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

MEETING

August 22, 2013

Anchorage, Alaska

Present:

Bill Barron
Gordon Brower
Tim Burke
Alejandra Castano
Tom Chapple (telephonic)
Tom Damiana (telephonic)
Alice Edwards
Wally Evans
Todd Fortune
Randy Kanady
Kate Kaufman
John Kuterbach
Sara Longan
Ann Mason (telephonic)
Mike Munger
Alan Peck
Virginia Rapps
Sally Ryan (telephonic)
Jim Shine
Rebecca Smith (telephonic)
Jeanne Swartz
Brad Thomas
Tom Turner
Ben Wedin
Ron Wilson

P R O C E E D I N G S

(On record at 10:03 a.m.)

MS. EDWARDS: .....a little bit after 1:00 o'clock and this is -- I don't know, is this the third or fourth meeting? Fourth meeting of our workgroup, the Air Permit Policy Development for Oil and Gas Drilling Rigs. So I thought we'd do introductions as we normally do and I know we have a few folks on the phone as well. So we're having the meeting transcribed so we have the table mics for that, but the -- but I'm pretty sure that the -- we'll need to make sure when you're also near the polycom phone mics for the people on the phone to hear us. So as we move along if there's any issue with the folks on the phone not hearing us please let us know. We'll try to repeat things if they come from -- away from a mic so that hopefully we can make sure you guys can keep up with us. Tom, I assume that we've posted presentations and things on our internet site?

MR. TURNER: Yes, they have been posted on the internet site and I believe this morning around 11:30 we sent all of them to anybody who was on an email signup list.

MS. EDWARDS: Okay. So hopefully everybody will have the materials that we're looking at and can follow along. Why don't we go ahead and do introductions if that's all right with everybody and then we'll do an agenda check and go from there. So this is Alice Edwards, the Director of Air Quality for DEC.

MR. THOMAS: I'm Brad Thomas here on behalf of the Alaska

Support Industry Alliance.

MS. CASTANO: Alejandra Castano, Alaska Oil and Gas Association.

MR. BARRON: Bill Barron, Division of Oil and Gas.

MR. TURNER: Tom Turner, DEC.

MR. BROWER: Gordon Brower with the North Slope Borough. Just a little update as well. John Boyle is no longer my alternate. He's no longer working with the Borough. So working with the Mayor's office to get an alternate.

MS. EDWARDS: Okay.

MR. MUNGER: Good afternoon. Mike Munger with Cook Inlet Regional Citizen's Advisory Council.

MR. KUTERBACH: And I'm John Kuterbach. I work for DEC, Air Permits.

MS. EDWARDS: And if we want to just go around the edge of the room. Why don't we start with you, Randy.

MR. KANADY: Yeah, Randy Kanady with ConocoPhillips.

MR. FORTUNE: Todd Fortune with AECOM.

MS. LONGAN: Sara Longan, DNR.

MS. RAPPS: Oh, hi. Virginia Rapps, the Bureau of Ocean Energy Management.

MR. PECK: Alan Peck, Bureau of Land Management.

MR. WILSON: Yeah, Ron Wilson, Doyon Drilling.

MR. WEDIN: Ben Wedin with Nordic-Calista Services.

MR. BURKE: Tim Burke with ASRC Energy Services.

MR. EVANS: Wally Evans with Hilcorp.

MS. KAUFMAN: Kate Kaufman with Hilcorp.

MR. SHINE: Jim Shine, DNR Commissioner's Office.

MR. SWARTZ: Jeanne Swartz, ADEC, Air Quality.

MS. EDWARDS: I think that's everyone in the room. Can we go ahead and try and see who's on the phone? I know we'll talk over each other, but just go ahead and we'll sort it out as we go.

MS. RYAN: Sally Ryan, Cardano Entrix.

MS. SMITH: Rebecca Smith, DEC.

MS. MASON: Ann Mason, SLR.

MR. CHAPPLE: Tom Chapple with H & H Consulting.

MR. DAMIANA: Tom Damiana with AECOM.

MS. EDWARDS: Any others on the phone that haven't introduced yourselves? Great. So thanks everybody again for coming. The agenda for this meeting, I think everybody's got a copy of it. Wanted to do an agenda check and see if anybody had any suggestions or changes for the agenda for today. All right. Hearing none, I guess we'll proceed as planned.

Just for the good of the group, I have an unavoidable conflict at 3:30 and I'm going to need to step out and take a call. So I will step out at 3:30 for a little while. If it happens to be a convenient break point, great. Otherwise I just wanted to let you know if I disappear for a short while that's -- I have an unavoidable conflict this afternoon.

I also believe that the July 9th meeting summary was sent around to folks on the workgroup. Is that correct, Tom and Jeanne?

MS. SWARTZ: That's correct, Alice.

MS. EDWARDS: So if anybody has any comments or revisions for that meeting summary please let us know and we'll get it posted final.

MR. KUTERBACH: Also -- this is John. The transcript is posted.....

MS. EDWARDS: Oh.

MR. KUTERBACH: .....on the website?

MR. TURNER: Yes.

MR. KUTERBACH: From the last meeting.

MS. EDWARDS: So you can see the full transcript or you can have a meeting summary. They're both there and available. And as I mentioned, we do have transcription going again today, so if we can remember to identify ourselves, especially for the folks on the phone. That'll probably be helpful as well. And for those of us in the room or those of us on the phone, besides identifying ourselves we probably want to make sure we're speaking into microphones here in the room so everybody can keep up. Tom, did we have any logistics for the room that we wanted to share before we get into things?

MR. TURNER: Yes. This is Tom Turner. A couple of logistics and safety items. The first thing is for exit you

would come in the same way that you came in. So instead of coming right, right, when you go out please go to the left. And as soon as you head towards the main lobby though there's a stairway right there. Also, the front desk has asked that everybody please sign in and sign out. They would like to keep track of all the visitors. In addition, we have our own sign-up sheet here that tracks emails and phones and so I'd ask everyone to make sure that there's a double sign-up this time.

Also, last time, per the request of the transcriptionist, again not only speak up, but we had to have extra microphones around. This is a different setting. So they tried to do the best they could. The -- watch for the cords, but pay attention when you walk. I think we did a pretty good job of taping them all down.

And then the other issue is all the signs are up. And bathrooms are in the main lobby where the elevators are. The men's room is towards the inlet and the women's room is towards the other end. And for general safety moments, it's raining outside, please be cautious. And I want to acknowledge the front desk admin staff. They were very helpful in setting up all the signs and stuff. Thank you.

MS. EDWARDS: Thanks, Tom. Bill, did you have anything else before we jump into things?

MR. BARRON: No, he took all my safety moments, so let's progress.

MS. EDWARDS: All right. Last meeting we worked on the goal statement and the strategic topics. And I apologize, I've been gone for 10 days and so I don't have a specific list here to present to you to show you what we had come up with unless -- I don't think we have that here. It is in the meeting notes. If -- I thought we could just do a check back to see if the workgroup members were still relatively comfortable with sort of the statement that we'd come up with and also the strategic topics that we're sort of working our way through. We'll probably -- I would imagine as we progress we'll be looking at those strategic topics a little bit more as we progress into the next few meetings on what we want to work on next. But if there are other things that people have thought about that they want to explore then, you know, this would be a good time to start thinking about just checking in on that.

I believe for the good of the group that the goal statement we ultimately came up with was that the goal of the workgroup is to develop informed recommendations to improve the air regulatory process for drill rigs with a particular focus on predictability, operational flexibility and compliance with the air quality standards.

UNIDENTIFIED MALE: What page are you on?

MS. EDWARDS: I'm on page 11 of the meeting notes summary from the last meeting. And I know we had a long list of strategic topics and the first one that we decided to try and

tackle at this meeting was to start with looking at what other states are doing with regard to drill rig regulations or requirements or programs and that will be the focus of this meeting as well as taking a look at sort of some of the Alaska drilling operations. We also know that we need to get into discussing compliance with -- how we determine compliance with the standards and that I know is one of the big topics that we want to get into in coming meetings. I don't remember whether we have -- I mean there were a whole -- there was a whole laundry list there and I don't know if it's worth going through all of that here, looking through the notes, or if people are relatively comfortable continuing to proceed and we can just keep checking back on our list of topics and making sure we're headed in the right direction on that.

UNIDENTIFIED MALE: I think that would be good.

MS. EDWARDS: Is that all right with everybody?

UNIDENTIFIED MALE: (Indiscernible).

MS. EDWARDS: Okay. So with that, unless any of the members of the group have anything to add before we get started I think our first agenda item is really to talk about what we've all learned over the last month or so as we've been looking and surveying other states about their drill rig programs and regulations. I know DEC staff have been working on this and I know Ilga (ph) and the support alliance have also been doing this as well. So I think folks are ready to come forward with

sort of what they found in their discussion with the other states and give us a summary of that. And I believe those are all in presentation format as well, so you should be able to kind of follow along with us. Tom, are you going to do the -- what the -- what we found out from the DEC aspect as far as our survey?

MR. TURNER: Yes.

MS. EDWARDS: Great. Thanks.

MR. TURNER: So this is Tom Turner and we're going to -- we have a PowerPoint presentation. It is on the website. It's also been sent out. I will do my best to call out slide numbers so people can follow them and Jeanne has brought it on the slide here in the main conference room.

So when we started looking at how to survey the states the first thing that we wanted to consider besides drill rigs was also in general how do drill rigs fit into the overall protection of air quality. So we looked at how states manage and protect air quality as we went about doing our survey.

Slide two please. So a quick overview just to remind, you know, the mission of DEC is we are required by the Clean Air Act to protect human health and the welfare. And so EPA established national ambient air quality standards for certain common and widespread pollutants. And states are required to adopt enforceable plans to achieve and maintain air quality meeting the air quality standards. This is important to remember

because as we started to survey the states we saw a lot of different variations of how things were done.

Slide three please. So here are the states we surveyed which is a quick slide. Slide four. Here is the CARB districts. Now these are in California. They generally have a little bit more restrictive air quality, but we did want to have -- based on the workgroup's suggestions we were trying to do a comprehensive view of oil producing states and different areas that may have air quality that relates to drill rigs.

Five please. So the first thing we did is we kind of figured out how to do the survey. We have engineers and I have some statistical background. I used to do surveys for my marketing degree. And we didn't want to just call up and say do you regulate drill rigs because air quality's a complicated subject matter, people manage it in different manners. And so we went through a list of questions. This slide is just an example of some of the questions we asked. We were interested in what are the sources, emission sources, that they would have in conjunction with drill rigs. There was a lot of discussion about modeling, so are they doing modeling. There was a fair amount of discussion about the different monitoring networks that would be in other states and we'll get into that in more detail. I would like to acknowledge Jeanne Swartz and Rebecca Smith within our staff. They did a lot of time calling these states, working through different people. Because if you just

call up and get one person they may not be the answer and you kind of have to have interview questions to find out who the correct person is to talk to. So we went through a draft of questions, who to contact, did follow-up background with it. Some offices called back, some did not. So it was a fair amount of effort to call these people and try to find answers. Again, there was no single answer for a lot of different situations.

Slide six please. Of course we put some of this information in a table. Things that we were looking at is do they have non-attainment, how many rigs they could have out there and as we got into the questions there were some questions how to do Title 5 permits. Slide seven and slide eight is the combination of this table. It's on the website. You can look at it.

So the big things we came to is on slide nine. So the question is how do states really do this and when you get into the question of how states manage air quality one of the issues you get into is down in the lower 48 they have -- they address their air quality issues based on the priorities that are facing them and they usually look at the worst or the most significant sources of emissions. So these -- and depending upon what part of the country you are they have major problem with transportation corridors because of the amount of traffic they have. They also have big huge coal power plants. I mean their size of their coal power plants are massive. There are areas

that have heavy manufacturing and so those, you know, groupings of extensive emissions coming from those groups. And so based on what their priorities are they may look at controlling air quality and may look at drill rigs differently than other states might. And that's kind of -- when you start talking to people and you start asking them their questions it's kind of interesting about how they respond. The first thing is like, well, we're dealing with the coal power plants or we just got hit with a non-attainment area, we have to look at that.

Slide 10 please. So the first thing is there's no really one approach or one uniform solution. Each state develops their own method of how they want to address air quality. And factors when it comes to drill rig regulations that we were able to dig into is what kind of other emission units are available or attached to the drill rig. And we'll get into that later. I think that's going to be something of interest to look at. They also look at what other significant emission sources we have, like I talked about the coal plants or other stuff. They have more issues with population centers. Now on the North Slope particularly we have to accommodate for subsistence and hunters crossing across ambient boundaries, but they have some issues where they're very close to large population centers and so they may be looking at pollutants differently because they have to protect human health in that area. Those -- public access is interesting simply because they have more property and land

boundaries and rights than Alaska does and so that also can affect how they're looking at doing air quality. And again, because of the modeling concerns there's different topograph and weather patterns. One of the state regulators in an oil state that seems to have a fair amount of oil production right now that has a lot of shale production simply said, well, it blows a lot down here. So it was interesting to get their areas. And they are dealing more with different non-attainment areas because of the other significant pollution sources and when non-attainment kicks in they have to start looking at how to address different sources.

Slide 11 please. So how do they do drill rigs. So if you call up and say do you regulate drill rigs to the air quality people you're going to get an answer generally no. If you then say we don't -- let me rephrase that. If you call up and say do you get a permit they say no. Most of it's done by commissions outside of the environmental quality departments. This could be for lots of reasons. A lot of it's done by economic reasons. Some is based on historical practices. So, for example, it's the Railroad Commission of Texas that actually regulates or looks at drill rigs because they're looking at the number of drill rigs, where they are and the sources, and some of that comes from what we were able to gather through the phone conversation. Some of that comes from the fact that they used to transport a lot of oil through the railroad and not have

pipelines. So they're still doing it. In Louisiana it's actually their DNR and in Kansas they have the Corporation for Commission. And some of these people may have restrictions on drill rigs that are not necessarily related to air quality, but over the approximation of the drill rig to a population center, so they may have time lengths, what's it doing on the particular oil play that it's working on. Those are other factors that they look at. We did not dig into that too much because we were concerned about air quality. But I do think it's important to acknowledge that there are other forms of different regulations that drill rigs may have in other states.

Slide 12 please. So how do they deal with drill rigs? Well, excuse me, jumped ahead. So most air quality is done by the health and environmental agencies and it's usually looking at the stationary and permanent emission units. They do look at the auxiliary emission units that are attached to drill rigs, the boiler, the dehydrators. They didn't have a lot of snow melting equipment in some states, but that's one of the things. And they generally follow non-road emission units.

Slide 13. So generally they don't end up -- they do not issue individual permits for drill rigs mostly because they classify them as mobile engines. And a lot of what we were able to do when you start talking to someone about how the drill rigs work, a lot of them do not have the auxiliary permanent emission sources attached to the operation of the drill rig. There are

places because of the non-attainment area that they do have regulations over them and we did see that Texas has a Permit-by-Rule, but I believe Brad may have some further information on that. And so we may have similar information, but I'll defer that to Brad.

Slide 14. So one of the things that we did look at is when they do require air permits and pretty much across the board they required air permits when production kicks in. And they do have a fairly -- several amounts. There are variations of it, but it's basically like a minor source permit similar to what we would have here. It's for productions. They're looking at those auxiliary units. There are some places where once they go into that production they require some type of modeling around it. New Mexico would be an example of that. And like in Louisiana, they said, well, after the drill test is complete, of course they have a reason what constitutes a drill test completion, they need to get an MS permit within 10 days. So there are controls around oil production through various air quality permits.

Slide 15. So a little better background on the Alaska drill rigs permit program. And again, I wasn't here back then, so if someone who was back there and went through any of these things I would be happy to get input. But in 1977 Congress expanded the whole scope, so we did the PSD program. And then in the early '80s it changed the regulations to require -- the

requirements for the PSD and in that case they generally did not account for non-road engines.

Next slide please, 16. So the big key here is then we went through a series of Clean Air Act adjustments from 1989 to 1990 and in 1997 they did exempt non-road engine emissions from permit applicability, but did not exempt the emissions being considered in the ambient impact analysis required by the PSD program.

Slide 17. So in 1999 ADEC focused on the portable oil and gas drill rigs. There was a lot of emissions coming from them. We don't have historical emission sources like large coal plants and stuff that degradate air. They seemed to operate at more extended periods of times on sites. And so we started looking at these massive emission sources and how to regulate them. John.

MR. KUTERBACH: Yeah, this is John. Let me jump in. It was about that timeframe, where you're saying through 1999, the concern with the emissions from drilling operations came about because of I believe it was either the North Star or the Badami PSD permit where -- I think it was the North Star. Where the drill rig itself was going to stay on site for an extended period of time as part of the PSD source. And so the modeling of the emissions of that drill rig alerted us to the fact that drill rig emissions, at least as predicted by modeling, had a significant air quality impact and that's what prompted us to

look at the other drilling operations that were going on using similar size sources, but were not part of the PSD permit so they didn't necessarily get that book from the Department and that was in the late '90s. So I wouldn't say that we focused our efforts on portable oil and gas activities. It was a matter of in the late '90s we discovered that the -- at least with the modeling tools that we had and trying to ensure compliance with the increment of PSD sources was very challenging, especially for the SO-2 at the time. And that's what kind of prompted the idea of regulating the drill rigs as part of the stationary sources.

MR. TURNER: Thank you, John. In 2004 then we went ahead and put in the minor permit for portable oil and gas drill rigs. It was established due to ongoing air concerns, which was again based on modeling, it provided a mechanism for industries operating assumptions as enforceable permit limits. There was a request by industry at the time to aligning ourselves with federal standards and it was included into the SIP minor permit -- minor permit program.

Slide 18 please. So for transportable drill rigs when we look at the survey and we look at Alaskans we have similar engine size. There were some smaller drill rigs in the North Dakota shale area, but we have similar engine size. There were some air quality protections in different areas. So for example, in the California programs generally they require tier

three or tier four engines. All the offshore in California requires highline power. Now some of that is due to they have a carbon trading mechanism and they -- by going online power it's much cheaper than to go through the carbon trading network. In some places they require natural gas. So some of that's due to non-attainment areas and I believe in parts of Texas the Oil and Gas Commission in Texas says you're wasting our resource, we don't want you flaring it or burning it in the air, we want you to use it for drill rigs. Okay. So there are different forms that could affect air quality, but not necessarily directly as a permit.

Slide 19 please. We just decided to put in two pictures of drill rigs. I'm sure you'll see lots of those later when Brad does his presentation.

Slide 20. So the question is how do they handle the ambient air monitoring. Because one of the questions we got a lot when we start asking people is they have pretty extensive air modeling networks in the lower 48. Where we may be using modeling they're using monitoring. And so a lot of it is because they're preexisting populations, the industries they have, their non-attainment areas, but there's a pretty extensive monitoring network down there and some of it's funded through a combination of industry of various types, not necessarily oil and gas industry, but it was interesting to see how much it is.

So we went ahead and put those into a table, slide 21.

Thank you, Jeanne. And we highlighted Texas in red. So Alaska has 12 monitoring stations for a state area of 572,000. If you look at Wyoming, they have a pretty extensive monitoring network. They have 275 for a fifth of the area.

MR. THOMAS: Question, Tom. This is Brad Thomas. The ambient air monitoring stations that are accounted in that second column, are those run by the state or is that state and industry?

MR. TURNER: It's state and industry. There's combinations. From what I can gather. Jeanne, is that correct?

MS. SWARTZ: Yes. Those are the ones that were reported on their website and sometimes they say they're industry and sometimes they don't. So I can only infer that some are industry and some are not.

MR. TURNER: So based on their website these are the ones that the state counts as monitoring networks. So it -- I think what's interesting to see is when you start -- and we also wanted to compare Texas which is roughly half of our size. I mean the old joke, they built the pipeline to make Texas the third largest state. But anyhow, you notice there's 229 monitors in that area.

Slide 22 please. And again, we tried to break it out to eastern versus western states. Again, you're seeing some of these have some pretty extensive monitoring stations versus the size.

And the real interesting one, of course, is when you get into the California CARBs, slide 23, which is you look at a population -- a state area of 2,700 square miles and they have 18 stations. But again, you know, these are California. They have greater air concerns. They also are very concerned about their transportation corridors in those states.

Slide 24. We tried to look at the ambient boundaries. We found this slide interesting when we were looking at how people do ambient boundaries because it really shows the protection that an individual land mass can have. And you can see that if you look at the roads, the little dots along the road, each one of those is a drill rig along the road line. And then what you have here is these are often private property or they are farms or some areas like that. And so if you're setting up an ambient boundary the question is do you have a good fence line.

MR. KUTERBACH: Well, Tom, then the roads though, those are public roads?

MR. TURNER: Those are public roads.

MR. KUTERBACH: So the ambient air is that public road.

MR. TURNER: Could be, yes. But we wanted to just look at a comparison.....

MR. KUTERBACH: Well, it is. I mean public roads are ambient air. That's.....

MS. EDWARDS: Right.

MR. KUTERBACH: .....there's no question about that.

MR. TURNER: So, next slide.

MS. CASTANO: And just to be clear, on that photo you said those are drilling pads. It doesn't mean that we have a drill rig permanently on each one.

MR. TURNER: Correct. We just wanted to kind of get an aerial shot about how they were doing ambient boundaries or just how the rigs are scattered, how many are in an area, you know, how many they might be doing. It was just kind of like, you know, let's start looking at this.

MR. MUNGER: Hey -- Brad. What size are we looking at in square miles there?

MR. TURNER: Jeanne.

