June 27, 2013

Meeting Notes Summary – Workgroup for Global Air Permit Policy Development for Temporary Oil and Gas Drill Rigs

Date of Meeting: Wednesday, June 26, 2013

Time of Meeting: 1:30 – 15:45

Location of Meeting: Room 1270, Robert A. Atwood Building, 550 7th Ave., Anchorage, AK 99501

Workgroup for Global Air Permit Policy Development for Temporary Oil and Gas Drill Rigs (Workgroup) Members: Alice Edwards, Director, Alaska Department of Environmental Conservation / Division of Air Quality (ADEC/AQ), William Barron, Director, Alaska Department of Natural Resources/ Division of Oil and Gas (ADNR/DOG), John Kuterbach, ADEC/AQ, Jim Shine, Special Project Assistant, ADNR/ Commissioner's Office, Gordon Brower, Deputy Director, North Slope Borough (NSB) Planning Department, Brad Thomas, ConocoPhillips (CPAI) and Alaska Support Industry Alliance (ASIA), Nikki Martin, Alaska Oil and Gas Association(AOGA), Mike Munger, Executive Director, Cook inlet Regional Citizen's Advisory Council (CIRCAC), John Boyle III, Advisor to the NSB Mayor (alternate for Mr. Brower), Randall Kanady, CPAI (alternate for Mr. Thomas)

Meeting Facilitator: Tom Turner, ADEC/AQ

Public members present in person: Wally Evans, Hilcorp Energy (Hilcorp), Bill Britt, Hilcorp, Tim Burke, Arctic Slope Regional Corporation (ASRC), Erin Strang, Environmental Resources Management (ERM), Matt Narus, Jacobs Engineering (Jacobs), Andrea Canfield, Stoel Rives LLP, Matt Cohen, Stoel Rives LLP, Sara Longan, ADNR/Large Project Manager, Office of Project Management and Permitting (OPMP), Sally Ryan, Caudro Energy, John Pavitt, US Department of Environmental Protection (USEPA), Kate Kaufman, Hilcorp, Portia Babcock, CPAI, Jeanne Swartz, ADEC/AQ

Public members present by telephone: Eric Fierson, Caterpillar, Inc. (Caterpillar), Marta Czarnezki, Apache Corporation (Apache), Alejandra Castaño, BP Exploration Alaska (BPXA)(alternate for Ms. Martin), Tom Damiana, AECOM, Ann Mason, SLR Consulting (SLR), James Halloran, Caterpillar

Tom Turner provided all Workgroup members and alternates with a notebook (binder) titled *Workgroup for Global Air Permit Policy Development for Temporary Oil and Gas Drill Rigs*, containing hard copies of contact information for the Workgroup members, summary of the June 4, 2013 meeting, slides of presentations shown at today's (June 26, 2013) meeting, definitions of terms used in air quality permitting, the Clean Air Act (CAA), Title 42, Chapter 85, Subchapter 1, Part A, citations from the U. S. Code of Federal Regulations (CFR) – 40 CFR Ch. I (7-1-12 Edition); §50.1(e), §51.105, §51.112(a), §51.160(a)-(f), §51.166(f), §52.21(c), §71.2, §71.6(a), Alaska regulations and statutes covering drilling rig permits; AS 46.14.130, AS.46.14.190 and 18 AAC 50.502(c), 18 AAC 50.010, 18 AAC 50.020- Table 3 , 18 AAC 50.540(c), 18 AAC 50.990(107), and 18 AAC 50.215(b).

1) Introductions

The meeting commenced at 1:31. Alice Edwards welcomed all the participants and asked for introductions, first from the Workgroup members, then from the participants present in the meeting, and finally from the participants joining the meeting by telephone. Alice Edwards then stated that the purpose of the meeting was to present technical, baseline information so that everyone has the same understanding of the requirements of the permitting process as well as the issues raised about the permits by industry.

Action Items Generated From Introductions:

No Action Items

2) Agenda Check and Approval of June 4 Meeting Summary

Alice Edwards asked the Workgroup members for an agenda check and if there were any questions or correction to the June 4, 2013 meeting summary. The agenda check request received no response, so Alice Edwards moved forward. There were two remarks about the June 4, 2013 meeting summary. First John Kuterbach clarified a statement reported in the meeting summary. He clarified that the Clean Air Act did not designate drill rigs as mobile units. . Eric Fierson said that his name was misspelled in the meeting summary.

