modeling approach?

MS. HUFF: I know Alan wrote him an email awhile back and.....

MR. SCHULER: Yeah, this is Alan.

MS. HUFF: .....he talked to OEQPS. Sorry Alan, go ahead.

MR. SCHULER: Yeah. No, I was just -- well, I should have let you finish. But I think Dave's been our main point of contact and so I think it will probably work through Dave and then if he wants to pull in Herman. Herman's actually retiring in the end of December. And so his -- I don't know if he's looking for anymore projects at this point. I think he's trying to wrap up what he has and I don't know if he would be able -- this project sounds like it's going to go beyond December, so I think it's probably better to work through Dave at this point in time and if he wants to pull in Herman for a particular issue then he's free to do so. We have a good rapport with Herman, but I think keeping it to Dave is probably the better strategy at this point.

MR. THOMAS: You know, one advantage, you know, with the proposed revisions to Appendix W and having -- if it goes final as proposed and having to have all the alternative modeling approaches approved by the clearinghouse back in North Carolina. Once that sets in, you know, then our task just gets a little more -- you know, we just have another hurdle. The advantage of working with Region 10 now before that rule goes final if it's finalized the way it's written is we can limit the look by EPA to Region 10.

MR. SCHULER: Well, actually that's a good point, Brad. Maybe -- I mean one of the (indiscernible) is actually the PVMRM and maybe we should proceed with asking -- and that is Herman's

(indiscernible). Maybe we should proceed with asking for that now to get that on the record, you know, before Herman retires and before this proposed change to EPA (indiscernible).

MS. KOCH: So in terms of Tom.....

MR. SCHULER: (Indiscernible).

MS. KOCH: .....writing down the action items, is that -- can you follow up on that action item, Alan? Can you go to.....

MR. SCHULER: Yes.

MS. KOCH: .....to Herman and ask him about that PVMRM.

MS. HUFF: I think we -- it sounds like they might have several co-current like technical action items just from today's discussion and working out if we need additional information for the operational time period for the excursions or whatever. Like some back and forth that we might need to decide on or look into.

MR. TURNER: So you'll send.....

MS. HUFF: I have it and.....

MR. TURNER: You have it.....

MS. HUFF: You will have it, but I have the technical (indiscernible).

MR. TURNER: Send an email and then probably what will happen is I'll add it to the minutes after we get the transcript so it's in the record.

MS. HUFF: Yeah.

MR. TURNER: Okay. So that's an action item too. Okay.

MS. KOCH: Okay. So I -- I'll just do one -- once around the room for the workgroup members to see if you have any final thoughts. I'll start with you, Corri. Anything.....

MS. FEIGE: Nothing.

MS. KOCH: .....before we adjourn? John?

MR. KUTERBACH: Well, it's not for the workgroup, but if Alan's still on, send the saline issues to Tara.

MR. SCHULER: I'm sorry, I missed that.

MR. KUTERBACH: The saline issues. You know where they are on the website, on the SharePoint site?

MR. TURNER: Rebecca does.

MR. SCHULER: Oh, yeah, yeah, yeah. Oh, oh -- oh yeah, so I'll send it to Karen. Okay.

MR. TURNER: Yeah.

MS. KOCH: Yeah, different subject, Alan. We just.....

MR. SCHULER: Okay. Yeah, I'm sorry. I didn't pick up the change.

MR. KINDRED: Nothing.

MS. KOCH: Joshua. Gordon, any.....

MR. BROWER: No, I don't have any closing thoughts.

MR. THOMAS: Nothing.

MS. KOCH: Brad, closing thoughts. All right. Just wanted to thank you all for being here today. It's been awhile since we've had one of these full workgroup meetings and it was really informative to hear all the work that the technical group

has done. They've really come very, very far and it really felt like it was time to start on this other aspect. So I think we've got a good plan forward and thank you very much. And officially we are adjourned. I gavel out.

THE REPORTER: Okay. We can gavel out at 4:07 p.m.

(Off record at 4:07 p.m.)

TRANSCRIBER'S CERTIFICATE

I, Nicolette Hernandez, hereby certify that the foregoing pages numbered 2 through 139 are a true, accurate and complete transcript of proceedings of the Workgroup for Global Air Permit Policy Development for Temporary Oil and Gas Drill Rigs, held October 30, 2015, in Anchorage, Alaska, transcribed by me from a copy of the electronic sound recording to the best of my knowledge and ability.

_____ _____

Date Nicolette Hernandez