MS. SWARTZ: Well, there's no scale with this, but these are -- you know, they're probably laid out in township range sections. So I would assume, and this is an assumption on my part, that we're looking at something like a section, something like here. Someone who's more familiar with the lower 48 and land properties can certainly stand to correct me. It was more of a visual survey of what they look like up there. So, you know, anybody have any.....

MR. TURNER: Okay. So.....

MS. SWARTZ: Oh. Sorry, Tom. (Indiscernible).

MR. TURNER: .....we did kind of want to look at -- we just looked into our -- I believe this was a Title 5 permit and we just wanted to do a quick comparison about what is the

emission levels from the engines compared to the non-rig engine and heaters that are on a site. So this is just a quick comparison of the NOx emissions. Slide 26.

MR. KANADY: Tom.

MR. TURNER: Yes.

MR. KANADY: Tom, is that the potential to emit or is that actual?

MS. SWARTZ: That's actuals.

MR. KANADY: Okay.

MR. TURNER: Jeanne mentioned actuals for those on the phone. Slide 26. We also looked at the overall NOx emissions. Jeanne?

MS. SWARTZ: Yes.

MR. TURNER: This was the slide that we got from the permitter?

MS. SWARTZ: Well, this is the slide that Jesse worked up from a permit that we had that is -- I believe this is a -- from a ConocoPhillips permit.

MR. TURNER: Okay.

MS. SWARTZ: The previous one -- I'm sorry, John. Do you have a question?

MR. KUTERBACH: Go ahead, finish your.....

MS. SWARTZ: The previous slide was from a BP permit and this is a different one.

MR. KUTERBACH: Okay. So if you got the numbers from the

-- this is John. If you got the numbers from the permit then those would have to be potential numbers. Right?

UNIDENTIFIED MALE: Right. Right.

MR. KUTERBACH: They're not the actual numbers. The actual numbers you have to get from an operating report.

MS. SWARTZ: Well.....

MR. MUNGER: So that applies to the previous slide then too?

MR. THOMAS: That was my guess, Mike. This is Brad Thomas. Because those previous slides said it came from a 2004 modeling analysis which would imply permit allowable or potential to emit.

UNIDENTIFIED MALE: Yeah.

MS. SWARTZ: Okay.

MR. TURNER: Okay. And we can go to slide 28. This relates to the other one.

MS. SWARTZ: Yeah, that is BP.

MR. TURNER: Yeah. Slide 28 please. So basically we still have to protect ambient air quality. Drill rigs do produce a significant amount of pollutants. Other states have and are concerned about air emissions. Auxiliary units generally produce a fair amount of emissions and require regulations. So, questions. Slide 29.

MR. MUNGER: Just for my educational opportunity here, non-attainment areas, what is it exactly? I assume, but I'd

like to know for -- from an expert.

MR. KUTERBACH: Looking at Tom's nervous face, I will explain. This is John. I will explain what a non-attainment area is.

MR. MUNGER: Thank you.

MR. KUTERBACH: Okay. A non-attainment area is an area that we have with EPA confirmed does not currently meet the ambient air quality standards. And those areas have more stringent requirements because we not only have to protect them, we have to clean them up.

MR. MUNGER: Okay.

MS. EDWARDS: Typically non-attainment areas, the way the state monitoring network in this state, as you noted in the one slide, we don't have a large monitoring network in this state. Most of the state monitors are in population centers, so the larger cities, and so those are the areas that we would have data to be able to confirm non-attainment or not when EPA updates its air quality standards. So Fairbanks is -- for example, is really our prime non-attainment area right now for fine particulate matter.....

UNIDENTIFIED MALE: Sure.

MS. EDWARDS: .....because we've been able -- we've monitored that -- those violations.

MR. MUNGER: Do we have any non-attainment areas attributed specifically to the oil and gas industry say on --

either in Cook Inlet or on the North Slope?

MS. EDWARDS: No.

MR. MUNGER: Okay.

MR. TURNER: What's interesting, Mike, since you brought it up, down in the lower 48, like in Wyoming, because of a non-attainment area BLM is putting regulations on the drill rigs.

MS. EDWARDS: So the permit program is designed to prevent non-attainment issues. I mean that's part of what the permit program and the prevention of significant deterioration program is designed to do is to try and prevent air quality from.....

UNIDENTIFIED MALE: (Indiscernible).

MS. EDWARDS: .....from various activities to cause non-attainment status.

UNIDENTIFIED MALE: Okay.

MS. CASTANO: So just to add to the comment you made, this is Alejandra from AOGA, about Wyoming. We did a little bit of research too. We have operations there as well. And it's a little more subtle than that. In their case they have Sublette County which I believe is non-attainment for ozone and so looking at that problem and saying okay, well, is it NOx driven, is it VOC driven, they started to see what other controls and offsets they could put together for controlling their NOx for those operations. So really they were putting federally enforceable limits on the rigs in order to create these offsets. So it's a little more subtle than that.

MR. THOMAS: We actually get into that in more detail in our presentation.

MS. CASTANO: Okay. So we'll go over that, yeah.

MR. TURNER: But the rigs do have to have some type of restrictions or controls because of their air emissions.....

MS. CASTANO: In order to get the offsets.

MR. TURNER: .....(indiscernible) non-attainment area.

MS. CASTANO: In order to get the offsets, yeah.

MR. TURNER: Correct. So while it's not directly because of the drill rigs, because of the non-attainment area the drill rigs do have to have some type of regulation or control their emissions. Correct?

MR. THOMAS: Uh-huh (affirmative).

UNIDENTIFIED MALE: Within that non-attainment area.

MR. TURNER: Yes.

MS. CASTANO: Right.

UNIDENTIFIED MALE: And again, we don't have any non-attainment areas associated with oil and gas operations in the state.

MR. KUTERBACH: No. Most of our areas are either attainment or.....

MS. EDWARDS: Unclass.....

MR. KUTERBACH: .....unclassifiable which means we don't know, but we haven't confirmed that they're in violation.

UNIDENTIFIED MALE: Okay.

MS. EDWARDS: Where we don't have monitoring data for a particular area generally that area when they do designations is just considered unclassifiable. The case of most pollutants, the EPA will designate those areas as attainment, unclassifiable. The one pollutant which they are deviating from that approach is for sulfur dioxide and they're working through the implementation of the new one hour sulfur dioxide standard, ambient air quality standard now where states will be having to look at all the unmonitored areas to try and determine whether or not there are non-attainment areas that are not being monitored. So -- but typically designations are based on actual monitoring data. So if there aren't monitors there EPA will assume -- unless there's data to suggest otherwise EPA will assume that they're unclassifiable, but will put them in sort of the attainment. You know, if you have two camps, attainment and non-attainment, they'll sort of slide them all into the attainment camp, but it doesn't mean that they know with certainty that there is no violation there.

MR. THOMAS: And if I could just add to that, Alice. The -- you're correct, like the North Slope is unclassifiable because there's no ambient data there collected for that SLAMS network, the State Local Area Monitoring. But there is a lot of ambient data collected on the North Slope, for example, that can be used to estimate the air quality and there's tons of that.

UNIDENTIFIED MALE: It's just not.

MR. THOMAS: Yeah, there's a lot of that data.

MS. EDWARDS: Well, and we -- the data exists and we do look at it. So if we're making recommendations for a new standard and we know that there's some industry data out there we'll take a look at it and see if we see anything of concern and if we did we'd certainly be talking to folks about it.

MR. MUNGER: I would assume the non-attainment areas would -- in Alaska would be the population basis.

MS. EDWARDS: Typically that's where the monitoring networks are looking and typically the pollutants that we tend to have problems with tend to be more community based pollutants.

MR. MUNGER: Okay. Thank you.

MR. KANADY: So I just have a general question. You noted in your presentation, Tom, that there are 12 monitoring stations in the state of Alaska. I guess how many of those -- this is a question for Brad or Alejandra. How many of those are located on the North Slope?

MS. CASTANO: We have A Pad and the one between CCP and CGF and then you guys have four.

MR. THOMAS: Yeah, we got Wainwright. We had drill site one up until June, CD-1 and Nuiqsit.

UNIDENTIFIED MALE: Five or six?

MR. THOMAS: That's a total of six.

MS. EDWARDS: So the 12 that were in the list for us, are

those the state sites or are those the state and industry sites?

MS. SWARTZ: Those are the state sites because those are what I had the data for, so.

MS. EDWARDS: Right.

MR. KANADY: Okay. So.....

MS. SWARTZ: So there's.....

MR. KANADY: .....the six on the Slope may -- probably didn't show up in those or.....

MS. SWARTZ: That's correct.

MS. EDWARDS: Right. That's not in that list because they didn't report it to EPA.

MR. BARRON: So -- okay. So how many that were listed of the 12 on the state side are on the slope?

MS. EDWARDS: None. None of them are on the Slope.

MR. BARRON: None of them. Okay. Because they're a non-attainment area.

MS. EDWARDS: No.

UNIDENTIFIED MALE: No.

UNIDENTIFIED FEMALE: (Indiscernible).

MS. EDWARDS: The reason there aren't any on the Slope is because most of the time when EPA does a standard they focus in the monitoring requirements into the population centers. And so when they come out with an ambient air quality standard generally they'll say, well, we need so many monitors and we want them in populations -- you know, areas with populations

over a million or we want so many monitors in a community the size, you know, of 50,000 or 200,000 or 500,000. So EPA's monitoring regulations for ambient monitors tend to drive our monitoring network in -- and it's historically driven our monitoring network into our major cities essentially, Anchorage, Fairbanks, Juneau, Mat-Su Valley, some of the Cook Inlet sites, but not so much into rural parts of the state or into places like the North Slope. The monitoring requirements tend to put the ambient monitors where the most population is.

UNIDENTIFIED MALE: Okay.

MS. EDWARDS: And that's what EPA funds.

MR. KUTERBACH: Do they -- excuse me. This is John. And the EPA requirements for the state monitoring system have specific requirements on where they're located and how they represent a particular area whereas in most cases when we have monitoring associated with a permitted source it's oriented towards capturing emissions from that permitted source, not the regional air quality.

MS. EDWARDS: That's true. Most of the state's monitoring sites are -- would be sort of community based monitoring sites based on looking at exposure to pop -- you know, population exposure.

MR. TURNER: And it was our understanding like Wyoming made a choice to set up a network of monitoring stations across the state so that they can use that as on the ground data for

any air violations that could happen. So that way they can be checking that data on a regular ground network. We don't have that kind of network up here. And those -- the monitoring stations if I'm correct, I believe that if Jeanne got those off their website we don't know if industry has other ones out there. We went off what the state said were monitoring stations. So in the case of Wyoming they made a decision to set up this very expensive -- this very extensive monitoring network.

MS. EDWARDS: Mike, did you have a.....

MR. DAMIANA: I think that a difference in Wyoming is that pretty much all industry sites are uploaded to the AQS system, so I think that probably the 275 includes all of the industry sites as well.

MR. TURNER: Please -- for the transcriptionist, who was that?

MR. DAMIANA: This is Tom Damiana.

MR. TURNER: Thanks, Tom.

MS. EDWARDS: Mike, did you have another question? Do we have other questions?

MR. WEDIN: Just for clarification. And again, Tom, I may have misunderstood. But you -- when you were referencing Wyoming and BLM you said there were rig requirements in the non-attainment area in Wyoming. Is that correct?

MR. TURNER: It's my understanding, yes.

MR. WEDIN: Okay. But outside the non-attainment area, in areas that are not non-attainment there are not?

MR. TURNER: Not for drilling operations.....

MR. WEDIN: Okay.

MR. TURNER: .....but for production.

MR. WEDIN: Right. Okay.

MR. MUNGER: I do have one more question. The 12 sites within the -- that the state -- that you reported on, is any of those the Municipality of Anchorage's sites? They have their own program, is that.....

MS. EDWARDS: I would.....

MR. MUNGER: .....part of that?

UNIDENTIFIED FEMALE: Yes.

MS. EDWARDS: Yeah, that would be included, Mike.

MR. MUNGER: Thank you.

MR. BARRON: To the caller on the phone, the reference that the sites in Wyoming are uplinked into the state system, is that something that could be done in our system? The sites that the industry has referenced, what, you know, half a dozen to nine that are available, could those sites be incorporated in the state's database?

MS. EDWARDS: I would think that we could. If it was transmitted to us in the right format they could be uploaded. Yeah. I mean tech -- I mean it's feasible. I don't know tech -- you know, from a technology perspective what we would have to

do to be able to do that. But yes, technically we could upload them. I believe they would have to meet the quality assurance requirements for the SLAM sites, for the State Local Air Monitoring sites.

MR. BARRON: Right.

MS. EDWARDS: If they met those quality assurance requirements then I think they could be loaded up and then -- and put up on the EPA site as well.

MR. BARRON: Okay. Yeah, I'm just thinking.....

MS. EDWARDS: It's not -- it's doable. I don't -- I mean I don't know logistically what it would take to do it, but it's doable.

MR. BARRON: No, I appreciate that. Part of that was kind of an academic question of if you could get more data and have it more broadly distributed across the state would that be an advantage to decision makers in their direction toward making policy because you would have more data that was publicly available. So just food for thought.

MS. EDWARDS: Other questions. Should we go ahead and Brad, are you going to do the next presentation?

MR. THOMAS: Yeah.

MS. EDWARDS: Because I'm sure there's going to be a lot of similar information because I'm sure we called and talked to similar people.

MR. THOMAS: They said that to us.

MS. EDWARDS: But.....

MS. CASTANO: You're the second person calling about this.

MR. TURNER: Are you the state or the oil guy?

MS. EDWARDS: So.....

MR. THOMAS: Which answer do you want?

MS. EDWARDS: So why don't we let -- why don't we hear what else -- what they found as they did their -- they surveyed folks as well and we can continue our discussion.

(Whispered discussion)

MR. THOMAS: So the research that we did, we came up largely with the same results that the -- that ADEC did. And Tom, that was a good presentation. But we -- but the presentation here is very much more narrowly focused. We wanted to find out how other states regulated drill rig activity through their air permitting programs, if at all, and so what they did. And for context, Jeanne, if you can go to the first slide.

MS. SWARTZ: Sorry. I apologize, Brad. I'm getting used to this. Zoom in on -- excuse me, I'm going to enlarge this just a bit. Okay. There we go. Thank you.

MR. THOMAS: So for context, I start off for several slides just showing what the different drill rigs look like in the different locations and as I speak if you can just slowly scroll through those pictures. What we found are the drill rigs in the local 48 and the drill rigs in Alaska are largely

similar. If there is a difference, from what I understand from talking to the drilling companies themselves, it's because the pipe sheds are heated in Alaska where in the lot 48 they may not be. But the main generators, the main power plants on the rigs, the pumping capability and so on, it's all pretty much the same. They all drill through rock, they all take a lot of horsepower to do that and it's just colder in Alaska so we may have a need for a little bit more air heat. But the boilers are about the same on the rigs in the lower 48 and Alaska.

So you can go to the next slide, Jeanne. Marcellus shale. We -- I just got some pictures from the Permian Basin and the Marcellus Shale Basin and then on the fourth slide I've got a picture of a 1J development. These are a couple of Doyon rigs in Kuparuk on drill site 1J, 50,006.

So the rigs look the same and, as Tom pointed out, we just have the need to enclose more space because of the cold. And that's based -- and on the next slide is some Cook Inlet drill rigs. Not quite as enclosed, but, you know, largely similar to what you see in North Dakota and Wyoming. These are a couple of examples provided by Hilcorp. They're rigs down in Cook Inlet.

Now we actually included on the following slide a example, a survey I guess of our -- of inventories that we were able to land. We -- when we looked for these inventories of the lower 48 drill rigs we tried to find heater and boiler information. Couldn't find it. We got it for our own rigs, of course, in

Alaska. And again, my suspicion is if there's any difference in the heater and boiler inventories on rigs in the lower 48 and those in Alaska it's going to be the air heat needs for those in Alaska because we heat the pipe shed. But you think about drill rigs operating in the wintertime in Wyoming or North Dakota, it's cold. Those guys on those rigs need heat too. So they've got the heat, I have no doubt, maybe just a little bit less. But the horsepower requirements on the rigs in the lower 48 and those in Alaska are largely the same. The depths to which we drill are largely the same.

MR. MUNGER: What is that last column, Tom? What is that title?

MR. THOMAS: Heater boiler, millions of BTUs.

MR. MUNGER: Okay.

MR. THOMAS: We -- and as you can see for the rigs in the lower 48, the ones -- the lower 48 rigs are the -- what color is that, magenta? Up on top.

UNIDENTIFIED FEMALE: Yeah.

MR. THOMAS: We couldn't find the information, so there's a lot of question marks.

UNIDENTIFIED MALE: Great.

MR. THOMAS: But the Alaska rigs are those in the light blue on the bottom half of the table as we had more heater boiler information.

So the rigs -- so we -- you know, when we talked about the

state regulatory programs we wanted to get a sense of are the rigs different down there than up here. And then we went to what about rig activity, is the rig activity in the lower 48 different than what we see in Alaska. So we wanted to develop that context as well. If you go to the next slide we present the 22 year average of weekly rig counts in the lower 48 and Alaska. And this information comes from a phenomenal website, Baker-Hughes. They maintain rig activity data going back in the case of Alaska all the way to 1968. We plotted here from 1990 to 2012 for consistency. But these are counts of active drilling rigs for the most part drilling new hole, the -- sort of the bits turning right in the hole. They are -- there -- you know, there's going to be some errors with the website, there's going to be worked over rigs counted and so on, but for the most part they wanted to get active drilling rigs drilling new hole. So these are the average rigs counts. Texas of course takes the cake. There's a lot of activity in Texas. They've got the Permian Basin. They've got the Barnett shale. They've got Eagle Ford. So there's a lot of activity in Texas for drilling. In Alaska it averages over the 22 years about nine rigs per week. In Texas in comparison, 474, so Texas is probably not a good comparison. North Dakota averages 38 rigs per week over that 22 year span, but if you look at North Dakota right now there's a lot more going on there now because of the Williston Basin. So again, that's a 22 year average. And I will say, and

we have a slide to show this a little bit later, that the 22 year average for Alaska of nine per week, we don't deviate much from that. We haven't since at least 1981 or '84. We stay pretty close to nine per week in the state.

So you can go to the next slide, Jeanne. That's a plot of the 22 year average and you can see Texas takes us -- it really does obscure the scale. I mean Alaska is down there near the bottom. The states that get the most activity are Alaska, Louisiana, right now North Dakota. I said Alaska. I meant Texas, Louisiana, right now North Dakota, Oklahoma.

So the next slide we take those four states out to get the scale a little more amenable to seeing where Alaska lies. So if you go to the next slide, Jeanne. There's two red lines. One is Kansas and one is Alaska. Alaska's actually below Kansas. So I put those arrows, the tips of those arrows to where Alaska should show up on that chart. It's really obscured by the other states. And in the second presentation I give this afternoon I'll show Alaska in a lot more detail so you can see the Alaska activity since 1968. But in comparison when you talk about drill rig regulation in the lower 48 the activity down there is much higher. It's much higher. So that's context.

And if we look at rig density, so if you go to the next slide. In the Williston Basin which is North Dakota. We call it the Bakkan. You know, in that area -- and just for the sake of scale we put the Nuiqsit, the Deadhorse line on there.

That's about a 80 mile distance. You can see that in -- you know, in that area you can see the density is pretty high. In this particular case, the week ending August 2nd, there's 181 rigs in that area and they're for the most part drilling for oil. Blue is oil, red is gas.

And the next slide is the Permian, about 463 rigs during the week of August 2nd. The scale is on there as well from Nuiqsit to Deadhorse. It's quite dense. There's quite a lot of drilling activity. So when Tom had the picture up of the North Dakota pads the odds were pretty good that those pads were occupied by rigs at the time because of the density.

And just for the sake of comparison I threw Alaska in on the next slide. You know, I mentioned that there's an average -- a 22 year average of nine rigs per week. This particular week we had 12. We stay pretty close to nine from year to year, from week to week. So the density in Alaska is quite different than what you see in the lower 48.

So the states that we called, if you go to the next slide, we actually contacted two, four, six, eight, 15 states. And the results of our contact with those states are on the next slide. We discovered that there's really only two locations where an air program -- aside from Alaska there's two other locations where air programs get at drill rigs. One is the Jonah Pinedale Anticline Development in Wyoming and the other is in Forest (ph), California, the individual districts in California. All

the other programs that we contacted, they don't have any drill rig permitting programs. In the case of Texas they do have a Permit-by-Rule program for oil and gas development. After we found that out we went to the state regulations and studied that and it appears to us that the Permit-by-Rule program in Texas is to get at stationary compressors, stationary boilers, stationary tanks, get a fusion of leaks from the piping that comes off the pad, but we couldn't find where the Texas Permit-by-Rule program actually got at the drill rigs. And Tom mentioned California's individual program, individual district programs. They are very stringent. They're very stringent on paper I can tell. In practice I haven't seen how they work, but they do look very stringent in California. To focus a little bit more on the Jonah Pinedale Alticline Development in Wyoming, through an environmental impact assessment or environmental impact study or statement the Bureau of Land Management became concerned about wintertime ozone levels. I don't know that Wyoming has any non-attainment areas for ozone because I do have a map in here that shows that, but they do have elevated ozone in the winter. And to address that they required the rig operators to get state permits with enforceable limitations on the rigs to keep their NOx commissions down so that they limit their NOx emissions fairly stringently. And Randy and I actually traveled down there last year to look at that and what they do in Wyoming to address those NOx emissions is they actually have selective

catalytic reduction on the main power plants on the rigs. But it is to address an ozone issue that BLM identified. In no other state, again, could we find existing drill rig regulatory programs within the air quality program, although Colorado and West Virginia told us they're thinking about it to address non-attainment areas, so. Is that what you were going to say, John?