Action Items Generated From Opening Remarks:

- **June 4, 2013 Meeting summary clarification – drilling rigs of the type at issue in the Workgroup meetings are not mobile sources as the Clean Air Act defines mobile sources.**
- **The spelling of Eric Fierson's name has been corrected on the June 26, 2013 meeting summary**

3) DEC Presentation with Q & A Discussion

Prior to starting the presentation, a few points of order were raised. First, Bill Barron requested that, in the interest of time and efficiency, any questions raised should be specific to the topic of the presentation and should not try to initiate an in-depth analysis. Bill Barron and Brad Thomas discussed whether questions about the presentations should be held to the end or asked during the presentation. The group generally agreed that questions should be raised during the presentation and not held to the end. The group also agreed to accept questions from observers attending the meeting.

John Kuterbach began his presentation, "Air Quality Considerations for Drilling Operations", at 13:43.

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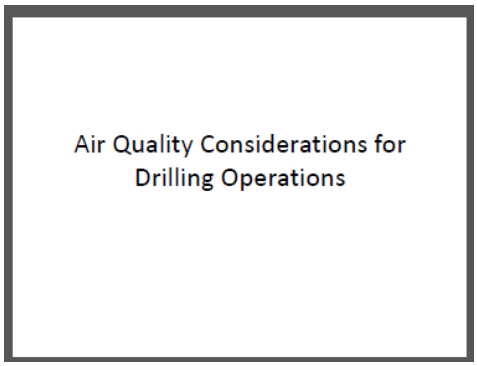
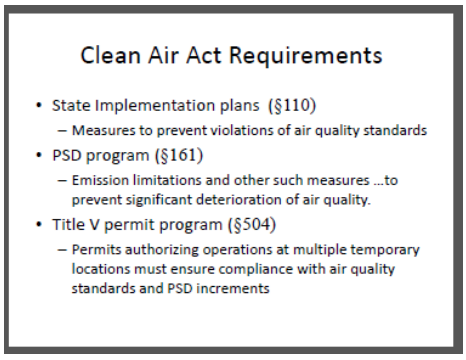
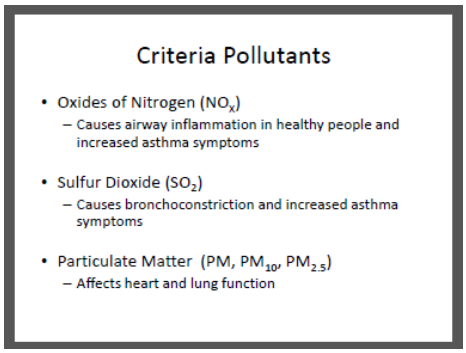
(In this meeting summary, screen shots of the slides of both presentations will be inserted into the text with discussions and commentary described beneath the image of the slide. Slides that received no comments are not shown in this summary.)



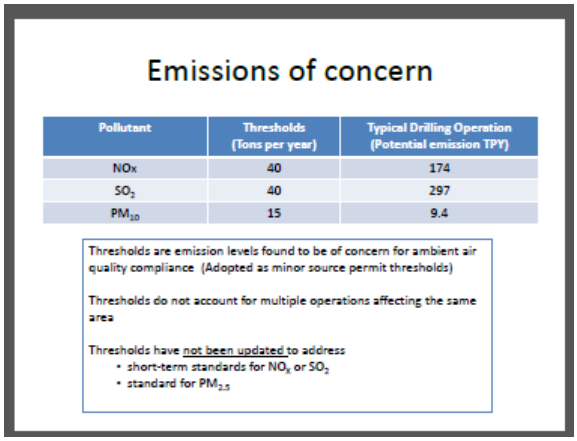
John started his presentation with the remark that ADEC implements responsibilities required by the CAA and that he intended to present enough information for the Workgroup members to understand the constraints placed on ADEC Air Quality permitting. Brad Thomas asked whether drill rigs were culled out to be regulatedby the CAA. John responded with the answer that there is nothing in the CAA that specifically requires ADEC to regulate drill rigs, but there is a requirement that ADEC protect air quality standards.