MR. KUTERBACH: I was just going to ask you if you'd asked them if anybody was considering.....

MR. THOMAS: Yeah.

MR. KUTERBACH: .....the issue of -- because, you know, with all those rigs (indiscernible).

MR. THOMAS: In Colorado in the front range -- in the front range of Colorado they have an ozone non-attainment issue. So Colorado, whether they're doing it for that reason or not I don't know, but they are considering a rig permitting program. West Virginia I think explicitly said that because in the northern part of the state they have ozone issues they are considering it there as well.

MR. KUTERBACH: Actually, this is John, Colorado looked at regulating rigs back in 2001 I believe. They came up to look at what we were doing with rigs because we were just getting started with that at the same time because they have that concern. Obviously they didn't do anything at that time, but as you said, I think they're relooking at that possibility.

MR. THOMAS: Right. And just for sake of reference, the

next slide is the ozone non-attainment areas. And for the sake of background for the non-air quality folks in the room, when we talk about drill rigs I think three pollutants today -- SO2 became a nonissue because we burn sulfur diesel in those. So the three pollutants left where non-attainment might be a concern are PM-2.5, NO2 and ozone. And I don't believe in the U.S. currently from our analysis that anybody is classified as non-attainment for the one hour NO2 yet. I think they're -- I think EPA gave everybody an attainment they're unclassifiable at this point.

MS. EDWARDS: I think so as well. I'm not aware of any -- I'd have to go look, but yeah, I'm not aware of any.

MR. THOMAS: Right.

MS. EDWARDS: It may be they haven't made it all the way through their designation process and it may be that the data doesn't exist that everybody sitting in that unclassifiable statement or unclassifiable range was -- and then they're obviously taking that different approach to SO2, so.

MR. THOMAS: Yeah. Yeah.

MS. EDWARDS: Yeah.

MR. THOMAS: So for PM-2.5 we did -- we don't have a modeling issue with PM-2.5, so I focused on ozone which is a result of the reaction between atmospheric VOC and NOx, nitrogen oxides. So the more NOx you get omitted and the more VOC, (indiscernible) organic compounds, you're getting that given

certain atmospheric conditions the higher your odds of getting ozone. So I focused on ozone non-attainment areas, places where folks would be -- you know, they would consider regulating engines to limit NOx emissions. And obviously California has had a historical problem with ozone, a longstanding historical problem, so that's why California has those very stringent regulatory programs for things like non-road engines. In the LA area they have an extreme ozone non-attainment problem. You go a little bit farther east towards the Bakersfield area it gets in the classification of severe. These are actually classifications that EPA uses for non-attainment. And you get a little farther north it's a serious non-attainment issue. So California has the programs. They're driven to regulate a lot of the emission because of their non-attainment problems. And you can see on the map Colorado, the front range area where they have the ozone non-attainment issue, that's where all the drilling activity occurs in Colorado. And over in West Virginia, Pennsylvania, that's the Marcellus shale. Eastern Ohio, western Pennsylvania, up to the bottom of New York, northern West Virginia, non-attainment issues. Now whether that's associated with drill rigs is an open question, but obviously as you get to the eastern part of the U.S. there's transportation corridors that -- you know, there's a lot more people. A lot more people.

MS. EDWARDS: Most of the existing ozone non-attainment

areas in the lower 48 are big metropolitan areas.

MR. THOMAS: Yeah.

MS. EDWARDS: Traffic has been a huge -- motor vehicle emissions have been a huge issue. They -- cars also put out a lot of nitrogen oxides.

MR. THOMAS: Right.

MS. EDWARDS: So a lot of times -- and also when you think about how EPA's monitoring network is set up it focuses into the major cities as well. So major metropolitan areas, that's where people talk about smog and that's where you see the ozone. So that's -- most of the existing non-attainment areas in the lower 48 for ozone tend to be focused around large urban areas. The one thing with ozone just to keep in mind is that over the last decade EPA has been looking at ozone standards and everybody expects that the ozone standards will become more stringent over time and if they do there are a lot of areas in the rural west that are -- that could potentially become ozone non-attainment areas which is why a lot of states are keeping an eye both on the ambient air quality standards as well as the types of activities that produce the precursor pollutants for ozone because they kind of can see where this is headed.....

MR. THOMAS: Yeah.

MS. EDWARDS: .....in the long term.

MR. THOMAS: Yeah. And to echo what Alice said, if -- focusing on Colorado where the non-attainment areas are, that's

the -- I called that the front range earlier. That's Denver up through Fort Collins, you know, that highway that goes north into the populated areas of Wyoming. We go west into Utah, you know, you're looking at the Salt Lake.

MS. EDWARDS: Salt Lake City and you see Boise area, Idaho.

MR. THOMAS: Boise, Idaho.

MS. EDWARDS: Oregon and Washington have done a pretty good job of addressing their ozone issues to date, but might -- that might change if the standard became more stringent.

MR. THOMAS: Right.

MS. EDWARDS: But usually most of these areas are big metropolitan areas.

MR. THOMAS: Well, the -- go ahead.

MR. KUTERBACH: Yeah, this is John. I had a question about -- I notice there's no block in Wyoming.

MR. THOMAS: That's -- I don't think Wyoming's been classified as non-attainment. BLM identified a wintertime ozone problem.

MR. KUTERBACH: Okay.

MR. THOMAS: And that's what they attempted to address. Did you get information, Tom, that they were non-attainment?

MR. TURNER: I -- no. We'll have to check into that.

MS. EDWARDS: The other thing, when EPA does non-attainment designations they tend to do them when they revise

their standards. So sometimes you can have an area that's maybe flirting with the standard, but it hasn't been designated yet and Wyoming may be in that situation where it's approaching or exceeding this standard or a proposed standard and -- but it hasn't yet been designated. So that's also a possibility, that they're monitoring some higher concentrations.

MR. BARRON: Yeah. This is Bill. The other thing, I think it's important to point out that as you look at that map as I -- and specifically look at Texas and specifically look at west Texas.....

MR. THOMAS: Yeah.

MR. BARRON: .....that is the entire county of El Paso and the only major metropolitan area of the county of El Paso is the city and it is -- it's a huge county. So the attainment area looks like it's on a countywide basis, not just the population center.

MS. EDWARDS: That's true. When EPA makes non-attainment designations they typically go to jurisdictional boundaries. So -- and this is not necessarily the case with Alaska's non-attainment areas. We -- because our counties or boroughs.....

UNIDENTIFIED MALE: Boroughs.

MS. EDWARDS: .....our census areas are so large we've typically had boundaries that are smaller, but in many, many states the boundaries of the non-attainment areas are either at county boundaries or they're the boundaries of like the

consolidated metropolitan statistical areas.

UNIDENTIFIED MALE: Right.

MS. EDWARDS: So they'll go out and they'll capture all the counties surrounding that major metropolitan area that they think are contributing to the -- could be contributing to the problem or transporting pollution in. So a lot of times you'll see a single county or multiple counties that surround are a part of a major metropolitan area.

MR. BARRON: Right. But I think it's important to understand that -- and again, having been born and raised in El Paso, that that's the only source really available. So I mean it -- just because there's a blob it doesn't necessarily mean that the non-containment area or the ozone non-attainment area is actually that large. It just happens to go to the boundary.

MS. EDWARDS: Right. The other thing, especially along the southwest boundary -- the southwestern boundary of the U.S. is you also have transport of pollution coming in from Mexico, so you have trans-boundary pollution impacting those non-attainment areas as well from the other side of the border which would have different regulatory and -- requirements.

MR. THOMAS: Yes. And so the final thing to say about this slide is, as Alice mentioned, there's a strong correlation between ozone non-attainment and population and transportation. You know, no correlation essentially with drill rig operations. Because if you look at west Texas, the Permian Basin, which is

just below the panhandle, no non-attainment. Up in the Williston Basin North Dakota, no non-attainment for reasons that could be numerous, but the correlation on this map at least is with population centers.

And the final slide is just a summary of what we've presented. When looking at the Alaska drilling activity the density's low. The number of rigs per week is low compared to the lower 48. The drilling equipment in Alaska is very similar to that in the lower 48. As we mentioned, if there's a difference it might be because we heat pipe sheds and they don't down there. And I want to reemphasize that, you know, we've collected a lot of ambient air data around drill rigs in Alaska over the last several years and we're not seeing any ambient air quality exceedences from our drilling activities. Pennsylvania has studied -- they've performed -- they're in the midst of performing studies and the results that they have collected so far show that they are not finding any ambient air quality issues around drill rigs either. They're in the Marcellus shale where there's high drill rig density, but even with that high density they're not seeing the ambient air quality exceedences that might be of concern.

MR. KUTERBACH: And Brad, that's from their existing monitoring network they're not seeing it, the regional model monitoring?

MR. THOMAS: No. No. What I linked here was an example

of a short term study where they went out with a van, you know, a mobile ambient air quality collection thing and they just went around drilling operations to see what they could find. And they're engaged right now in a longer term study. I think they're going to build a dedicated ambient monitoring site to see what's going on with the drill rigs, drilling activities. They're focused on the drilling activities, not just drill rigs.

MR. KUTERBACH: And then one other question. On that -- the slide before this, the ozone, what years was that based on? It looks like it was 2004?

MS. EDWARDS: 2008.

MS. CASTANO: No, 2008.

MR. THOMAS: Yeah, it's got to be after 2008.

UNIDENTIFIED MALE: Well, no.

MS. EDWARDS: Well, the date it looks like is.....

UNIDENTIFIED MALE: 2004 to 2000.....

MS. EDWARDS: .....2004 to 2008.

MR. KUTERBACH: 2004.....

MS. EDWARDS: Four, five, six.

MR. KUTERBACH: .....to 2000 -- I can't read it, but it's 2004 to something.

MS. EDWARDS: I think it's 2004 to 2006.

UNIDENTIFIED FEMALE: Yeah.

MS. EDWARDS: Which is.....

UNIDENTIFIED FEMALE: (Indiscernible).

MS. EDWARDS: .....probably the data they had at the time.

UNIDENTIFIED MALE: Yes, 2006.

UNIDENTIFIED FEMALE: 2006.

UNIDENTIFIED MALE: Yep.

MR. KUTERBACH: Okay. So that hasn't captured the activity in those -- at least the designations haven't captured any new activity yet.

MR. THOMAS: Right. Yeah, this is the -- from my understanding the latest designation we have from EPA.

MS. EDWARDS: Right.

MR. THOMAS: So, questions.

MR. BARRON: So I'm -- this is Bill. I'm sitting here listening to this and I'm trying to understand how do we reconcile the differences between the last slide, 14. If we can go back one. How do we reconcile that slide with slide six through eight of the previous presentation? Where in that presentation the column that is -- says permits required during oil and gas production are all yeses.

MR. KUTERBACH: Well, I think the difference, Bill.....

MR. BARRON: .....and here they're all no.

MR. KUTERBACH: This is John. I think the difference, Bill, as Brad started off, their questioning was very narrow. They asked do you require a drill -- a permit for a drill rig.

MR. BARRON: Right.

MR. KUTERBACH: Whereas what Tom's information was, was

was there a permit required for.....

MR. TURNER: Oil and gas production.

MR. KUTERBACH: .....oil and gas production.

MS. CASTANO: Which is after the drill rig.

MR. KUTERBACH: Which is after the drill rig.

MR. BARRON: Or it could be during drilling.

MR. KUTERBACH: It could be during drilling as well, but they require it for oil and gas production according to what Tom found out.

MR. BARRON: Okay. That's what I thought. I just wanted to make sure that -- because, you know, as you go back through these slides later without that being clear in the transcript that it could be really confusing to the uninformed.

UNIDENTIFIED MALE: Yes.

MS. EDWARDS: In the discussion with the other states, Brad or Jeanne or Tom, had any of them -- did any of them raise the issue of the one hour standard? Had any of them thought about -- were they thinking about having to do anything in relation to the one -- given that the one hour standard is a relatively new standard are any of the other states that you talked to, did any of them specifically talk about the one hour standard versus the ozone issue? Because I understand the ozone issue down there, but with regard to one hour standard were any of them looking at it in relationship to that?

MR. TURNER: Yes.

MS. EDWARDS: Or to any -- were any -- because this is something the states, with a new standard we've got to kind of weave all this well to try and figure out how we're going to protect for the new standards and I just wondered if other states were looking at it more from the one hour NO2 standpoint versus the potential for ozone -- the need for additional ozone mitigation.

MR. TURNER: Yes. There was a couple of states that were actually looking at regulations for it and they were trying to figure out what they needed to do to come up with new regulations for the one hour standards. I think it was one of the eastern states, Jeanne.

MS. SWARTZ: That would have been Rebecca.

MR. TURNER: Rebecca, was it Kansas that was looking at them?

MS. SMITH: I'm trying to remember. I think Ohio is starting to look at stuff because of some changes that are happening. And I think the Kansas guy said they were going to start looking at stuff because of the 43-460 quad O stuff which was changing some of the other requirements as well. But there's a lot of we'll be looking at things in the future kind of statements for what I took on. But they weren't -- they hadn't noticed any problems with the one hour study yet, but they also, you know, weren't looking particularly at the emissions coming out of the drill rigs yet.

MR. TURNER: Thank you. So to answer the question, states are trying to figure it out just like we started to because they're brand new. They're trying to figure out who are they hitting, where are they going to deal with them, how they're going to deal with them, but they're starting to look at it. I mean -- you know, I mean that's one of the things is it's like they're looking at it, they're seeing increasing regulations from EPA and how do they deal with it.

MR. THOMAS: Are you talking generally? You're not talking about rigs -- drill rigs specifically, you're talking just generally one hour.

UNIDENTIFIED FEMALE: Oil and gas.

MR. TURNER: In general.

MR. THOMAS: There's no doubt that the one hour NO2 standard is generally a big issue among all the states, but in context that we made -- and Todd over here against the wall did most of the work, almost all the work. We didn't hear any concerns raised about, you know, connecting drill rigs to the one hour NO2. It was -- you know, the one hour NO2 thing is more of a general issue.

MS. EDWARDS: Okay. Thanks.

MR. THOMAS: Other questions?

MR. KANADY: Well, this is Randy Kanady with ConocoPhillips and I know Brad and the industry put a lot of effort into this presentation. I'd just like to recognize the

amount of effort that went into these presentations and to thank everybody that was involved with putting this together because it was truly a significant amount of effort.

MS. EDWARDS: Absolutely. I know everybody worked hard to pull this information together in the amount of time that we had so that -- it is very much appreciated. So how do you want to proceed? You guys want to talk about this a little bit more? Gordon.

MR. BROWER: Well, you know, I'm still trying to grasp some of the permitting requirements and looking at the presentations and large populated areas and -- versus areas like Alaska where it's vast. And trying to understand the permitting climate in some of these different countries, these different states and seeing so much no and what's the major difference that we see different than they do? Do we see a problem that we have to make the climate very stringent or do they see that -- the national, the EPA standard is met by trial and then they have some sort of certificate that proves that these rigs work in this fashion and you have that you don't need to worry about the standard?

MR. THOMAS: If I can take a stab at that, Gordon. I think what Alaska did, and justifiably so, is they became aware of modeling information that indicated it's an issue that needed to be addressed. And the modeling was specifically, you know, around mobile equipment that other states I think largely don't

pay attention to. So in the other states we don't find drill rig permitting activity because the other states, you know, don't have information that there's an issue, probably didn't look for it, but Alaska became aware of something and just attempted to address it. It turns out it's a -- you know, speak for me, it appeared to be a modeling issue, not necessarily a real measured issue, but a virtual one, if you will.

MR. BROWER: Yeah, I think it's important to try to understand what's -- all the dynamics in different areas, in different part of our country here, and try to get the right mold that works up here. Because I look at -- the numbers are so high in different areas. If you're looking at same horsepower, same engine and the only difference is probably heating in the -- in a pipe rack area so some people can work in there. And some of the heating that's necessary to accomplish that and calling them a permanent source within a temporary drilling operation, I think it's a matter of interpretation there as well that needs to get more defined in -- I don't know if we're hindering ourselves. I mean I could see a system where you basically certify maybe with some other requirements, you know, for them extensive catalytic emission controls and say if you go that route, you know, you're certified for the next five years or so versus if you're managing an old rig you got to be monitored.

MS. EDWARDS: Go ahead, Mike.

MR. MUNGER: This is Mike Munger. Could the State of Alaska not go through their permitting the way it's currently set up and still meet the EPA requirements? Because as we look at this, you know, and then they don't have a permitting program but they're obviously meeting federal standards is the state requirements over and above the Clean Air Act currently?

MR. KUTERBACH: This is John. Technically no because the Clean Air Act is a model of federalism where EPA sets the target and the state develops the plan to reach that target. What the Clean Air Act requires is that we be able to develop a plan which has emission limitations and other measures, such as permits, to ensure compliance with the ambient air quality standards. So our current program does that. It's been approved by EPA and therefore it meets the federal requirements. Now if you're asking could we adopt a different program that is less stringent and still meets those requirements, that is possible. All right? That's only limited by our creativity and what we can prove to EPA that our plan still achieves the result. But it's not -- it's really within our hands to ensure that our air quality is protected and so what we do isn't -- it's not in EPA's hands, so it's not EPA saying you don't have to regulate drill rigs. They never say anything like that. Or you can't regulate drilling operations. They don't say that. They say states, decide what your biggest emission problems are and make sure that you don't get an ambient air quality

violation, regulate them how you will. With the sit -- the require -- the only requirement that we have specifically from EPA's Clean Air Act, and I guess there are a couple. One is we have to be -- have the ability within our program to identify and prevent the construction of any source that's going to violate ambient air quality standards. That's where our minor permit program authority comes from. We require that permit to make sure that nothing's going to get installed, established or built that'll violate ambient air quality standards. The other requirement that we have that may affect this is for Title 5 permits for major stationary sources. Now those are not the drill rigs. Those are the gathering centers and their associated locations are the Title 5 sources. Per the Clean Air Act our permits, our Title 5 permits for that source must include all applicable requirements for the operations that go on at that source. If a drilling operation comes in and operates on that source and has equipment that has applicable requirements, for instance a boiler or heater that needs to meet a federal requirement, then the Title 5 permit must include that requirement, must ensure compliance with that requirement. Does it have to be a permit for the drill rig? No. It could be a permit for the stationary source that says when you have a drill rig that has these require -- they have to meet the requirements that are applicable to them. You could put that in each permit -- permitted source's permit and the drill rigs themselves would

not have a permit. The producers for their own reasons have chosen to use -- to permit the drill rig so that they could move on to any source rather than have each source's permit have that alternate operating scenario within it which is why we have that. So those are the two federal requirements, the minor permit which is part of our means of protecting ambient air quality from the construction and establishment of new sources and the Title 5 requirement that we have all applicable requirements in the operating permit for those stationary sources. To change this, if we decide that we don't want to regulate the drill rigs through this mechanism, all right, and we don't believe that they'll cause an ambient air quality violation we don't have to. What we have to do though is when we revise our program is demonstrate to EPA that that -- that the change that we make is not going to allow ambient air quality violations to occur.

UNIDENTIFIED MALE: And how would you.....

MR. BROWER: Can I just make a comment on that?

MR. KUTERBACH: Sure.

MR. BROWER: Just what you're describing seems to be that it would be more beneficial to the drill rig operator. If he's got expiration activities to conduct and he gets a job to do that that he's able to move at will to do these things the current running gathering center that's funneling, it's a feeder. It's a -- these flow stations, gathering centers, they

feed into areas already been developed and they really periodically get these work over rigs out there to, you know, clean out the paraffin and anything else like that. But it seems to me going that way, and maybe an operator needs to chime in here to discuss a little bit about it, having that permit for flow station one and being able to operate the next 10 years without having a drill rig in the area to bother it, I think it would be a minor reveal to add an increment that may be in their area to -- so that they're not over their thresholds. I don't know if I'm conveying that very well, but I think maybe the industry needs to chime in here in being able to recognize that. And I'm just a firm believer sometimes you look at things. I look at how borough operates things in our own permitting scheme, in our own -- you know, we basically have a -- one area to do basically all of our permitting. It's pretty much expedited except for change in land status from -- to resource development. That's an act of the assembly to do those kinds of things. But, you know, we're very predictable permitting climate.

MR. THOMAS: If I -- I'll chime in, Gordon. This is Brad Thomas. The stationary source is the flow stations, the gathering centers, the central processing facilities. Those are very tightly regulated. That program is fixed in place and not one that this group is working to address, I mean though there are issues that are going to come up soon. So focusing only on

the drill rigs and the drill rig activity speaking as an industry what we seek is the ability to flexibly use drill rigs, move them where they need to go when they need to go there, providing the state the assurance that the ambient air quality standards are protected. So on that latter piece there's various ways to do that. It doesn't have to be in a permitting program. In fact we prefer it not be in a permitting program, but we just -- that's the end goal here, to make sure that the rigs can go where they need to go when they need to go giving the state the assurance that the air quality standards are protected.

MR. BROWER: All right. And I think I was trying to convey that that way. I'm not trying to focus on flow station permitting and everything, but they have their own standalone permits that do those things. But what I'm hearing is that that permit needs to be protected maybe from an increment or some other source that violates its space or whatever. Having a system where -- I don't know if I'm just -- these are just my own -- I think they're my own opinion that it seems like it can be within the law by -- you look at a drill rig and make it do certain things. If it needs be, maybe advanced equipment, catalytic converter type stuff, and say you meet this you got a certification that your next review is in five years or something like that. And then you use that and you're able to at will get your contracts and be mobile at will.

MR. BARRON: That's a good -- good things to think about, Gordon, and let me ask a -- maybe stepping back even a little bit further. When we talk about protection of ambient air, when we talk about -- you know, as has been presented, the lack of density of equipment in that area, is there a way that we can establish a monitoring program that has, for lack of a better term, thresholds of quality that if it -- and, you know, have a green zone, an amber zone, a red zone that if we're always in the green or not cautionary zones then no permits are required or something to -- very far to the -- to one side of the spectrum that as we approach, you know, the ambient air quality standard thresholds that then we turn around as the industry and the state and say okay, we've got an issue here. The density has increased so much or the activity has increased so much that we're now approaching the threshold. We together have got to do something different, but we're always constantly monitoring over that wide area from say Barrow to Point Thompson and say this is our fetch basin, this is our area of concern, and establish those benchmarks and then establish when we're going to put in other criteria for monitoring or equipment modifications or activity limitations or whatever they might be. But is that something that would fit within the pretext of a state program that would satisfy the EPA? Is that something we could maybe work on or is that so far off to the edge that we can't do it?

MR. THOMAS: Be complicated. It would be complicated.

MR. BARRON: But then as -- you're basing it on real data though.

MR. THOMAS: Not -- Brad Thomas speaking. If you're talking about a monitoring network the results of which the data generated of which is used as information to do something different than what we're doing now, yeah, that's -- that might be simple, but setting those thresholds of activity that could get complicated.

MR. BARRON: Well, it -- you know, it may not be the level of activity, but it might -- the tripwire is when you reach a certain level of air contamination that you say we got to do something. Because right now we're doing something and we don't necessarily know should we or shouldn't we. I mean we might have to. I'm not saying that it's right or wrong. I'm just saying right now the data would indicate -- the lack of data or the data that we've got would indicate we're okay, but we've already done something. I'm just trying to ask the question is, is there a way to set a standard program that when we do get to a certain point then we take an action rather than take an action before we reach the event.

MR. THOMAS: Yeah. It could be done.

MR. BARRON: Because we're -- from -- if you look at the profiles from the states that you showed one would present that it would have to be a robust development -- you know, a whole new level of excitement on the North Slope, shale, something, to

create the density population of rigs on the Slope that is currently existing in other areas. So, you know, I'm looking at it, you know, we would have to be exponentially greater activity than we are today to ever get to that point.

MR. THOMAS: Right.

MR. KUTERBACH: Well, yeah. This is John. I mean let's be clear so we understand the information that Brad presented. What we're looking at there is regional monitoring, not the individual rig monitoring.

MR. BARRON: Right, I understand. Right.

MR. KUTERBACH: All right. And so you're right. I think that shows that as a regional problem drill rigs by themselves are not perceived as the major contributor that needs to be regulated in those areas. Okay? They have other sources that they think are the more -- well, maybe with the exception of the Wyoming example, that they're dealing with other sources of emissions first. And who knows 20, 30 years down the road if they still have problems maybe they have to get down to smaller levels of sources like California does to get to the final result.

MR. BARRON: Right, right.

MR. KUTERBACH: And so you're right, as a regional thing there isn't a problem. The only thing that we haven't really explored in detail is the short-term standards because those are going to be not -- they're not really a regional thing. I think

EPA bases most of their monitoring right now on heavily traveled corridors where they get a lot of emissions. Basically they're tracking the emissions as to where they're putting the monitors for that. And so it's possible that we can monitor -- have a monitoring network that shows regionally we're okay. That doesn't mean we don't have hotspots here and there that we just don't know about. And if we're okay with that, you know, and it passes the Clean Air Act that's fine. If we're okay with having the possibility of hotspots that we don't know about then a monitoring.....

MR. BARRON: Right.

MR. KUTERBACH: .....network would do it.

MR. BARRON: But it seems to me like if we've got hotspots that we don't know about it would be nice to know about them and then do something about those hotspots rather than assume that each individual rig is its own hotspot and doing something about it.

MR. KUTERBACH: Okay.

MR. BARRON: I mean because, again, we're talking, you know, a regional area.

MR. KUTERBACH: Huh-hum (interrogative).

MR. BARRON: I mean I think that's -- I think as I'm absorbing this information it is much more -- we looked at the ozone maps. Those are county basis.

MR. KUTERBACH: Huh-hum (interrogative).

MR. BARRON: Right? I mean that's kind of a regional description of an issue.

MR. KUTERBACH: Right.

MR. BARRON: And I'm not suggesting that we take all of North Slope Borough as the region. I'm saying we need to carve it up to a little bit smaller and still be, you know, in spirit the right directionality and then work the problem based on real data. I mean I appreciate the one hour thing. I don't -- you know, that's a hurdle yet to be jumped. I'm just trying to get a concept of directionality of how do we as a team figure out a way to manage a greater area with real data that is defendable.

MR. KUTERBACH: I -- and I guess I agree with you. I think that's what we -- that is a good goal for us to do. This is John again for everybody who needs to know me. The only question I would have is how do you get the granularity to be able to identify any hotspots. How can you -- what -- how extensive does this monitoring network need to be? Maybe you need a saturation study to start off with and then back if off to -- you know, there's a lot of technical issues that go into that.

MR. BARRON: No, I -- yeah, this is Bill. I agree. I mean that's kind of the devil in the details, but I think -- again, I'm trying to get a concept flushed out in my mind and just for the committee to think about. But it could be -- I mean we could take that on or the industry and ADEC could take

that on as an opportunity to really fine tune what the issues are and then come together with, okay, this is what we together really have identified as areas that need to be addressed. Or these are areas where we're not going to bring equipment in for a period of time until the ambient air is back to normal. Or, you know, put up exclusion zones if you find it, but you got to know what you got and right now I get the sense that we don't know what we've got and that's a -- that to me is a problem. So we're regulating or establishing permits and regulations on stuff that we think might be there or modeling data that shows that it's there, but it's not necessarily proven that it's there. So I'm just trying to think a bit more broadly from Barrow to Point Thompson and say how do you map out, how do you grid out a system that would be acceptable and then if you do get some hotspots fine grid that and see where your problem is. I mean, again, it's -- this is a long-term kind of dialogue, not something to solve today. If it gets us more data -- and I'm -- now I'm thinking about, you know, the inlet and how would we do that with some of the inlet operations or do we have those same kind of issues in the inlet. I know -- I mean so I'm trying to think broadly on the state and I keep glancing at Mike and the Hilcorp team. Because again, that's -- that directionality is if we do it one area does that same concept fit in another area.

UNIDENTIFIED MALE: Right.

MR. MUNGER: I'm going to ask -- state this. Do you feel

-- and all you can do is render an opinion because I don't believe that it'd be anything but at this particular time. That the only reason that they don't specifically have requirements for the rig use is because they got bigger fish to fry? Just want an opinion.

MS. EDWARDS: Perhaps. Perhaps.

MR. KUTERBACH: I think that's one of the elements for sure.

MS. EDWARDS: I think -- I don't think it's everything and I think the areas where you're seeing more interest in looking -- they're not looking just at drill rig activity, they're also looking at production as well, is where you've seen sort of almost explosive growth in drilling and then subsequent production. Those states, like the Rocky Mountain west and, you know, some of the places in the east you're starting to see more awareness on the part of the air quality folks where just by the nature of not having programs as things have become more -- as there have been more and more drilling coming in, more and more production going into play that they're starting to worry about the sort of larger -- large source now for them, maybe, you know, a collection of smaller sources that are now a large source to them in the overall scheme of things, particularly with their ozone non-attainment areas and things like that where they've been working on ozone for many, many years and have -- and you start to get an aggregation of a lot of sources. I

think that's why you're starting to see some of these other states that are sort of looking at different options for how to deal with that kind of sort of larger scale production of oil and gas that's happening and it's happened over a number of years, but it's happened quickly in a lot of these areas. Whereas we've sort of historically, as Brad said, have sort of a more consistent oil and gas production scenario going on here. Which doesn't mean that we couldn't have areas where we would see maybe more developing coming, you know, with more drilling that's maybe -- and more production that's maybe more like the Rocky Mountain west, but right now it's not what we have at play up here. But I think that -- yeah, I think some of it is that they've had bigger fish to fry. Usually, you know, these non-attainment areas, as we discussed, historically have been in major metropolitan areas, so they've worked on all those sources. And that typically hasn't necessarily been oil and gas development. Most major metropolitan areas don't have a lot of oil and gas development inside their boundaries. But now as they're continuing to work through things and they're getting a lot of sources surrounding their population centers or their population centers are growing out into those areas they're probably having to look at it a little bit more. But I mean they're all going to evolve differently and I think the reason for that is what John said which is that the Clean Air Act gives states the opportunity to craft something that makes sense for

their situation and I think perhaps historically we triggered on this earlier in our -- as a result of our existing permitting program and things that came along early on we triggered on this piece early. And so we just -- our approach was to pull it into the permit program, but it doesn't mean it has to be that way. I mean we have some flexibility as to how we approach it as long as we can meet those requirements that John was talking about earlier.

MR. MUNGER: I may be going out on a limb here. This is Mike again. But, you know, we have an average rig count of nine rigs operating in Alaska and I come from a regulatory background, but I can't help but question how big a problem we really are looking at here. And then, if I'm not mistaken, currently our permitting program is based on modeling. Is that correct?

MS. EDWARDS: Primarily. There's some background monitoring with that too, but.....

MR. MUNGER: Primarily monitoring.

MS. EDWARDS: .....but primarily we do modeling for demonstrations.

MR. MUNGER: Was that the -- I would assume this, but was that merely a state decision or was that what industry agreed to or, you know, what.....

MR. KUTERBACH: Well, you know.....

MR. MUNGER: You know, was that just.....

MR. KUTERBACH: .....the way -- the reason why -- this is John. The reason why modeling is fundamental to the permitting is because you can't monitor something that hasn't been built yet. So if you're going to prevent it from being built and violating ambient air quality you have to predict what it's going to be when it's finally built. Okay? So that's why modeling comes into the picture is because you're doing a prediction. Now it gets muddled when you're talking about something that has been built, but now is moving to a new area. Is it going to have the same impact that it had in the old area? Well, that depends on your weather. Does the wind blow as hard? Does it blow the same direction? Is it lined up the same way? And so to predict whether or not it's going to violate in the new location, again, modeling is used so that we can prevent the construction of something that's going to violate ambient air quality standards.

MR. BROWER: I just want to make maybe a -- the same kind of observation here. And the same criteria that you mentioned in -- as the type of major concerns that the state sees and needs to take a hold of managing that and making sure that that source is in compliance. And I just have the same kind of concern that the density in the drill rig in comparison to other states and -- it kind of leads to suggest that there wasn't a problem in here to begin with and then to go with the most restrictive way of managing it. That's what I kind of see, that

there could be -- like we were discussing other ways where it's not a big major issue, major source on the -- in the state and a less review process, that scale keeps it -- that we know that it's within the national standards. And maybe the longer term picture that Bill was talking about, that would -- developed as a longer term picture of these areas. I think there's ways to put two and two together and ways to de-muddle the system.

MR. BARRON: Yeah, I agree with that. I -- and I think, John, you've kind of hit on the point that kind of gives me the biggest -- the greatest concern and pause is your last description, is something that could be allowed to be used in one area, but then moved down the road and not used in another area and nothing's changed with the piece of equipment. That tends to really be a problem in my mind if that's the way our program is working.

MR. KUTERBACH: Bill, I'm -- I don't quite understand that. If you have something that is -- well, let's go completely away from this to kind of get my thought. If you have a trash incinerator that you have mounted on a truck and you're operating it 100 miles away from where anybody lives and then -- and you allow that. It's permitted, it's the same piece of equipment. You move that same piece of equipment into your neighborhood, into your neighbor's driveway. I think I would want more requirements on it if it moved into another location like that. The idea isn't that the -- we're permitting the

piece of equipment. The idea from the permitting program is that we're permitting its effect on the ambient air quality. And if -- and the effect on the ambient air quality has the equipment as part of it, but also the weather is part of it. If you operate in a place that's windy all the time, all right, and that weather blows the pollution away you can get by with putting out more pollution than you can in a place that's fairly calm all the time because the pollution will build up. So it has to vary from area to area.

MR. BARRON: Well, no. John, I appreciate that, but when we're talking -- let's bring it back to the context that we've got.

MR. KUTERBACH: Okay.

MR. BARRON: Talking about mobile drilling equipment in between Barrow and Point Thompson.

MR. KUTERBACH: Okay.

MR. MUNGER: Cook Inlet.

MR. BARRON: Or Cook Inlet. I mean, you know, those -- you know, given that that confined area, as broad as it might be, I mean, you know, with the comment that you made and where my perspective is on I'm moving a drilling rig from one location to another.

MR. KUTERBACH: Huh-hum (interrogative).

MR. BARRON: You know, that was in -- that's how I took your comment. You know, not an incinerator that's working, you

know, out near Willow and then being brought into the city of Anchorage. I mean that -- you know, between two buildings where there's no air movement.

UNIDENTIFIED MALE: Sure.

MR. BARRON: I mean that's different.

MR. KUTERBACH: Well, let me ask you a question. Does DNR regulate oil and gas drilling?

MR. BARRON: The drilling activities?

MR. KUTERBACH: Do -- yeah, do you regulate any of that?

MR. BARRON: We regulate some of that.

MR. KUTERBACH: Okay.

MR. BARRON: Not necessarily all of it.

MR. KUTERBACH: Okay. And are the requirements the same everywhere?

MR. BARRON: Pretty much.

MR. KUTERBACH: Pretty much or exactly the same? You move that -- that drilling rig was used over here, it had these requirements. I'm going to move it over to a different place.....

MR. BARRON: Oh, from that.....

MR. KUTERBACH: .....on the Slope that's going to have the exact same requirements.

MR. BARRON: .....from that perspective they are the same.

MR. KUTERBACH: Exactly the same.

MR. BARRON: To my knowledge.

MR. KUTERBACH: Okay.

MR. BROWER: Can I add something to this? DNR and others may -- and depending on jurisdictional boundaries that I've, you know, been aware of on the North Slope different -- DNR will permit, the borrower will permit. If you're talking about already been permitted by DNR and then you need to move this drill rig five miles outside of Barrow or somewhere where there's more population our own local zoning ordinances add onto the review to where you must not interfere with a local ped traffic, subsistence, transportation, noise, nuisance, smoke and they're forced to meet these guidelines on top of what other permitting requirement that the state or federal government. Not every -- it's not like that everywhere I don't think. Maybe Kenai or some other may have their own zoning ordinances that say, well, you want to put that drill rig in this neighborhood, this is what you got to do and plus your neighbors over here are going to comment, it might be a village comment thing, and then more rules are applied. So there's a combination of different things that play together to make a successful operation and I think the state should have the -- this is how you're going to operate anywhere you need to go. And where you go into a borough with that permit you still have to seek local permits from a local government which.....

UNIDENTIFIED MALE: Well.....

MR. BROWER: .....you got this, that works, on top of

doing that you need to do this. And we've seen that work time and time again and to try to balance between the conflicting uses of land and -- so. I think there's -- that part of it is not always talked about as much in terms of what your requirements are and when you got to move it around to different parts of the state.

MR. KUTERBACH: Well, cer -- this is John. I feel like I'm -- certainly we can develop a one -- you know, one size fits all permit and base it on the most stringent requirements that'd be necessary for wherever it operates and then everybody has to live with them and we just eliminate the flexibility that we give to areas that need less requirements. They have to comply with the most stringent wherever it's allowed to operate. That's -- that works.

MS. EDWARDS: That would be another option as a solution. You know, and that's -- and I think -- I mean, Gordon, you make some good points and not all areas of the state have zoning, but zoning's part of how things get placed. And I think when we look at air quality standards, I mean we often end up permitting facilities -- not facility drill rigs, but we'll end up permitting facilities that maybe people don't want to have near their subdivision. But from an air quality perspective it demonstrates that it meets the ambient air quality standards and that's the piece that we do and then the zoning piece is the other piece. If they don't have the zoning then that's

something that's handled more -- you know, at a more local level. But if we want to move per -- if we want to be able to move a drill rig anywhere and we can't take into account the specifics of the location which is difficult to do in air quality because air sheds are different, you know, I mean boundaries are different. Weather's different in different places. Some places are windier, some places are calmer. So if we want to have a one size fits all permit then you have to look at sort of the conservative -- I think you'd have to look conservatively to try and figure out what would that configuration of equipment need to look like or controls need to look like or -- in order to craft what that would look like and that is an -- I mean that would be an option. I mean it's another option. But it would reduce the -- it would likely reduce the flexibility that exists in a more case specific permitting kind of a requirement where you could look at a specific location and say okay, if we're out in this area in this situation with this equipment seems like this configuration will be okay, but if you moved it closer to a village or it's now -- you know, now there's a village downwind or there's something else going on then we might have an issue that, you know, we haven't addressed, so we'd lose some of that flexibility. So I mean it's just another way of looking at it.

MR. BARRON: Oh, yeah. Yeah, this is Bill. I think, again, the -- where part of my entire, you know, directionality

from what I'm hearing and picking up is more let's establish what our problem is rather than -- I mean if -- do we even have a problem. Have we established -- to Gordon's point, have we -- and to Mike's point, have we entered into something prematurely at our own accord rather than understanding what the problem is in a geographic area and then tried to resolve it as we approach limits rather than, you know, what we've got today. That's kind of where I'm trying to understand. And then if we are approaching those limits then we do something.

MS. LONGAN: Can I ask a question? I know that DEC is currently working in a different program, it's the discharge program, APDS program, and we can understand -- this is Sara Longan by the way. Sorry. We can understand that that's vastly different, but one thing that is similar is that EP -- excuse me, DEC administers the APDS program and that's -- it's a -- all authority delegated from EPA. So they're trying to get a general permit for discharges in the Cook Inlet and I think that they've learned a lot in that experience and that it's not the same throughout. There's different currents. There's different water quality criteria, temperature, depth. There's a lot of factors to play into it, but they are still able to issue these general permits that operators meeting that criteria can fall into in sort of a more general way instead of having to go through an individual permitting process for a project and case specific example. And I just don't know if there's any way that

the air program could look towards possibly considering a general permit approach.

MR. KUTERBACH: We already have general permits.....

MS. EDWARDS: We do have a general permit.

MR. KUTERBACH: .....for oil drilling.

MS. EDWARDS: For oil drilling.

MS. LONGAN: So then -- and I'm aware of that, but are some of these issues that we're talking about -- we're talking about using mobile rigs for drilling, how is that not captured more under a general permit way?

MR. KUTERBACH: It is, it is. The -- but the requirements where the general permit could be used are defined within the general permit.

MS. KAUFMAN: It's just a limited geographic area. So it's not applicable offshore. It's not applicable at (indiscernible) or I don't believe on the North Slope.

MR. TURNER: Please identify yourself.

MS. KAUFMAN: This is Kate Kaufman. Sorry.

MS. EDWARDS: So the general permit we have was built around a specific -- it's sort of what we just talked about. It's built around a specific set of conditions and under those conditions you can just apply for the general permit and be done with it, but you have to operate under those conditions. And so.....

MR. KUTERBACH: And -- this is John. Brad, you've

operated -- you have things operating under the general permit. Does it work for you?

MR. THOMAS: Up to now it has. It's -- the problem is the permitting program and the mechanics of the permitting program today. Up to 2010.....

MR. KUTERBACH: So there's been -- are there problems with the general permitting process now?

MR. THOMAS: Well, I'm going on the basis that the general permit's going to have to be revised to reflect the new ambient air quality standards. And if that's -- when it gets to that point, yes, there will be. But now with the general permit as it has been for the last several years, not taking into account these new ambient air quality standards, no, it hasn't been a problem. But we'll -- so it's the mechanics of a permit program and the permit program itself that's at issue. And I go back to what Bill brought up, let's define, you know, the scope of the problem here. Do we -- let's not engage in a permitting program unless we have a problem to make go away. And the ambient data I've seen I have not seen any exceedences of any ambient air quality data and the air quality standards. So I'm not convinced that there's a problem requiring the regulations regarding the permit program.

MR. KUTERBACH: So if I were to look at that I'd say our program's working.

MS. CASTANO: Well, and to add to that. This is Alejandra

again with AOGA. To add to that by saying, you know, we may not need a permitting program. We're also not suggesting that this would remain -- this would make drill rigs and the engines on them completely unregulated. I mean let's not forget what we've had the discussions on before about the NSPSs and other federal regulations that are already on top of these. So we're not saying a zero or 100 approach. I mean there wouldn't be no regulations at all. We're not suggesting that.

MR. THOMAS: Just a -- this is Brad Thomas. Point of order. It's 3:00 o'clock.

MS. EDWARDS: I know, it's 3:00 o'clock. I was going to say the same thing. So I didn't want to cut off the discussion prematurely either, but it is 3:00 o'clock and if the group is amenable we could take our break and come back in about 15 minutes.

(Off record at 3:01 p.m.)

(On record at 3:17 p.m.)

THE REPORTER: On the record at 3:17.

MS. EDWARDS: Great, thanks. So before we move into the next agenda item I wanted to just kind of repeat some of the things -- the ideas I heard and see if -- I may not get the phrases quite perfectly, but I heard a couple of ideas that we might want to think about as a group and explore some more. One was Gordon had an idea where he -- we talked about, well, maybe there's a configuration if you have a certain kind of a

configuration for your rig you could be certified and you could move around at will which to me is sort of like, okay, can we -- and that kind of feeds into this concept of is there a general permit or categories of general permits that maybe we could do that might be -- provide some more flexibility. You know, if you had a certain configuration you could move the rig around. That kind of goes into I think sort of a general permit kind of an idea or a registration or some sort of a, you know, permit-by-rule kind of thing.