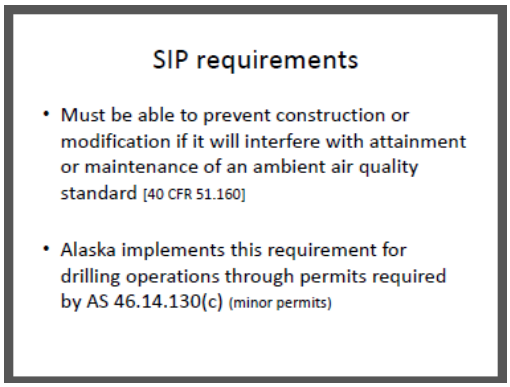
John clarified his second bullet point on this slide by stating that the PSD program prevents significant deterioration of air quality by more than a certain increment



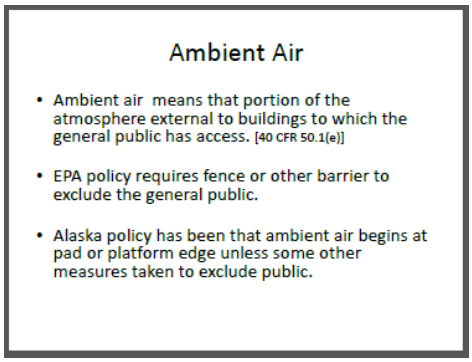
John clarified the point that criteria pollutants of concern for drilling operations are generally products of combustion and do not include hazardous air pollutants such as mercury or arsenic. He said that Particulate Matter is regulated under several standards and that the greatest health concern is for the particulates of 2.5 microns size because these particles can travel deep into lung tissue. Brad Thomas asked if the criteria pollutants listed in this slide are of concern to drill rigs. John answered in the affirmative and noted that there are other criteria pollutants not listed on the slide.



John stated that this slide, Emissions of Concern, illustrates why ADEC is concerned about drilling operations' emissions. The thresholds levels are calculated by modeling and that the identifier, "threshold", means that the levels and emissions greater than the threshold levels have a potentially harmful effect. John noted thatADEC has not yet updated the thresholds to address new federal standards. Matt Cohen asked what were the consequences of exceeding the thresholds and John responded that the thresholds were the amount of emissions which required a closer look for compliance with air quality standards, and were not being presented as regulatory thresholds. Randy Kanady asked what size drill rig would produce the emissions shown on this slide and John said that it was a typical North Slope drill rig operating at maximum capacity.

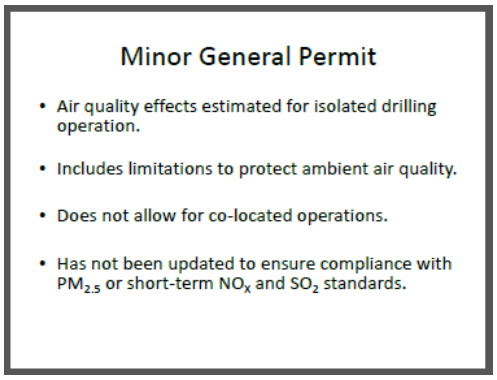


John said that this slide defines State Implementation Plan (SIP) requirements.

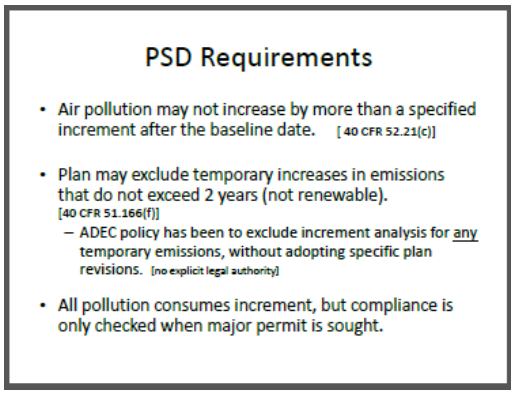


John provided more information on the third bullet point on this slide that Alaska policy is a little more flexible in terms of boundaries, since fence line boundaries are not as obvious as they are in some states. The fence line determination may extend beyond the boundary of the pad or facility if the public has been excluded. Bill Barron asked whether workers or employees were considered to be members of the public. John said that employees of the owner/operator of a permitted source were not considered to be the general public, but employees of other companies were considered to be members of the public. Alice Edwards asked if a specific example would provide clarification of this point and then John spoke about a case where a BP source had an exclusion zone outside the facility boundary, but through signage and positive action designed to exclude the public, was allowed to use the enlarged boundary designation.