The other thing I heard was the idea of establishing some sort of a more robust monitoring program to really get a handle on what are the concentrations out there, whether we really do have issues with any of the standards or we would have to think about which pollutants that we would want to monitor, but more robust monitoring network with the idea of having thresholds that would then trigger some sort of other requirements or actions to be taken was another idea I heard. The idea of having if you had more advanced controls on a rig, for example, maybe you got more flexibility to move it around more. I think those were sort of the -- some of the newer ideas I heard come out of the last discussion. Did I miss anything from your perspectives?

UNIDENTIFIED MALE: You got them from what I was thinking.

MS. EDWARDS: Which might be some other options that we could explore in addition to the kinds of things we've already

talked about. So the next agenda item we had was to get sort of a overview -- more of an overview about Alaska drilling and I -- Brad and Alejandra were going to give us a presentation on that, so I'll turn it over to you guys.

MR. THOMAS: So Jeanne, if you go to the last one there. There you go. So we put together these 14 or 15 slides on drilling activities in the state. And what I'll do is I'll go over the information we've got for the North Slope and turn it over to Kate to cover what happens in Cook Inlet.

So the first slide is, again, from Baker-Hughes. It's the drill rig activity in the state going back to 1968. The red line is the offshore rigs. So you can see that that's -- the most activity there is back in the late '60s with the Cook Inlet development. The blue line is rig -- the land rigs and the green line of course is the sum total.

So since about 1986, '87 you can see that the rig activity's been pretty stable. The developments haven't been on the scale of Prudhoe Bay and Kuparuk on the North Slope. So if you go back to the years between '74 and '86 that's when you get into Prudhoe Bay, Kuparuk development. So there was more activity. Any given week the maximum rig count was less than 40. So we're still way down low on the scale even with those big developments. We're down low on the scale compared to the rest of the U.S. with our maximums. But again, since '87 the average has been about nine per week with some fluctuation, but

not a lot.

MR. MUNGER: And you said currently -- I believe you said currently we're running about 12.

MR. THOMAS: That was on that one week, yeah, 12.

MR. MUNGER: Okay.

MR. THOMAS: Yeah. So that nine is an average over the entire 22 years, but that -- again it varies from week to week.

MR. MUNGER: And your high was 30 -- about 38 back in the '60s?

MR. THOMAS: Right.

MR. MUNGER: Okay.

MR. THOMAS: Right.

MR. MUNGER: Thank you.

MR. THOMAS: So we break into some more detail by field on the next slide. And what we did with the time we had, we had a limited amount of data that could be analyzed so Tom Damiana actually helped us with this and he put together activity by pad, by field going back several years. Now this actually is Alpine activity for its life. You can see back in 1999 the development on the CD-1 started in Alpine and went through 2001 at which point the single drill rig -- that's those numbers across the top of the bar, that's how many drill rigs are at issue. The single drill rig then moved over to CD-2 to develop it. And then about 2005, you know, we had CD-3, CD-4 start to come online, so the development has been going on there.

So Alpine activity is I think characterized best as development. You know, it's a field that has been in development and there's a lot of wells on each of those four pads that have been developed over the last 14 or 15 years. And correct me if I'm wrong, Randy, in saying that. Now Alpine has two rigs.

MR. KANADY: Just one.

MR. THOMAS: What?

MR. KANADY: Just one rig. Well, I mean we bring in a rig in the winter season for three months to accelerate the drilling on CD-3 and then we pull it off and bring it back to Clark, so.

MR. THOMAS: Yeah, and, you know, having gone through that detail with Alpine, you know, the next slide is Kuparuk activity, then the slide after that is Prudhoe Bay western operating activity, then after that the eastern operating area activity. What I prefer to do, Jeanne, is go to the slide that has the table where we summarize -- right there. Where we summarize the activity. Because you can see the detail on the previous slide, but this is the one that I think conveys the most information in the most concise amount of way -- most concise way. The average time on a pad for a drill rig is, except for Alpine, in the range of 20 to 30 days, but Alpine's development drilling so it's got a lot more days on the pad. In only one instance has a rig been on the pad in this dataset for more than two years and that was at Alpine and that was the CD-2

development I believe. The -- all the rest of the time rigs are on pads generally less than six months. But you can see the maximum for Kuparuk and Prudhoe. It's -- Kuparuk we had one on the pad, I think that's probably 1J, for 370 days. But beyond that -- and that was development driven by the way, but beyond that the activity on a pad is generally less than six months with averages much smaller, much smaller. And again, that data in developed in considerable detail in the previous slides.

Any question on that activity? I've been working this, living this so close I know I have the risk of glossing over something.

MR. MUNGER: What's your standard deviation indicate there?

MR. THOMAS: The standard deviation would be -- you know, one standard deviation from that 29 day average would be -- you know, the rig might be on a pad for 69 days.

MR. MUNGER: Okay.

MS. EDWARDS: So does this include all the -- and I'm not an expert on drill rig operations. So this is not just the exploratory rigs, these are the work over rigs and the.....

MR. THOMAS: Yeah. The data does include that.

MS. EDWARDS: All that -- all those different types of rigs.

MR. THOMAS: Uh-huh (affirmative). It includes the new wells, new holes and we couldn't get all the work over

information out of this, so it includes that as well.

MS. EDWARDS: Okay.

MR. KUTERBACH: Brad, the average that you have there, that's the average number of days over that entire period from.....

MR. THOMAS: Yes.

MR. KUTERBACH: .....from 2000 and -- so only 24 days out of all those years was there a rig on that pad.

MR. THOMAS: No, that's the average number of days a rig stayed on a pad over that dataset. So for Kuparuk -- let's just focus on Kuparuk. So for Kuparuk in the period from 2003 to 2012 the rigs average 24 days or 29 days on a paid.

MR. KUTERBACH: Okay. And then once they moved off how long was the pad empty before another 29 days happened?

MR. THOMAS: I have slides for that.

UNIDENTIFIED FEMALE: We'll get to that.

MR. KUTERBACH: Okay.

MR. THOMAS: I have slides for that, so.

MS. EDWARDS: So you could have multiple rigs on KRU, but on average each rig only stayed on 24 days. Is that correct?

MR. THOMAS: Yeah. Outside the (indiscernible) day development the average is 24 days I think at Kuparuk River. So the normal infield drilling we call it for work overs the average time on a pad within Kuparuk was about 24 days.

MS. EDWARDS: Okay.

MR. THOMAS: And I don't -- and again, Kate will speak to this, but I don't think it's a lot different in Cook Inlet.

MS. KAUFMAN: No.

MR. THOMAS: Okay.

MS. KAUFMAN: No.

MR. THOMAS: But Alpine is a different animal because it's been just under development for all this time. So Kate, if you just want to go ahead and speak to the Cook Inlet.

MR. BARRON: Wait a minute.

MS. KAUFMAN: Question.

MR. BARRON: Let me try and understand your dataset some more. Now that is -- what you did is you took the duration of a -- any given rig on location or did you look at the number of days any rig was on the pad?

MR. THOMAS: These are the -- and Tom, you correct me if I'm wrong, but this is the average that any given rig was on a pad, the average amount of time.

MR. BARRON: Okay. So any given rig.

MR. THOMAS: Yes.

MR. BARRON: Okay.

MR. THOMAS: Is that correct, Tom?

MR. DAMIANA: That's correct.

MR. BARRON: Okay. Because what I'm trying to get in my head is, you know, you could have rig -- a Nabors rig on the pad, do its thing 29 days, it leaves and a Doyon rig come in

right behind it.

MR. THOMAS: And I don't think that would be.....

MR. BARRON: You know, so is that -- you know, is that one rig or is that classified as two rigs or.....

MR. THOMAS: That would be a different average. So we averaged the number of days the Doyon rig was on there and then with the number of days that the Nabors rig was on there, so they'd be separate events.

MR. BARRON: Okay.

MR. DAMIANA: It's independent of the rig, if you will. It's more about the event. How long did the event last on a pad.....

MR. THOMAS: How long was the pad occupied.

MR. DAMIANA: .....when it's occurring.

MR. BARRON: Okay. That -- thank you. That's the -- how long is the pad occupied regardless of.....

MR. THOMAS: Right.

MS. KAUFMAN: Of what it is.

MR. BARRON: .....what it is. I mean that's important to understand.

MR. THOMAS: Yeah.

THE REPORTER: Who was that speaking on the phone?

UNIDENTIFIED FEMALE: Tom Damiana.

MS. DAMIANA: This is Tom Damiana.

THE REPORTER: Thank you.

MR. KANADY: And this is Randy Kanady. I guess just to characterize the drilling activity on CD-2 at Alpine, that activity is unique because there ended up being close to 80 wells drilled out there and we were kind of boxed in on what we could do up there because we couldn't -- we didn't have a bridge across the Nichilik (ph) Channel so we could, you know, move the rig around as -- to further developments out west. And so we really had to -- and then with the development of further I guess extended reach drilling techniques we were able to hit more targets from the CD-2 pad that could have been drilled from CD-5 a lot easier. And so it was a pretty unique situation there, not typical.

MR. MUNGER: You were kind of trapped there and so you made best use of it.

MR. KANADY: Yeah, we did. And so that's a pretty unique situation and not -- I wouldn't call it a normal kind of development scenario.

MR. THOMAS: Any other questions? So you can go to the next slide.

MS. SWARTZ: Okay.

MR. TURNER: Can you please move close to the microphone for the transcriptionist?

MR. THOMAS: (Indiscernible).

UNIDENTIFIED FEMALE: Okay.

MR. TURNER: Thank you.

MS. KAUFMAN: Okay. So I put together or we put together some slides to illustrate our drilling activity in Cook Inlet. Really it is just specific to Hilcorp operations since they took over operatorship of the Chevron assets in 2012. Didn't include a lot of information from other operators in Cook Inlet partly because I don't have a lot of it, although kind of upon reflecting on it I think we're somewhat representative of the type of activity having both onshore and offshore and similar rig operations to the other Cook Inlet operators I guess with the exception of the jack up rigs which would have a -- you know, operate under a portable oil and gas permit. Additionally, we kept it specific to Hilcorp and didn't do as much of a look back, kind of a smaller dataset than Brad presented. And I think primarily because the way Hilcorp is operating in the inlet now and plans to operate in the future is fairly different than from what Chevron was doing with the exception of the development, initial development. So there's just a higher level of activity right now, so we really wanted to present an accurate picture of that.

So essentially this is a breakdown of our operations in 2012. The different color scheme there is to show our asset team. So we essentially have three areas of operation. North Kenai which is north of the Kenai River on the east side of the peninsula, primarily Swanson River. Our south Kenai team operates in Ninilchik, Kenai gas field, Happy Valley, Deep Creek

area, so have legacy Marathon properties. And then green is the Cook Inlet offshore team and in 2012 our primary operations there were on Steelhead platform.

So a couple of things to note here. You see two incidents of operation on Happy Valley B pad. Essentially we had a rig that drilled on B pad for a short period of time in the middle -- mid of 2012. The rig left and then came back to drill two more wells at the end of the year. So that larger period of time is a two well program on B pad. But even with two wells we stayed there for just over 60 days. So -- and then in the north Kenai team we drilled four wells in Swanson River field, so on average didn't stay on a pad any -- you know, any longer than 40 or 50 days.

MR. THOMAS: This is Brad Thomas. A question on the Steelhead platform. So a rig, the drilling rig was transported off the platform, it's drilled for upwards of 120 days, then left.

MS. KAUFMAN: No. The Steelhead platform has a rig that's affixed on the platform of the facility. It's included in the Title 5 operating permit. So at this time we don't have a transportable drill rig that would -- could go to all the different platforms in the inlet. We have a fixed rig on Steelhead on the Monopod and then on the Anna. Do you have any questions on that?

MR. MUNGER: This is the new rig brought up and I'm lost

on the pronunciation, but it starts with an M.

MS. KAUFMAN: Moncaw (ph)?

MR. MUNGER: Yeah. Isn't that the portable rig for the rig to rig activity?

MS. KAUFMAN: That is a small pulling unit for work over operations. And so for the purposes of this discussion we only addressed drilling operations, essentially grassroots or sidetrack drilling operations.

Okay. No more questions, we can do the next slide. And then this is just a snapshot of our current activity. In 2013, again kind of a breakdown by asset team and we have additional wells being drilled in Swanson River. The kind of hash marked ones are the wells that we're currently operating on and then the dotted columns are the wells that we have planned for the rest of the year. So, you know, this is representative of our activity level in Cook Inlet, you know, eight to 10 wells a year between these different areas and generally not staying on any one location for more than 60 days probably with the exception of our offshore facilities, but that's somewhat of a moot point because they're incorporated in the permits.

MR. MUNGER: What rig do you have operating on the Anna?

MS. KAUFMAN: Rig 428 and that's also included in the Anna Title 5 operating permit.

MR. MUNGER: Okay. So that's a stationary rig then?

MS. KAUFMAN: Well, it's transportable. It can be moved

to other platforms. It is only included in the Title 5 permit for the Anna and I think the.....

UNIDENTIFIED MALE: Dillon.

MS. KAUFMAN: .....Dillon right now. So if we wanted to bring it to say Bruce or another Cook Inlet platform we would have to go through a permitting exercise. It would have to be permitted to operate on those other facilities.

MR. MUNGER: But that won't be the rig designated to move from platform to platform?

MS. KAUFMAN: It's something we've -- we're evaluating, but, you know, kind of, again, looking at some of the permitting challenges that are inherent to that it may or may not be a feasible solution.

MR. MUNGER: Okay.

MS. KAUFMAN: Okay. Let's see, a couple other things. You know, there -- we do in some instances go, return to a pad. I know it's kind of hard to read this, but we have two wells, one in Swanson River on pad 2315 that we drilled earlier this year and we will return to that pad again to drill a second well approximate -- it's the last one in the blue there for 2013. So, you know, we do occasionally need to return to locations to drill additional wells, but, you know, in reality Hilcorp nature of the operations are certainly, you know, transient and moving around quickly from one location to the next. And then the purple for our south Kenai team. (Indiscernible) we're drilling

right now is currently a oil exploration well, so we do have some exploration activity in Cook Inlet. And then Anna is the only drill well anticipated for rig 428 this year.

MR. EVANS: And -- this is Wally. One distinction, I'm not sure if it even matters, is that moving the Hilcorp rigs down in Cook Inlet is a little bit different than moving then up north because up north they're probably -- if I'm wrong, Brad, correct me, limited to the time of the year. They can't do it as much in the summertime as they can in the wintertime. So I imagine a lot of their activity is done in the wintertime as far as the movement of them.

MR. KANADY: Well, it's dependent on -- this is Randy Kanady. It's dependent on the field. Certainly -- well, like I was saying, we moved Doyon 141 out to Alpine for the winter season which is only three months. CD-3 actually is only accessible during the wintertime. But really that's the only exception where we're limited to wintertime activity and then, of course, exploration drilling out in PRA (ph). But within the, you know, Prudhoe, Kuparuk network it's all by gravel road and we can move around and -- as best we can on the soft roads.

MS. KAUFMAN: So certainly, you know, one thing this illustrates is that we're not typically drilling and having a rig stationary on one pad for an extended period of time for, you know.....

UNIDENTIFIED MALE: Okay.

MS. KAUFMAN: .....certainly over 60 days and I don't anticipate that would be the case in the future. And I guess just for kind of reference sake also, in terms of the permitting environment in the inlet we kind of have the full spectrum I guess. Some of our rigs in the Ninilchik unit operate under the minor general one permit. In Swanson River we have a transportable drill rig included in the permit, but we have to stay under certain thresholds to bring a drilling rig. So we have to evaluate and ensure that the emissions won't exceed specified thresholds in the permit in Swanson River. And we do have the ability with some of the fixed rigs offshore, the platforms, but if we did bring in a transportable drilling rig for grassroots or sidetrack wells we'd have to, you know, go through a permitting exercise for that as well.

MR. MUNGER: What is a grassroots well?

UNIDENTIFIED FEMALE: New well.

MS. KAUFMAN: It's just a new hole instead of sidetracking off an existing one.

MR. MUNGER: I see.

MR. BROWER: Just a question. On your stationary rig on the platform, does that rig ever get demobilized or does it get demobilized with the platform?

MS. KAUFMAN: For two of the rigs would likely not be decommissioned and removed unless they remove the platform. They're still in use and in operation. Hilcorp did go through

an exercise last year and removed a number of rigs from a number of facilities that were just too old and antiquated to really economically drill. The Steelhead and the Monopod will likely stay there for future drilling opportunities. And Anna 428, like I said, it does -- it has -- we have the ability to move it and it could potentially be decommissioned.

MR. BROWER: I'm just trying to think a little bit about this stuff and most of the drill rigs I know, they're always transportable. They're -- they move around from pad to pad, from exploration site to exploration site. And -- but we do in fact have a permanent stationary drilling operation indefinite.

MS. KAUFMAN: Uh-huh (affirmative). Which is kind of the -- it's out of the ordinary I think and not -- in terms of this discussion we could almost kind of remove it from the discussion because I don't anticipate we would have a -- we'd want to permit a stationary drilling rig in the future. It certainly limits our operation. These are just kind of relics from what was initially placed there. And then we -- they don't currently pose any permitting challenges for us per se.

MR. MUNGER: Is the Monopod platform and the way the Monopod's configured that will never be a portable rig configuration at all?

MS. KAUFMAN: No.

MR. MUNGER: It'll always have that legacy derrick on it. Is that under Title 5 then?

MS. KAUFMAN: Yes.

MR. MUNGER: Okay.

MR. THOMAS: Well, they do that so the city of Kenai doesn't have to change their logo.

MS. KAUFMAN: Is that what it is?

MR. THOMAS: Yeah.

MS. KAUFMAN: (Indiscernible).

MR. THOMAS: Yeah. It's certainly unique.

MS. KAUFMAN: If there's not any other questions. Presume I (indiscernible).

MR. THOMAS: So John, this gets us to a question you asked. Tom plotted up the inactivity by pad. So this -- these are the -- the Y axis is the number of currents. The X axis is the number of consecutive days. These show the number of consecutive days a pad will sit unoccupied by a drill rig. And you can see usually -- I guess in only one instance was a pad in Alpine unoccupied for more than two years. I mean they're -- the pad gets visited much more frequently than every two years. It's much more frequently than every year. They -- the pad activity in Alpine is -- has been pretty high. You know, I don't want to go too fast through these slides because I know they might take a minute to digest. But what this slide shows is that the pads in Alpine, which there's only four, they stay very active. There's only two rigs in Alpine at any given time that move around, usually only one rig that moves around, so

that rig moves around quite a bit within the field, within the pads.

MR. KANADY: Well, this is Randy Kanady again. I guess Alpine is -- uses a model for future development on the North Slope in that we're going to smaller pads because we can access a larger perimeter with directional drilling. And so -- again, I -- you know, the smaller pad kind of works against you when you're modeling it because the facility fence line is considered the edge of the pad and then, you know, we're drilling more wells, we can access more wells from a given pad, you know, than we could when Prudhoe was developed as well as when Kuparuk was developed. I mean I think there's 40 pads at Kuparuk and almost that many at Prudhoe. I suppose if you -- you know, so -- and we have four pads at Alpine, so.

MR. KUTERBACH: So the note there that -- this is John. The note that individual occurrences with a duration of less than two days were not included in the graph, do we have any sense of how often that happens?

MR. THOMAS: I'll let Randy answer that question, but I would say probably not often.

MS. KAUFMAN: Yeah, two days.

MR. KANADY: Yeah, two days they -- yeah. They weren't doing any drilling for two days. They could have been just stopped there for two days.

MR. KUTERBACH: So is the typical duration a pad is

vacant.....

UNIDENTIFIED MALE: Oh, this is Kuparuk.

MR. THOMAS: (Indiscernible) Kuparuk. Yeah, the -- on this slide.....

MR. KUTERBACH: So it's -- that would -- normally the less than two days would be the less than 50. Right?

MR. THOMAS: Yeah.

MR. KUTERBACH: But it's not included in that bar.

MR. THOMAS: Right. Right.

MR. KUTERBACH: So would that be like swapping one rig for another in the same project or something?

MR. KANADY: No. I suppose -- I mean, Ben, you can weigh in on this. Have we ever done any work overs in under two days?

MR. WEDIN: This is Ben from Nordic. Probably the fastest work over you could do is four days.

UNIDENTIFIED MALE: That's lightning quick too.

MR. WEDIN: Just from moving in, rig up and.....

UNIDENTIFIED MALE: Yeah.

MR. WEDIN: .....rig release.

MR. KANADY: And the work overs I think are included in this plot?

MR. THOMAS: Yeah, that's -- the work overs are included.

MR. KUTERBACH: Okay. So what you're saying is, is there are no individual occurrences with a duration less than two days.

MR. THOMAS: Hey, Tom, were there a bunch?

MR. DAMIANA: No.

MR. THOMAS: A handful, a couple?

MR. DAMIANA: No, it was probably less than five.

MR. KUTERBACH: Okay.

UNIDENTIFIED MALE: And we aren't sure (indiscernible).

MR. DAMIANA: And it may just be an artifact of the way that the data is reported. Like I said, it might have been a maintenance period or something like that where the drilling stopped and two days for maintenance and then it, you know, moved on to another well on the same pad.

MR. THOMAS: Okay. Well, so what you saw on Alpine about pad activity, the same message holds true for Kuparuk and the following slides, Prudhoe Bay. The pads stay active much more frequently than every.....

MR. MUNGER: On the Alpine?

MR. THOMAS: I'm sorry?

MR. MUNGER: On the Alpine they stay a lot more active? Well.....

MR. THOMAS: Yeah, (indiscernible).

MR. KANADY: This is Randy Kanady. At Alpine we're still in development drilling.....

MR. MUNGER: Okay.

MR. KANADY: .....and so that's kind of the mode of activity that was presented. That's what the numbers reflect is

development drilling. What you're looking at in Kuparuk and WOA is true infield drilling activity where the rig is moving from one pad to the next depending upon, you know, the scheduling and the economic benefit of the next well and these things get reprioritized based on a number of things. And so you see a lot more variability in the infield activity because they aren't set up there to, if you will, program drill a given area.

UNIDENTIFIED MALE: Right.

MR. THOMAS: So I'll, you know, let this go slow. You know, it's a lot for people to digest these next questions. But the message that we convey with these slides is that any individual pad stays very active. And that to find them unoccupied for less than a year, let alone two years, is uncommon, very uncommon.

MR. KUTERBACH: So there's pretty much always something going on.

MR. THOMAS: Well, frequently there's something going on, yeah.

MR. KANADY: And this is Randy Kanady again. At Kuparuk that activity is anticipated to increase.

MR. THOMAS: Is anticipated to increase you said?

MR. KANADY: To increase, yeah. The rig activity is anticipated to increase.

MR. KUTERBACH: So could you say that there's basically a permitted periodic occupation of the sources, it's 30 days, but

it’s going to happen multiple times over the course of the years?

MR. THOMAS: I’m going to defer to Randy and Ben on this one.

MR. KANADY: Yeah, this is Randy Kanady. Yeah, the -- it would -- multiple activities of short duration. You know, I mean a typical work over is anywhere from five to 10 days. If the Quotuban (ph) drilling rig shows up it could be there from 30 to 60 days and then it could go over to another pad for another 60 days. But you got to consider that there’s 40 pads at Kuparuk and so that activity is spread out over 400 square miles. Basically a 20 by 20 mile area. Right?

MR. KUTERBACH: Right. But for any given pad it’s -- there’s a level of activity that occurs there that’s more or less -- if you averaged it out over the year it’s more or less a constant.

MS. CASTANO: This is Alejandra. I guess I wouldn’t call it a uniform level of activity.

MR. KUTERBACH: No, not.....

MS. CASTANO: It really depends on what kind of work is being done and, you know, there may be a pad that we have no reason to visit for awhile longer than what’s reflected here. So you would almost have to look at it pad by pad, but this is intended to show that yes, there is a field wide level of activity, constant level of activity.

MR. THOMAS: This is Brad. Maybe to answer your question, John, the only way to answer it is there's no pad at which you can expect no activity in a given, you know, year or two year period. All the pads are going to get activity.

MR. KANADY: This is Randy Kanady. Ask Ron Wilson or Ben Wedin if -- they're our drilling representatives here from Doyon and Nordic, if they have anything to add, you guys.

MR. WEDIN: Well, our -- probably our -- this is Ben from Nordic. Our typical cycle of our two drilling rigs in Prudhoe is, you know, they're pretty much on a well 14 days, back off a well and on. You know, so that's our typical cycle at Prudhoe. Rarely do we go over the, you know, two week mark. It does happen occasionally and rarely do we batch (ph) drill wells on the Slope. And when I say batch (ph) drill that means doing multiple wells on the same pad. That's pretty rare to do that on the North Slope. Now some developments require batch (ph) drilling. I think we talked earlier about the 1J. That was pretty much multiple wells on the same pad. But for our operations in Kuparuk, the work over operations, we could be doing, you know, wells every seven days. We've done up to six wells in a month. Sometimes -- occasionally we'll do multiple wells on the same pad, but it's very rare in work overs that you'll have that many problem wells on the same pad. Usually they're spread out amongst the field where you're going to all corners of the field. Our typical rig moves are 12 to 20 miles

and the one we're doing right now is 10 miles, so.

MR. PECK: Basically the same from -- I mean we got drilling rigs that are doing work overs that may just take a few days and then moved 10, 20, 30 miles and -- yeah, could be delayed, there's been just a lot of work overs or side drives, so not on the pads for a long period of time. Activity on the pads seems like it's less on one pad. There's a lot of -- more pad moves.

MR. EVANS: This is Wally. It kind of brings a question of mine. It sounds like what -- and what John was eluding to here is there is some sort of activity constantly going on, but it's not drilling activity. It's work overs, maintenance, stuff like that. Is that true to say?

MR. THOMAS: It's either drill rig or work over rig, yeah.

UNIDENTIFIED MALE: Yeah, it's rig activity.

UNIDENTIFIED MALE: It's rig activity, right.

MR. BARRON: Whether it be drilling or work over, we've been doing -- off and on doing both.

MR. EVANS: Do you need a permit for work overs and.....

UNIDENTIFIED MALE: No.

UNIDENTIFIED MALE: No.

MR. EVANS: So should those be included in that? I mean you don't need -- you don't -- my whole point is you don't -- it appears you don't need permitting for work overs, service activities, maintenance, yet a big portion of activities is

associated with that, but we're concerned about the drilling activities.

MR. BARRON: Well, let me ask that question then. If -- but if it's the same piece of equipment.....

MR. EVANS: It's not.

MR. BARRON: If it's the same piece of equipment.....

MR. EVANS: It's not.

MR. BARRON: .....do you need the permit if it's doing a different activity?

MR. EVANS: No.

MR. BARRON: Same piece of kit goes from one slot, slides down the line -- it was drilling.....

MR. EVANS: Well.....

MR. BARRON: .....same piece of kit slides down the line, does a work over. You don't need a permit?

MR. EVANS: The same kit.

MR. KUTERBACH: Is the same kit, does that have the same power usage, fuel usage, demand usage for the different operations?

UNIDENTIFIED MALE: Auxiliary units.

MR. EVANS: At least in Cook Inlet it's totally different rigs. We don't have -- our drill rigs aren't our work over maintenance rigs.

MR. BARRON: Steelhead -- I know it's a different permit, but.....

MR. EVANS: But you're correct, it -- you know, those kind of rigs are, you know, one thing, whether it's -- right.

MR. BARRON: So that's why I think that -- that's why I'm continuing to press the question.

MR. EVANS: That is.....

MR. KUTERBACH: But Steelhead, isn't that.....

UNIDENTIFIED MALE: That's permanent.

MR. KUTERBACH: .....that permanent.....

UNIDENTIFIED MALE: Yeah.

MR. BARRON: Right. I'm just.....

MR. KUTERBACH: .....that's a permanent a rig on the site.

MR. BARRON: I understand that. I'm.....

MR. KUTERBACH: So I don't understand the question.

MR. BARRON: I know the rig well.

MR. EVANS: But if we're doing work overs are we using the same power generation as we are drilling? I'm assuming not, so.

MR. KANADY: This is Randy.....

MR. BARRON: That's kind of why I'm asking the question.

MR. KANADY: Well, I guess my perspective on it is Doyon 141 is an example. We use it for both grassroots drilling, sidetracks and work overs and right now it's in work over activity. And fuel usage, we typically put it on highline power and it burns about the same amount of.....

UNIDENTIFIED MALE: That's what I (indiscernible).

MR. KANADY: .....fuel. If it wasn't on highline power

and it was running on its generators it would burn quite a bit more fuel.

MR. EVANS: Okay. So that's the difference between Cook Inlet and the North Slope then.

MR. KUTERBACH: Well, that particular one in North Slope. They don't all run on highline power.

UNIDENTIFIED FEMALE: Unh-unh (negative).

UNIDENTIFIED MALE: Okay.

MR. WEDIN: But -- this is Ben from Nordic again. I think one of the points here is that, you know, there's very few rigs in Alaska, even viable rigs in Alaska, that aren't operational. There's very few rigs operating. These rigs are similar to the rigs down in the lower 48 and if you have 10 rigs operating in Alaska with the same type of power equipment as 400 rigs down in the Permian it's going to create a different effect on the environment. Right? That's -- I think that's kind of the issue we're talking about here. But there -- the fact of the matter is there's few -- there's very few rigs in Alaska. They tend to visit paths at different intervals. We don't do a -- you know, some developments like Alpine, they do a lot of batch (ph) drilling. Some they don't. It's just a -- it's a mixed bag of what we do up there. But to bring a -- you know, another point, to bring a rig to Alaska is quite a feat too, especially the North Slope. It's a very costly venture. It's a high risk venture. And so even if we change the way things are regulated

that might spur maybe one or two rigs to come to Alaska, but it's not going to be 50 or 100. You know, these.....

MR. KUTERBACH: And in the Permian Basin, since we're talking about these type of rigs and how long they stay on the pads, they're doing the same thing you're doing, going back to the same pads, doing the work overs, doing the side drill -- no?

MR. KANADY: No. It's -- this is Randy Kanady. The Permian, the Bakkan, these unconventional shale claves, it's program drilling and they're -- you know, and it's.....

UNIDENTIFIED MALE: Development.

MR. KANADY: .....and it's.....

MR. KUTERBACH: Okay. So that's not really comparable to the way you're operating on your infield drilling up here.

MR. KANADY: It's comparable to the activity on development drilling in Alpine.

UNIDENTIFIED MALE: Yes indeed.

MR. PECK: Yeah, they started to do a lot pad drilling down there.

UNIDENTIFIED MALE: You bet.

MR. KANADY: But they don't -- I mean it's -- you know, in the lower 48 they aren't -- you know, they're moving from one land owner to the next and they may drill, I don't know, two to eight, you know, wells on a location and then -- but in Alaska where we're restricted by wetland type activity we do more with -- you know, on a smaller footprint.

MR. KUTERBACH: But I thought you said that it's drilling one well and then moving on. Or that's the typical.

MS. KAUFMAN: (Indiscernible) development drilling, like if you're developing one field versus you're kind of -- a field's been developed and you're just -- then you're doing kind of upkeep and maintenance.

MR. KUTERBACH: Okay. Well, that's what I'm trying to understand.

MR. KAUFMAN: Different type of operation.

MR. KUTERBACH: We were talking about the Kuparuk, the infield drilling operation. From what I understood, maybe I misunderstood, the typical operation is you'll move on to a place for maybe two weeks, you'll be drilling one well, then you move off and you're off to something else, that's how it operates.

UNIDENTIFIED MALE: Yeah.

MR. KUTERBACH: And from what I understand in the Permian or the new shale plays or whatever else we were talking about that's not what they're doing. They're going to one spot and they're drilling eight wells or more.

MR. KANADY: Right. And then moving to the next location.....

MR. KUTERBACH: Okay.

MR. KANADY: .....where they.....

MR. BARRON: But Doyon may have the contract to drill one

well at the Kuparuk location and Nabors may come in right behind them with a different contract to drill another well on that same pad at Kuparuk. I mean that is not -- that's not inconceivable of having multiple different rigs come in and -- coming and going off that same pad. In fact one of the pictures that you had in here had two rigs on one location.

MR. KANADY: Yeah, we have three drilling contractors at Kuparuk. We have Nabors, Nordic and Doyon. And which operators are in Prudhoe?

UNIDENTIFIED FEMALE: Parker, (indiscernible).

MR. KUTERBACH: And so do they do that same thing down south where you'll have multiple rigs coming in onto the same pad?

UNIDENTIFIED MALE: Same location (indiscernible).

MR. KUTERBACH: Same location. Okay.

MR. WEDIN: Yeah. I think -- this is Ben from Nordic. There were some pictures of, you know, multiple rigs on the same pad in the Bakkan that we've been presented originally. That will happen where you're -- down there as well where you have multiple rigs on the same pad.

MR. KUTERBACH: And so these.....

MR. BROWER: Can I get a -- maybe an understanding on one portion of your activity that I'm still thinking about? With the same drill rig that you do work overs, just maintenance, infield maintenance, and you could use that same rig to do a

delineation drilling or some other drilling activity that's real drilling. And the maintenance drilling with the same equipment, you don't need a permit to do that or do you need a permit to do that but using the same drill rig to.....

MR. THOMAS: The regulation is -- permits are required for what's -- for portable oil and gas operations and that's defined as drilling or testing wells and it excludes well maintenance activities.

MR. EVANS: We permit the activity, not the equipment.

MR. BROWER: Okay.

MR. THOMAS: Yeah, right. Right.

MR. KANADY: So I guess to add a little bit more to that. This is Randy Kanady. So in our facility operating report for Kuparuk we just include those activities associated with drilling new hole. And so typically the only rig that shows up on our FOR as of late is the Nabors coil tubing drilling rig because that's typically the only rig that we have drilling new hole. The other two to three rigs at Kuparuk are doing work over activities and aren't actually drilling.

MR. BARRON: Okay. With that being said let's make sure we understand the dataset that you presented in your original presentation. Because the dataset from Baker is for rigs that are drilling, turning to the right activity, not work overs, recompletions. If they go into a work over mode or if they're completing the well Baker doesn't show them.

MR. THOMAS: Hold that thought. Can I get you to go back to that original (indiscernible)?

MR. BARRON: At least that's my understanding.

UNIDENTIFIED FEMALE: (Indiscernible).

MR. THOMAS: I actually had a note addressed that. So it's the middle presentation. And scroll down, I'll tell you when to stop. There, stop.

UNIDENTIFIED FEMALE: Sorry.

MR. THOMAS: So if you read that second paragraph though. Maybe read both paragraphs.

UNIDENTIFIED FEMALE: Yeah, I'll enlarge it a bit. Is that readable, Bill?

MR. BARRON: Yes. The other one was.

UNIDENTIFIED FEMALE: Okay.

MR. THOMAS: I actually just copied that text right off of their website.

UNIDENTIFIED MALE: So the rigs they can operate without a permit, that's just Alaska. Right? Because (indiscernible).

MR. THOMAS: No, the permit here is like an AOGCC permit or a Texas Railroad Commission permit. It's a permit to drill a hole in the ground.

UNIDENTIFIED MALE: Oh, okay.

MS. CASTANO: Yeah, they're actually drilling permits, not.....

MR. BARRON: Yeah, but I think the key there is they are

drilling.

MR. THOMAS: Yeah, except that in that -- that last sentence though is what caught my eye, for example, (indiscernible) of a rig that’s deployed in drilling a new well. Okay. You’re right.

MR. BARRON: They are. They’re included. So the common denominator here is the bit’s.....

MR. THOMAS: You’re right.

MR. BARRON: .....in the dirt turning to the right.

UNIDENTIFIED MALE: Yeah, the work overs.

MR. BARRON: In simple terms. Right?

MR. THOMAS: You’re right.

MR. BARRON: If the bit’s not turning the way I -- when I contacted Baker the way that their representative discussed it with me is if the bit’s not running they don’t count it.

MR. THOMAS: You’re right. That’s right. I.....

MR. BARRON: So the rig could be on location and tripping and it’s not in their count on that day.

MR. THOMAS: Okay. You’re right. I think you got it right. Yep.

UNIDENTIFIED FEMALE: Okay.

MR. THOMAS: You can close that one.

MR. BARRON: So again, I’m just trying to make sure we understand what the data -- my understanding of the dataset. My -- but I’m glad you clipped that out because that sort of

implies the same understanding.

MR. THOMAS: Yes.

MR. BARRON: So again, when we talk about the activities and actual rig activity is different than drilling activity.

MR. THOMAS: Right. Right.

MR. BARRON: Just to make it even more muddy.

UNIDENTIFIED MALE: Good on you, guy.

MR. TURNER: So this is Tom Turner. Just so I'm clear, there's more rig activity than we permit as DEC.

MR. BARRON: Yes.

UNIDENTIFIED MALE: Yes.

MR. TURNER: Thank you.

MR. THOMAS: So to follow up on that question, how much more? I mean we've talked about work overs. Is it.....

MR. KANADY: Okay. At -- this is Randy Kanady. At Kuparuk we have Nabors, CDR-2, a Nordic three, a Doyon 141 and a Nabors -- a 7-ES. Of those four rigs only one of them is currently drilling. That's Nabors -- the coil tube in CDR-2.

MR. THOMAS: That's it.

MR. BARRON: But would you classify those as drilling rigs?

MR. KANADY: They're all drilling rigs.

MR. BARRON: So in the graphs that we're looking at you counted them as drilling rigs even though they may or may not be drilling.

MR. THOMAS: True.

MR. BARRON: Okay.

MR. TURNER: So this is Tom Turner again. With all this drill activity you could have increased emission levels from all those different units functioning along with the auxiliary units.

MR. THOMAS: Not on a per pad basis. Because usually when you have a rig on a pad drilling a hole that's not the same pad on which a -- you have work over equipment. That's going someplace else.

MR. KUTERBACH: Not at the same time.

MR. THOMAS: That's correct.

UNIDENTIFIED FEMALE: Right.

MR. THOMAS: That's correct.

MR. KUTERBACH: That was John, in case you needed to get that.

MR. THOMAS: So the last slide in the presentation is just a summary. You know, the only development drilling and not often at that will you see a rig on a pad for more than two years. In the datasets that we looked at it only happened once. You know, more typically the pads are occupied for rigs -- by rigs, you know, for less than six months and the visitation occurs more frequently than every six months. And once a rig leaves a pad and some other rig comes back or the same rig comes back it doesn't stay very long. So that's kind of a summary of

what we've tried to present here is -- you know, and the take away is pads are active, so.

MR. KUTERBACH: Always emissions going on at the pads.

MR. THOMAS: Yep. So that -- so in the absence of Alice do we want to just go on to the next item on the agenda or.....

MR. KUTERBACH: Well, there's co-chairs. I think it falls to the co-chair to lead us.

MR. BARRON: With that, I mean is there a bar nearby?

UNIDENTIFIED MALE: (Indiscernible)

UNIDENTIFIED MALE: For god's sake, we need a.....

MR. BARRON: You know, I guess the question then becomes -- I mean the -- one of the things that I -- permit activity, not equipment. You know, and I'm trying to reconcile that in my head because to me we're -- we should be talking about -- again, if we went back to the earlier part of this session we were talking about trying to understand emissions from equipment. But we've now kind of bifurcated that discussion to say, well, do we want to look at the emissions from the equipment when it's doing activity A, but we don't want to look at it when that same piece of kit is doing activity B which seems to me to be probably not the right answer. Because to me the kit is doing an activity and having emissions.

MR. THOMAS: This is Brad speaking. The response -- the ambient data that we've collected over, you know, 22 years in -- at A Pad in Prudhoe Bay, the several years in Alpine, the

ambient data we've collected around rigs covers both activities.

MR. BARRON: Which leads me back to where part of -- you know, I think Gordon had a comment, Mike had a comment, I clearly had a comment about what's the dataset and do we actually have a problem and are we fighting the wrong issues. And should we be fighting and trying to protect the environment from what is real, not which might -- or might not be imaginary. And that's good. I keep trying to get -- so your data, the dataset that you've got is for all activity.

MR. THOMAS: Right.

MR. BARRON: Not what has permitted or not permitted.

MR. THOMAS: Right.

MR. BARRON: Which I think is important to understand. Right? To some of your points. I mean.....

MR. BROWER: I think so. I mean I think there's -- you know, I like the thoughts of the longer term picture and developing methods to look at where the problem really is. Right now we're just -- we think, you know, is there a problem with drill rigs. Let's permit the heck out of those guys and give them stringent guidelines to do that.

MR. THOMAS: But only when they're drilling.

MR. BROWER: Only when they're drilling. So for me as a subsistence hunter I see this yellow haze out there and I look at a professional consultant, Susan Harvey, can you find out where that source is. And she has taken videos of we thought

could be a source and that was the flaring, flaring of all the facilities in the -- in Prudhoe Bay. You know, maybe it's rust particles. There's certainly an orange haze. But I think, you know, we try to look for where the cause is, where the problem is. You know, the wheel is not broken, you know, why do we try to fix it, you know.

MR. BARRON: So as far as -- as you look at the agenda, we're -- we need to kind of think about whether it's a topic for the next meeting or start dabbling in it today is what are the requirements for compliance with the National Air Quality. I mean what is within our control -- and we started that right before the break. What is in our control, what is out of our control. I mean I think we need to have some sort of discussion around -- because that to me begins to get to the trigger point of -- you know, have we -- what do we need to be in compliance. What is the -- you know, how do we know that we're in compliance, how do we know we're out of compliance. We clearly don't want to be out of compliance. Right? I mean that would be kind of foolish. But do we -- is there -- are there ways to discuss -- you know, how do you know when you are, how do you know when you're approaching it, how do you know when you're not. And just because we're not doesn't mean what we're doing is right. You know, it doesn't mean that it's wrong either. But how do we get to that discussion.

MR. THOMAS: Well, this is Brad speaking. What brought us

here is the -- you know, EPA has lowered the ambient air quality standards over the years and we -- and they developed a new one in 2010, the one hour NO2 standard, a standard for which applying modeling requirements as they exist we -- you know, we can't make the modeling work for that standard.

MR. MUNGER: So they've increased the -- they've increased their -- when you say lower to me that sometimes indicates that.....

MR. THOMAS: Increase (indiscernible).

MR. MUNGER: Yeah, that's there decreasing the amount of regulatory -- well, not regulatory compliance, but raising the levels of pollutants that can go in the air, but you're saying they're going less.

MR. THOMAS: Yes.

MR. MUNGER: Okay.

UNIDENTIFIED MALE: They've reduced the number you have to meet.

MS. CASTANO: They've reduced the number, right.

MR. MUNGER: Yeah. Okay. I just wanted to make sure.

MR. THOMAS: But so like -- I say that because there's an agenda item here that AOGA and the support industry alliance is to discuss how the three year averages of the one hour NO2 emissions are calculated. We -- you know, I didn't request that be put on the agenda, so I assume that somebody else wanted that discussion. So if we need to have that I can do that.

MR. BARRON: Let's jump to it because I think that's kind of important. Because it gets to be -- I mean we jumped ahead to the discussion of North Slope drilling operations, but let's go back and talk about the one hour.

MR. THOMAS: Yeah, the standard is -- it's a statistical standard and the way it works -- the standard is 100 parts per billion. So when you monitor for compliance or model for compliance with the standard you look at your -- in any 24 hour period the highest monitor or model value and you take that and you set it aside. And you do that for the other 364 days in the year so that at the end of the year you take the average of all 365 of those daily high readings and that's your number for that year. Then you do it the second year and do the same thing the third year and then you average those three numbers for comparison against the 100 part per billion limit. That's the statistical nature of the nature. Kind of confusing, but -- actually I think I may have left out critical point. Did I mention (indiscernible)?

MR. BARRON: Yeah, 98th percent.

MR. THOMAS: Yeah, I left out a critical point. Yeah, it's -- so you take -- let me back up. So you got 365 values in a year and each one of those is the highest for each of the days. Then you discard the top seven and you take the eight highest assuming you've got 365 days of valid data. So you take the eight highest and you do that second year, you do that the

third year. Those are the three values you average together to compare against the standard. Correct? Yes. Okay.

MR. MUNGER: So you knock off your highest eight days.....

MR. THOMAS: Your highest seven days.

MR. MUNGER: .....per year.....

MR. THOMAS: Seven days.

MR. MUNGER: .....for three years.

MR. THOMAS: For three consecutive years.

MR. MUNGER: Okay.

MR. THOMAS: Yeah. That's how the standard's computed, how compliance against the standard is computed is with that method. So it's complicated. That's it, that's the problem standard. It's a one hour standard, so fluctuations in operations don't get much credit. You know, when you have annual standards where the ambient air quality standard for NO2 used to be an annual standard your -- the fluctuations in meteorology and operations could be taken into account to comply with that and people did. But when you have a one hour standard like this that's very difficult to meet because the fluctuations and differences in meteorology don't come into play so much.

MR. BARRON: So is that -- okay. So let's get back to the -- to what some of the original discussions was about. That -- you said it was a modeling or a measurement.

MR. THOMAS: Uh-huh (affirmative).

MR. BARRON: Have we done both? I mean have we -- clearly

we've modeled it.

MR. THOMAS: Yep.

MR. BARRON: And.....

MR. KUTERBACH: Well, we've modeled the maximum.....

MR. BARRON: Right.

MR. KUTERBACH: .....and we've measured the actual. We haven't done the modeling of the actual.

MR. THOMAS: Well, we actually did and I just haven't given you the information yet, so I've got to supply that to you.

MR. BARRON: So -- okay. So the -- what I'm sensing is is the model fails.

MR. THOMAS: When we model potential, sure.

MR. BARRON: But I'm also getting the sense that the actual passes.

MR. THOMAS: The actual, it -- when we modeled the actual emissions for one of our operations it was the CD-3 operation in Alpine. The actual model output tracks the monitor output, so you'll see peaks at the same time and you'll dive at the same time, but we're not getting the magnitude to match up.

MR. BARRON: Okay. So on the monitored you would have passed the threshold.

MR. THOMAS: Right.

MS. KAUFMAN: Right.

MR. BARRON: Okay. That's kind of what I -- I thought you

showed some of that data.

MR. THOMAS: We did.

MS. KAUFMAN: Yeah, we did.

MR. BARRON: I'm just trying to recall.

MR. KUTERBACH: Did the modeling of the actual -- this is John. Did the modeling of the actual emissions pass?

MR. THOMAS: Not always. Not always. The -- we can't get the magnitude to line up perfectly. And there's probably a lot of reasons for that, but it's difficult. So Tom, did I characterize that accurately?

MR. DAMIANA: We can get the magnitude to -- we can the high points to line up in time, but the magnitudes don't always -- sometimes they're lower, sometimes they're higher.

MR. THOMAS: Right.

MR. KUTERBACH: So modeling sometimes under predicts the monitor.

MR. THOMAS: Right. Right.

MR. BARRON: Oh, I hate it when that happens.

MR. THOMAS: Yeah, it goes both ways.

MR. PECK: This is Alan. For the data that you've monitored, has that been at your ambient station or are you monitoring in the stack or what's the location (indiscernible)?

MR. THOMAS: It's an ambient air quality station right on the pad.

MS. KAUFMAN: On the pad.

MR. THOMAS: Yeah, we located -- in the case of Alpine we located the ambient station so that we were down within the stacks so that we could capture -- we tried to hit the stations with the plume's emission if we could.

MR. BARRON: Could we retract and get your name on the -- on who asked the question?

MR. PECK: Sure. Alan Peck.

THE REPORTER: I heard you.

MR. PECK: Okay.

MS. CASTANO: And then we have two monitoring stations. This is Alejandra. One on A pad and one between CCP and CGF which we assume is the highest point of impact for our operations.

MR. MUNGER: Do you do any in stack monitoring on any of these portable units?

MR. THOMAS: On the drill rigs, no.

MR. MUNGER: Okay.

MR. BARRON: That'd be an interesting -- how would you do an in stack when you've got all the sources scattered around the.....

MR. MUNGER: You hire a lot of contract hands.

MR. BARRON: No, I'm serious. I mean.....

UNIDENTIFIED MALE: (Indiscernible).

MR. BARRON: .....I mean if it's the boilers and the heaters and the engines, I mean you've got dozens of sources.

MR. MUNGER: Well, I thought that you might take like your most pollutant source and having it stack monitored. Yeah, that -- just a question.

MR. BARRON: Fair enough.

MR. MUNGER: Yeah.

MR. KANADY: Bill, it's technically possible. We have done it, but it would be a lot of work.

MR. BARRON: Oh, I can only imagine. Yeah. That's why I'm asking the -- trying to put Mike down a little bit here, put him over there. But I think that's part of the problem is that you've got so many multiple sources and if you're modeling to the maximum of each one of those sources that always tends to be kind of that -- you know, you're setting yourself up for failure.....

MR. THOMAS: Yeah.

MR. BARRON: .....kind of discussion.

MR. THOMAS: Yeah.

MR. MUNGER: Coming from a laboratory background somewhat I've always found that models, that they don't actually reflect real time data or real data. It's really the fault of the modeler. You know, it's -- you know, because -- that's just the way I've always seen it.

MR. THOMAS: Yeah.

MS. CASTANO: What this model -- this is Alejandra again. We had discussed this in previous meetings as well, but there

are known issues. Air mod is the name of this model and it was originally developed for these one hour -- I'm sorry, one year standards that we had before and they're -- basically a lot of the problems are related to we're now trying to use a model that was developed for one type of resolution and trying to put onto one hour resolution.

MR. MUNGER: Yeah.

MS. CASTANO: There are issues with wind speed and.....

MR. MUNGER: Absolutely.

MS. CASTANO: .....EPA is very well aware of these. It's just it's going to take a lot of time.

MR. MUNGER: Well, I was being rather flippant. I really do believe that. I mean when it comes down and you've actually done real time monitoring and those numbers don't match when you plug in a -- or when it doesn't fit when you run the model then there's something to me wrong with the model.

MS. CASTANO: Right. And I mean the issues are known, EPA is aware, but it's just -- it's taking a lot of time to work through what is a solution from a modeling standpoint. Where we are is, well, is the solution only modeling or can we maybe look at other sources.

MR. BARRON: So let -- yeah, so let me ask the question in that regard. What is EPA doing? I mean if they know it's a problem are they holding the industry to a standard on a model that they know is false?

MR. THOMAS: Well -- this is Brad Thomas speaking. And I'll let Tom jump in here in a minute, but the EPA acknowledges that the -- there are modeling issues. There are workgroups convened nationwide trying to address these problems. BLM's even working on it to some degree. But in the meantime we still have to live with the existing standards and approaches and model. So until that longer term solution is identified we've got this problem and it's not clear to me that when we come up with a longer term modeling solution that it's going to be sufficient to address the magnitude of this issue. So.....

MR. BARRON: So I'll take that as a yes.

MR. THOMAS: I'm not sure what the question was.

MR. BARRON: EPA is holding you to the standard.....

MR. THOMAS: Oh, yes. Yeah.

MR. BARRON: .....even though the model is wrong.

MR. THOMAS: Yeah, that's right.

MR. BARRON: Okay.

MR. MUNGER: So, there you are.

UNIDENTIFIED FEMALE: I'm back. Sorry.

MR. MUNGER: He was doing a fine job while you were gone. He was trying to take us all to a bar.

MR. PECK: This is Alan again. One of the things on the monitoring, correct me if I'm wrong on this part, but my understanding is there's not been a lot of data that has been collected nationwide on that. You mentioned had some from the

Pebble sites, but as far as what's been available generally to the public has not been -- is not very detailed. One of those I think is around Chicago, is metropolitan or areas that the sources of this data -- the data that has been done with comparison to modeling. Is that (indiscernible)?

MR. THOMAS: I would say -- this is Brad. I would say that the amount of monitoring data collected around drill rigs nationwide is probably not great. You know, we've got a lot in Alaska, but I'm not sure that nationwide that's a common thing. So that (indiscernible).

MS. CASTANO: Maybe in Wyoming would be one place where they may have (indiscernible).

MR. THOMAS: Yeah. In Marcellus shale they're trying to do it. I mean they're getting involved.

UNIDENTIFIED MALE: Yeah. Pretty populated over there.

MR. KUTERBACH: Has EPA designated anyplace non-attainment for the one hour NO-2 standard?

MR. THOMAS: No.

UNIDENTIFIED FEMALE: I don't think so.

MR. KUTERBACH: So they're not really holding.....

UNIDENTIFIED MALE: Fair point.

MR. KUTERBACH: .....the whole thing accountable.

UNIDENTIFIED MALE: Fair point.

MR. MUNGER: So for discussion for the workgroup to me is that I think there's at least some acknowledgement that the

model is not the best mousetrap out there. Is there anything to preclude the state from not -- do you have to -- are you required to use a model or could you go with monitoring?

MS. EDWARDS: Well.....

MR. KUTERBACH: It would have to be -- get EPA approval, but EPA has accepted -- and I don't know in this particular case with the one hour NO-2. I don't have a specific example. But EPA has expressed willingness to look at solutions that use both monitoring and modeling. The concern that EPA has with just strictly monitoring is that's a look in the rearview mirror. That's what's already there and it's not predictive. So they would want to get some way of assuring that the monitoring, the look in the rearview mirror was -- you know, the road was still straight ahead of you, you're not making a turn. So they would want to have some input with modeling as well.

MS. EDWARDS: The other -- you know, typically EPA approves models for use in permitting. So they have approved models and if you use the approved model you're fine. If you want to use a different model or do a different approach then typically you have to get some sort -- I believe you have to get some sort of an approval to use a non-guideline model. So in the -- for example, in our situation if we went out and gathered data and we made improvements to the model so that it worked better or performed better then, you know, we could go through that process and try and get that model, you know, approved for

use and that's just a process that would have to happen. But it would take -- you'd have to do the -- you know, you'd have to do the work, the monitoring and then make the -- you know, try and imp -- people are always constantly improving models and then eventually EPA will come up with a new model and it gets approved nationally. But there are non-guideline models that do get approved and used for different situations.

MR. KUTERBACH: And to be clear, that's dealing with it permit by permit.....

MS. EDWARDS: Right.

MR. KUTERBACH: .....you have to use those models. What we're looking at here is looking at a different approach because we're not talking about the federally mandated PSD permits.

UNIDENTIFIED MALE: Right.

MR. KUTERBACH: We're talking about the state SIP. All right? Which we could have emission standards rather than permits for different sources.

UNIDENTIFIED MALE: Yeah.

MR. KUTERBACH: But in order to get that plan approved by EPA we're going to have to demonstrate that it ensures compliance with the standard and that demonstration is going to -- by its very nature is going to have to include modeling because we're not going to be able to model -- or monitor every situation that could occur. We model what's there now and what we have to then prove to EPA is that if we change our program

based on that, that that monitoring is going to be representative of every other situation.

MR. MUNGER: Another question, if I may. We've seen other states that have -- at least for drilling activities have no permit requirement. The state elected to put it under the SIP program, this drilling activity. Could the state take it out of the SIP program and just say agree to air quality monitoring rather than a model and the feds wouldn't have to approve it one way or the other?

MS. EDWARDS: No, I think the feds would still have to approve it because it would be a change in our plan.

UNIDENTIFIED FEMALE: A change of plan.

MR. MUNGER: Well, couldn't you eliminate -- and again, I go back. It seems to me that we don't have to have this under the SIP program, that -- I mean when we say we I mean the state.

MS. EDWARDS: It -- but it exists today?

MR. MUNGER: Uh-huh (affirmative).

MS. EDWARDS: So in order to move it we'd have to change our plan even if we were to remove it. So whether we remove it, change it, alter it, it's going to go back to EPA for approval.

UNIDENTIFIED MALE: Do you think.....

MS. EDWARDS: We can't just unilaterally take things out of our plan once they're approved by EPA. They have to be -- that -- any change would have to be approved again by EPA. So we would have to prove to them that whatever the change we're

going to make it's still going to be as protective as the program that we currently have there.

MR. MUNGER: Okay. So since the state has made its move in putting it in the program then you have to demonstrate why you're taking it back.....

MS. EDWARDS: We're -- that we -- that if we take it back out or we do something different that we're still going to maintain in compliance with the standards.

MR. THOMAS: This is Brad.

MR. BROWER: Sounds like what happened to our AC of P (ph) program. That, you know, we were making progress towards making some changes and they went on for five years and at the end, you know, there was a sunset clause to put your old one to bed for awhile and work on your new one going forward and then the legislature didn't pass the -- an authorizing bill.

MS. EDWARDS: Well, and.....

MR. BROWER: So things change.....

MS. EDWARDS: Things.....

MR. BROWER: .....the moment we start to adapt to find -- and fill in the gaps.

MS. EDWARDS: Well, and clearly in this case I think the state has some latitude to change its program, but we have to recognize that the program already exists within an existing federally approved structure. So we just -- when we look for solutions and ultimately we're going to end up running these

solutions through -- if it's a change to our plan then we're going to run those back through EPA. It doesn't mean that they won't allow them to happen.

UNIDENTIFIED MALE: Right, right.

MS. EDWARDS: It doesn't mean that we're on any timeline to do so. It just means that we're going to have to go through that step. So whatever we do has to make sense both scientifically, from human health perspective, the whole nine yards that this is -- this makes sense.

MR. BARRON: Which I think is the right thing to do though. I mean I think Mike's got a good idea that if you started down the path to take it out of where it is now and you built a plan that said we're going to continue to monitor and we're going to continue to fine tune or make modifications to the models, you know, in concert with actual data and then have some sort of program that says even though it's rearview mirror, I mean a lot of -- almost all of your safety programs are rearview mirror kind of effects.

UNIDENTIFIED MALE: Lessons learned.

MR. BARRON: But they're lessons learned. You see where the problems are, you correct problems, you go through training programs. Right? It's the same concept. You know, you want to get the near misses recorded, but you never really do, so you're always dealing with recordables and first aids. Well, that's kind of what we're dealing with here is you're -- but you're

always getting better. You're always finding out where the hotspots are or where the problem is relative to tools or equipment and you begin to eliminate those. If that is part of our program that then I think goes a long way to satisfying EPA in terms of we're going to base everything on real data, we're going to find where the problems are, we're going to correct those problems and continuously improve and not necessarily work with a model that clearly has deficiencies. You know, of course nicer words than that would be used, but I mean that -- directionality, I think that's a really good approach toward where we're trying to get to. But I -- again, that's up for general discussion, but I think.....

UNIDENTIFIED MALE: You were going to say something, Brad.

MR. THOMAS: Well, I was just going to ask. I mean if we did modify the state regulations, you know, modify 18-A (ph), C-50, to not require permitting for drill rigs, submitted that to EPA as a SIP amendment and committed to further study this problem, be it by ambient monitoring, modeling evaluations, do you think that would be approvable? Do you see a roadblock? Do you think they would reject that?

MS. EDWARDS: I think they would ask us how we're going to assure that they're not creating a problem and I don't think we have the data right now to satisfy them. That our new plan -- you know, I think if you put in -- okay, let me just pause it. Just.....

UNIDENTIFIED MALE: Okay, yeah.

MS. EDWARDS: .....complete brainstorming here. The idea you had about, okay, well let's put the monitors in, let's put a threshold in. That would probably be more sellable to EPA. You know, okay, if we find that we're -- we're out there monitor -- we -- let's say we did a modeling exercise, maybe not a air mod exercise. Maybe it's a regional monitoring exercise. We do a regional modeling exercise. We show that we don't think -- we believe we don't have any one hour NO2 problems based on our current activities. Let's say that that -- that we do that. Let's say that we assemble this monitoring network, we put it out there. That we think it's fairly representative based on some regional modeling that we've done to look for where these hotspots might be or just representative, we get some data going. But then if we coupled that with, okay, at this level if we get -- start approaching this level of -- you know, approaching the level standard. I mean we're at 75 percent, we're 80 percent of the standard, maybe we're -- at that point we're going to do something and we said what that was that we were going to do. That might be a substitute to a permanent perhaps. But, you know, it would be something we'd have to work through with them.....

MR. BARRON: Right.

MS. EDWARDS: .....what's going to be acceptable.

MR. BARRON: But, you know, I think one of the advantages

though is it would be all activity, just not drilling activity that we'd be looking at. Again, because I -- again, we kind of stumbled into this discussion.

MR. MUNGER: Yeah, one of the things that.....

MR. BARRON: It's not the.....

MR. MUNGER: .....happened while you were gone.

MS. EDWARDS: Sorry. And I apologize for stepping out for so long. Thank you for indulging me.

MR. BARRON: It's not the activity. Right? We're permitting the activity, not the equipment. But if we do a regional monitoring program it's the activity of all the equipment.

MR. MUNGER: All the time.

MR. BARRON: All the time.

MR. MUNGER: Yeah.

MR. BARRON: Which is actually a higher standard.

MR. MUNGER: Much higher.

MS. CASTANO: Which is -- this is Alejandra. What you're seeing in the data that we submit for APEC, CCP.....

MR. BARRON: Exactly.

MS. CASTANO: .....all of that is -- we can't segregate that.

MR. BARRON: You can't segregate it. So.....

MS. CASTANO: It is everything.

MR. BARRON: So it's actually -- it actually creates a

higher standard of evaluation than what's being done by just modeling the activity because the -- what we stumbled into is the rig piece of kit is being permitted for the activity even though it may slide over to the next well, the same kit, doing a work over isn't permitted. So I'm sitting here -- and that's about the time my mind kind of almost stopped, going wait a minute, that's (indiscernible).

Yeah, drilling.

MR. BARRON: Drilling is permitted, Alice, but work over is not. But same piece of -- same kit is doing the work.

MR. KUTERBACH: Right.

MR. BARRON: So.....

MR. KUTERBACH: And we actually have -- there's a reason for that. We actually have a policy that our previous director I believe approved back in the early 2000s which explained why some things didn't have to be regulated and other activities did. And it was based on the emissions. When you're drilling a hole unless you're on highline power you're going to be using a lot more fuel and you're going to put out a lot more emissions. That is the reasoning behind it.

MR. BARRON: No, I understand that. But if we go to the concept that we're kicking around and the -- you know, to me that -- this is actually elevating -- I mean to satisfy EPA's concern this would actually be an elevation of standard, not a degradation.

MR. MUNGER: Yeah. I agree. Yeah, I think, you know, if you look at an overall protection of the environment, if we're looking at that, you know, I believe what you're saying is -- I concur with that.

MS. CASTANO: So this is.....

MR. MUNGER: This was my.....

MS. CASTANO: .....Alejandra again. A question about the monitoring data that we currently have for Alice or for John. Do you not think that submitting that as part of the case for making the change would -- that would not be sufficient?

MS. EDWARDS: I don't think it would and the reason I don't think it would is because the monitoring data that you have, especially at the long-term sites, is -- the sites are -- we talked about how monitors are sited for specific purposes. So I think you have a number of sites that probably represent certain types of conditions, but maybe not other types of conditions. And so the question would be what's the right type of monitoring network to have to capture the kinds of things that we want to capture. So, for example, if you have a back -- ongoing background site that by nature a background nature, so you would need to look at what those -- one, you'd need to look at what those monitors really represent in the terms of what they're -- you know, what's the purpose of that monitoring. And then you'd also need to look at -- over time at what the quality of that monitoring data is and it may be that it's fine in some

instances and in others it may or may not be. It depends on the rigor at which the data was collected and I don't have that knowledge myself. But I think when you're looking at source specific kinds of monitoring, you know, one monitoring site, you know, it may not represent downwind of the drill rig or it may not -- you know, it may be that we have to do some -- you know, for example, if you wanted to prove out a model or approve a model you would do source specific monitoring at a number of different locations and then feed that data along with the operational data and try and improve the model that way. Right? Whereas if you just want to know what's the -- what's a generalized ambient concentration in a regional area you may move away from the sources to get more of a mix of -- you know, more of the regional aspect of it.

MR. MUNGER: More background.

MS. EDWARDS: More of a background kind of a concentration. So it really -- you have to develop your network in a way -- at least in my mind you have to think about how you -- what you wanted to accomplish with your network and then -- and what the purpose of that network is and then you would site monitors accordingly.

UNIDENTIFIED MALE: Okay.

MR. THOMAS: So this is Brad. Maybe it's not as hard as what you're suggesting because we can actually model compliance with every pollutant, with every (indiscernible) period except

one. That's the one hour NO2. And the stations we have, at C-3 we had -- at C-3 we have on CD-1 the one on A Pad. I don't think there's -- those capture one hour NO2 impacts. So if you're on the pad just about anywhere the wind's going to blow from the rig to the station for one hour periods frequently. So we have the data to show compliance with the one hour NO2 standard. We can model compliance with everything else. So maybe it's not that difficult.

MR. KUTERBACH: Well.....

MS. EDWARDS: Go ahead.

MR. KUTERBACH: This is John. To -- we're all here discussing what we think the king will say. Why don't we invite the king to the (indiscernible).....

MS. EDWARDS: King to the table.

UNIDENTIFIED MALE: Right.

MR. KUTERBACH: .....and find out?

MS. EDWARDS: And find out what they would say. You know, we don't have EPA here, so we can't speak for what EPA would be looking for. We.....

UNIDENTIFIED MALE: Well, we can always speculate.

MS. EDWARDS: We can speculate. I mean we have EPA engaged at some level. They're aware of our effort. If we want to have an idea of what EPA would be interest -- would want to see we could ask them that question. They're going to ask a lot of questions back.

MR. BARRON: Well, and that was -- this is Bill. That's the concern I've got right now. As we've kind of just scratched the surface with this bit of an idea I think it might be between now and our next meeting maybe a few people getting together and if you could scratch out a little bit more. I mean we've got a little bit of a straw man right now. If you could put some more meat on the bones of that skeleton in terms of what kind of program, where would you have your monitors, what would you be looking at and, you know, what's the duration. You know, what kind of threshold would you be establishing as, you know, tripwires of creating, you know, other actions to be taken. I mean if we can sketch that out a little bit between now and our next meeting, you know, that might have some value because then we could kick it around as a team and then maybe bring EPA in and say this is what we're thinking about, this is the -- a more greater, you know, sketch out than what we've got in the last two hours and then see -- and then get their feedback. I would hate to bring them in with what we've got right now.

MR. MUNGER: Yeah. And -- if I may, this is Mike. I've found that I don't care who you are organizationally wise that you -- if you're injected into a process, something like this, you're going to go with basically a CYA from an organizational standpoint. I think it'd be a little more appropriate for the state and the EPA to have some offline discussions about this a little bit, at least maybe possibly have the feds give us some

direction on it. You know, so.....

UNIDENTIFIED MALE: (Indiscernible).

MR. MUNGER: .....possibly go down that road first because I -- you know, if we sent an EPA representative here today or in the next meeting and say, well, what do you want they're going to go -- well, they're going to go with their (indiscernible). You know, I don't think it would get a good candid discussion. And I speak from personal experience with organization to organization with the (indiscernible). I've found the EPA extremely difficult to deal with, you know, on any manner. So I would encourage the state to have at least some directional conversation with them as far as, you know, this is what we've been kicking around in the workgroup, can you give us any suggestions on which way that you might see this. Just a suggestion.

MR. THOMAS: Alice, we got 20 minutes left in the meeting and.....

UNIDENTIFIED FEMALE: Wow.

MR. THOMAS: .....I've got this urge to make a proposal, but I don't want to do it unless I can caucus with your group, so could I get five minutes to caucus with.....

MS. EDWARDS: Yeah.

MR. MUNGER: To talk amongst yourselves?

MS. EDWARDS: Yeah.

MR. THOMAS: Yeah, so the.....

UNIDENTIFIED MALE: Yeah.

MR. THOMAS: .....support district folks, (indiscernible). By the elevator.

MR. BROWER: I got a question for you. This is the same line you're talking about, program change that needs to go back to get approval from EPA. In a program change, does that include your approach to the problem, to -- your approach to the drill rig itself in permitting that or doing a registration or a certification?

MS. EDWARDS: So if we were to change our approach?

MR. BROWER: Yeah, just sort of like permitting, but it's just applying that this rig is in compliance and then the data review for it being the five years from the -- just thinking out of the box here. Seems like to me if you want to make changes to our program and it seems like the state had elected to review drill rigs as a problem for the state to be able to maybe (indiscernible) to doing it without looking at all the different other approaches that could have been used. And our -- probably our need to look at the situation more holistically so we could know what it is we should be really regulating with that type of approach. And I think of think and feel the same way, that that approach also kind of elevates to a -- like we're doing a better job of trying to identify where the problem is.

MS. EDWARDS: So I think we can change our program. We'd have to get approval of the change to our program. We could

change it to something -- I'm sure we can change it to something else, but we would have to -- we wouldn't avoid a federal approval step I don't think. I think if we make significant changes we go through that federal approval step, but if we do it right we can look at different approaches to things. But I think because it's in regulation now we still would have to go through that federal approval step.

MR. BROWER: It would be a change. The other part and I do support the idea that -- you know, getting somebody like from EPA to come in and throw something at them would -- I always see applicants come in and when they got to go from a -- in front of a planning commission even just to do informational and then they got a decision to make later on down the line that you don't -- you state your case. You make a case that's palatable and able to be bought and sold. And, you know, you just don't throw in something without data and.....

UNIDENTIFIED MALE: Yeah.

UNIDENTIFIED MALE: Yeah.

MS. EDWARDS: Right. Well, and I don't want to take this conversation too far because we don't have everybody else in the room.

UNIDENTIFIED MALE: Right.

MS. EDWARDS: But the one thing I will say is all of the past program that now in place has been through regulatory process. It's been through public review, it's been through EPA

review. So at the time this was -- that was -- that seemed like the approach that everybody could live with and that's what we have today and that's fine. If want to -- but if we want to change it then we go back through those.....

UNIDENTIFIED MALE: We just go through that process.

MS. EDWARDS: .....types of processes again.

UNIDENTIFIED MALE: Correct.

MS. EDWARDS: So -- but I think we just need to recognize that the program has maybe not been perfect, but it's been working up to this point and what's changed are these new standards. And that's.....

UNIDENTIFIED MALE: Right, standards. Right.

MS. EDWARDS: .....and that's creating this need to relook at how we're doing things and.....

MR. BARRON: Which justifies the -- which justifies why we're here.

MS. EDWARDS: Right.

MR. BARRON: I mean what.....

MS. EDWARDS: Which is why we need to go back and relook at it again.

MR. BARRON: .....what we had was reasonably working. You know, a change.....

UNIDENTIFIED MALE: Yeah, it seemed to be working okay.

MR. BARRON: .....change has occurred, so we need to reassess ours. And I kind of like some of Gordon's thoughts

about, you know, having one part of the reg being if equipment is modified, you know, tier three or tier four engines, et cetera, whatever that might be or whatever other causality takes place, you know, that could be a whole different subsection in the regs to say then that -- then this piece does this. And I think that would play well to the EPA as well is to show that there's an upgrade of equipment, a change of fuels. You know, those kind of things are in part of the discussion. I think that's a sub-piece of the whole part. Right? I think it's a piece of the puzzle.

UNIDENTIFIED FEMALE: We're back.

UNIDENTIFIED MALE: That's quite the herd (indiscernible).

MS. EDWARDS: So it looks like we're all back. I will say did not -- we didn't stop chatting while we were in the room -- while you left the room. So -- but we did -- you know, the couple things we talked about, Gordon had brought up -- had asked me a question about changes and of course I don't think there was anything really new added there. But I did make the point that, you know, all of the current programs originally went through, you know, rulemaking and public comment and the same thing on the EPA side. And so this is really an -- you know, an opportunity for us given the change to the standard which seems to be causing, you know, sort of the hiccups that we're having with our program. Our program probably was never perfect, but it was working until we had the one hour standard.

And so now is a good chance for us as a group to reevaluate how we do -- how we're doing business with regard to this, but in order to change it we go through the same types of rulemaking, public comment and federal approvals that we went through in the first place. So, you know, that was sort of the discussion we were having when you guys were out of the room, so.

MR. MUNGER: And what'd you guys talk about?

MR. THOMAS: Well.....

MS. EDWARDS: Let him tell you.

MR. THOMAS: Yeah, it's just a follow-up to what Bill suggested. You know, it seems like we're at the point now at the next meeting where we can start talking about what do we do, how do we -- you know, what's the solution. So what I wanted to talk to the group about was us getting together and crafting a concept, a conceptual solution, a proposal to bring the larger group here to put on the table for the next meeting to begin talking about will that work and if you guys are encouraged by it. And it really is built on what Bill suggested. If you guys think that'll work, you know, what do we have to add to it or what do we need to augment it with or take away from it to make it saleable. But make -- the next meeting, make that the focal point of the next meeting so that we can start to work towards a solution. That's the point I wanted to propose.

MR. BARRON: I would go for that. I mean we got to start putting some meat on some bones somewhere.

MS. EDWARDS: Mike, Gordon?

MR. MUNGER: What's that?

MS. EDWARDS: What do you think?

MR. MUNGER: I agree with that. One of the things I haven't said out loud is I so appreciate DC and particularly the Air Quality Program with the willingness to sit down and even discuss this in this context.

MR. THOMAS: Me too.

MR. MUNGER: It's.....

UNIDENTIFIED FEMALE: Agreed.

MR. MUNGER: .....it's very encouraging for me and it just goes to show -- well, I just think DC in general is a quality group, one, since I used to work for them. But no, just the willingness to do this is a real breach of fresh air, so I appreciate it.

MR. BROWER: Yeah, I think it's a good approach. You know, I mean somebody else would want to bring in a -- you know, a program change for us to review as well. You know, if we had a couple ideas of things that could potentially evolve into something that's very workable.

MS. EDWARDS: I know, Gordon, you've had I think some really good -- you've brought to the table a number of really good ideas today too and -- that I think are worth trying to incorporate into -- conceptually into what we're doing. So hopefully we can kind of keep the discussion at the table in

mind as you guys are.....

UNIDENTIFIED MALE: Yeah.

MS. EDWARDS: .....thinking about the conceptual -- something conceptual to put together that we can work from.

UNIDENTIFIED MALE: Yeah.

MS. EDWARDS: Because I think there's been a number of really good ideas brought to the table. And again, I do apologize for stepping out for as long as I did.

MR. BARRON: No, no, that's fine. And as well while you guys stepped out that was one of the -- part of the discussion we had was having a piece of the proposal embracing some of the ideas that Gordon's been bringing is, you know, having an opportunity to do equipment upgrades, changes on the equipment itself would add to, you know, a different phase of the program or a different phase of an application. So go to tier three or tier four engines or different kind.....

UNIDENTIFIED MALE: Catalytic converter.

MR. BARRON: .....or emission controls or whatever would kind of put you in a different category kind of discussion as an option for potential regs or discussion with EPA. So as you guys think that one through that was kind of where we were kind of embracing that as a subset. You can.....

MS. EDWARDS: Something where if you had some sort of a best control scenario that that would put you into perhaps a different category.....

MR. BARRON: Right.

MS. EDWARDS: .....of whatever we come up with.

MR. BARRON: And it's just kind of the soup and nuts kind of discussion of trying to give EPA everything we can, give the general public everything we can, this is how we're protecting the environment. We've got -- you know, we're going to manage it by monitoring, we're going to manage it by modeling and we're going to manage by equipment upgrade. I mean I don't think you can get much better than that. So I mean as you think that one through you might want to figure out how to include some sort of branch of the system to include that. Or not and we'll figure out a way to add it on.

UNIDENTIFIED MALE: Yeah.

MR. BROWER: You know, I think it's good to be innovative and think about different things. And this kind of brings to some of the concerns the borough had in one of our villages in Point Lay about the excessive electricity draw and the amount of fuel and we're changing over to (indiscernible) sulfur and that we couldn't maintain our permit. And one of the things that they were -- made changes to was the use of electricity for heat trace and use the community's power plant and change that to waste heat recovery looped around many utilidors underground and develop that technology in reducing that draw of energy to stay within those things. So I mean I could look at the need to heat space for well pipe racks and stuff. Maybe it's a different

sort of heat, you know. Could be baseboard based on the waste heat that's being funneled through a fan and escaping, that you're just capturing this waste heat and heating up your pipe racks.

MS. THOMAS: Yeah, we'll include that in our discussion we have before the next meeting for sure and bring back to the meeting I guess our views, our thoughts on how to do it.

UNIDENTIFIED MALE: So when.....

MS. CASTANO: When is.....

UNIDENTIFIED MALE: .....when is it?

MS. EDWARDS: So when do you guys.....

UNIDENTIFIED MALE: Good question.

MS. EDWARDS: Yeah, I was going to say when do you guys want to get together again. It's at -- it's what, August 22nd now. So.....

MR. BARRON: Kind of put this on a four week calendar?

MR. THOMAS: Yeah.

MS. EDWARDS: Four weeks out would be the 19th.

MR. BARRON: That'll work.

UNIDENTIFIED MALE: Yeah. That's -- Thursday's the 19th?

MS. EDWARDS: Thursday's the 19th.

MR. BARRON: Oh, 19th?

UNIDENTIFIED FEMALE: Yeah.

MR. THOMAS: So let me write that -- I'll.....

UNIDENTIFIED MALE: Of what date?

MS. CASTANO: I'll probably be.....

MS. EDWARDS: September.

MS. CASTANO: .....on the Slope, but maybe I can call in for part of that.

MS. EDWARDS: Is there a different day that would work better for you.....

MS. CASTANO: Let's see.

MS. EDWARDS: .....that week? How much time do we need to pull things together I guess is the real question.

MR. THOMAS: That's enough time for (indiscernible).

UNIDENTIFIED MALE: (Indiscernible) question is, is four weeks adequate for you?

MR. THOMAS: To come up with a concept I believe so, yeah.

MS. EDWARDS: What else -- besides the concept is there anything else that we would want to have at that next meeting?

MR. MUNGER: Do you know -- you know, one of the things that I brought up before, do you think discussions with the EPA between the State would be (indiscernible) here or not at this time?

MR. BARRON: Well, I think we need to wait to see what the proposal is to give us the framework to talk to EPA about it.

MR. MUNGER: Okay.

UNIDENTIFIED MALE: I would think so.

MR. BROWER: I just wanted to say, you know, September 19th, for me it's problematic. I -- it's -- I don't know that

I'm going to have an alternate at that time yet too. I need to work on that. I'm.....

MS. EDWARDS: So is there a time that's better for the two of you?

MS. CASTANO: We probably will have an AOGA person here anyway, so I can just listen. So it's not critical for me. I'd like to be here, but if it's.....

UNIDENTIFIED MALE: What about the following week?

MS. EDWARDS: Yeah, I was going to say what about the week of the 23rd? And it doesn't have to be the Thursday. We could pick a different day of the week.....

MS. CASTANO: Okay.

MS. EDWARDS: .....if we want to too, so.

MR. BROWER: Well, you know, there's different things I can do. I mean they pick me up for my -- the thing is I go to my camp.

MS. EDWARDS: Oh.

MR. BROWER: It's 70 miles outside of Barrow in MPRE and I'm there for about 30 days fishing, caribouing for my community.

MR. THOMAS: Is that the whole month of September or is it.....

MR. BROWER: It's about September 13 to about October 10. Yeah, until the fish runs are over and the caribou (indiscernible).

MS. EDWARDS: So.....

MR. BROWER: But they've done things before. You know, the planning commission has requested they pick me up, they pick me up with a chopper and (indiscernible).

UNIDENTIFIED MALE: Can't get away from them.

MR. BROWER: And then they drop me back off, so.

MS. EDWARDS: What about the -- do you guys want to wait till mid October, you think that's too long?

MR. BARRON: I think that's too long.

UNIDENTIFIED MALE: Yeah.

MR. BARRON: .....And I think that, you know, the goal.....

UNIDENTIFIED FEMALE: Might be.

MR. BARRON: .....the original goal of the group was to try and get something place by the end of the year.

MR. THOMAS: What if we.....

MR. BARRON: And I'm just concerned that I mean.....

MR. THOMAS: It's aggressive, but I think we could probably do it before the 13th.

UNIDENTIFIED MALE: The 12th? The Thursday?

I mean the burden is on you guys. All right? I mean if you're going to step up that's great, but, you know, I mean we got to think that one through.

MS. EDWARDS: What's your schedule like?

MR. KUTERBACH: I don't know for certain. I'll have to

check, but.....

UNIDENTIFIED MALE: You said the 13th of September?

MS. EDWARDS: Well, the 13th of September's a Friday.

MR. BROWER: You know, I'm usually getting.....

UNIDENTIFIED MALE: .....

MR. BROWER: .....by -- just before freeze-up and I get frozen up at my camp.

MS. EDWARDS: I mean that's only two weeks out. I.....

UNIDENTIFIED MALE: Yeah.

MS. CASTANO: Maybe a little too short, yeah.

MS. EDWARDS: .....that's too short. We can't even notice a meeting that quickly I don't think.

UNIDENTIFIED MALE: I can't possibly (indiscernible).

UNIDENTIFIED MALE: (Indiscernible) public standpoint.

MS. EDWARDS: Well, maybe we should just go ahead and look at either the week of the -- you know, the 19th -- you know, around the 19th or the following week perhaps.

MR. BARRON: Let's try and set it up for the week of the 19th and then, Gordon, maybe you and I can try and figure out something or we can have somebody that -- from -- you know, come in on your stead or somebody on the phone call. Maybe we can -- somebody from Barrow can call you or.....

MR. BROWER: I do bring a satellite phone, so I'm always on. I bring my own satellite phone.

MR. TURNER: So, Gordon, respecting absolutely need to go

get fish and we understand, is there a way to -- is the fish run usually over with the first week of October if it was delayed a little bit? It is absolutely.....

MR. BROWER: That's something I don't control. Mother nature (indiscernible).

UNIDENTIFIED MALE: (Indiscernible).

MR. BROWER: September (indiscernible) we've got to have nets under the ice.

UNIDENTIFIED MALE: Okay.

MR. BROWER: Between September 13 and about October 1, caribou in their prime.

UNIDENTIFIED MALE: Right.

MR. BROWER: And then I switch over from caribouing to putting nets under the ice when they start to spawn. And I don't just fish for myself. I fish so much that I'm hauling my catch in November, December, January with snow machines back to Barrow and people are coming to get it. It's just my family's been doing that for 100 years.....

MS. EDWARDS: What.....

MR. BROWER: .....and that's just part of the culture.

MS. EDWARDS: What if we delayed the meeting of the workgroup, but we got a smaller group. So you conceptually pull something together and then maybe we get a smaller group together so that then we could maybe go and have a discussion with our contact at EPA about conceptually what you're thinking

and then we have a -- wait a little bit till Gordon can be back for the next full meeting. But maybe have some sort of a subgroup that's working this a little bit in between.

MR. BARRON: Yeah, I -- that would be fine. I mean I just.....

MS. CASTANO: I'm okay with that.

MR. BARRON: I mean, again, I'm not trying to mash the accelerator. I'm just being -- trying to be true to the original scope of the team.

MS. EDWARDS: No, and I understand. I think we need to keep things moving, but if -- say it took you a couple weeks to formulate a concept and then if you'd be willing to share that by email with the group or you felt comfortable with it going on the web, whatever.

UNIDENTIFIED MALE: Right. Right.

MS. EDWARDS: We could post it and then maybe the -- maybe a smaller group, folks from our shop and, you know, we can.....

UNIDENTIFIED MALE: Sure. We could have a critiquing, yeah.

MS. EDWARDS: .....take a look at it and then maybe start having some initial directional dialogue with EPA and then maybe come back a little later with our full meeting and have a little more information.

MR. BARRON: Sure. I could go with that. Yeah, that's fine.

MR. WEDIN: I'm fine with that.

MS. EDWARDS: Okay. So why don't we -- all right. Not to put too fine a point on this, let's say -- so if by the -- let's say by the 19th, Brad, maybe we can set up a -- you know, we can share something on conceptually what you guys are thinking.

UNIDENTIFIED MALE: Is it time for us to go?

UNIDENTIFIED FEMALE: We are closing up. So could I talk to Tom?

UNIDENTIFIED MALE: Me.

MS. EDWARDS: And then, you know, perhaps if that can get emailed around then people can add some input, we can maybe have some initial discussion with EPA directionally on it and then maybe try and then schedule a meeting and -- you know, a couple weeks into October so that Gordon has a better shot of.....

UNIDENTIFIED MALE: No, I think that's fine.

MS. EDWARDS: .....participating.

UNIDENTIFIED FEMALE: That works.

UNIDENTIFIED MALE: We better wrap it up. We're going to get locked in.

UNIDENTIFIED FEMALE: Oh, wow.

THE REPORTER: I got to break down still.

UNIDENTIFIED MALE: Yeah.

MR. BROWER: In the meantime I'll try to get an alternate as well.

MS. EDWARDS: Okay.

UNIDENTIFIED MALE: Okay. That'd be good.

MS. EDWARDS: So why don't we -- and Gordon, did you say that you're usually off -- or back in around the 10th?

MR. BROWER: Yeah.

MS. EDWARDS: So maybe we can look at the week of the 14th for a meeting.....

UNIDENTIFIED MALE: Okay.

MS. EDWARDS: .....of this group again. And in the meantime we can work off -- sort of offline amongst ourselves and try and share some ideas and get some more input so that we have some direction of the -- you know, have a little more information at the next.....

MR. THOMAS: Okay.

MS. EDWARDS: .....next meeting.

MS. CASTANO: The plan.

MR. THOMAS: Very good.

UNIDENTIFIED MALE: Agree.

MR. THOMAS: Good meeting.

UNIDENTIFIED MALE: Yeah, very good meeting. Thanks everybody.

MS. EDWARDS: Thanks everybody for taking the time.

THE REPORTER: Okay. We're off the record at 4:59.

(Off record at 12:32 p.m.)

TRANSCRIBER'S CERTIFICATE

I, Nicolette Hernandez, hereby certify that the foregoing pages numbered 2 through 159 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 August 22, 2013, 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