John said that generic modeling is used for the general permits and that anyone can use the Minor General permit if they meet the qualifications.

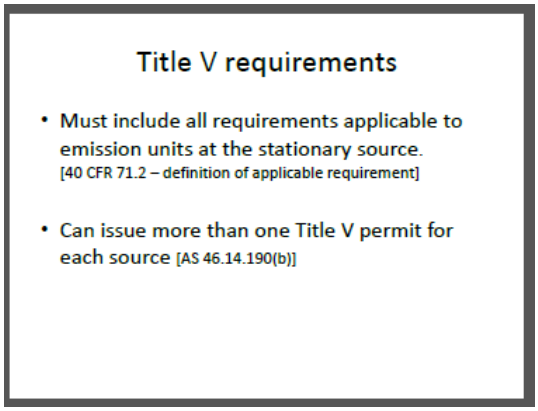


John said that the Minor General Permits are mostly used for exploration operations and that isolated drilling operations are considered isolated in the sense that they have no other sources nearby affecting air quality.

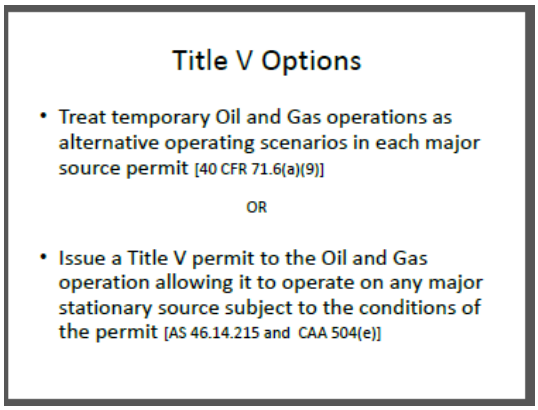


John stated that in order to keep air pollution from not increasing more than a specified increment after the baseline date (first bullet point on this slide), it is necessary to have a plan to achieve this goal. To

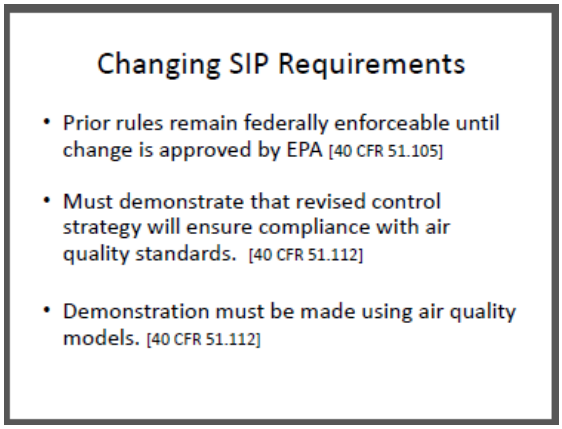
further illustrate the third bullet point on this slide, John said that in some states unregulated sources consume all of the increment and that when a major permit application is made at a later date, the major source must find reductions they can guarantee in other sources before the permit can be approved. On the point that ADEC's policy has been to exclude temporary emissions from increment analysis (second bullet point on this slide), Brad Thomas said that there are still a long list of federal regulations that operators must adhere to



John said that prior to 2003, the state's management of increment was more stringent than the federal rules required because it required minor permits to show compliance with increment. In 2003 the state reverted to the federal program which only requires major sources to check for increment compliance , even though all sources consume increment. Gordon Brower asked a question about whether increment regulations were applied to manufacturers of engines. John said that the regulations only covered how the engines were operated, not how they were constructed. John said that this was not an emission limitation, but a target for limiting the impact of the source on ambient air. A conversation ensued comparing the classifications of on-road sources and mobile sources. Brad Thomas asked for further clarification on the point that are considered to be mobile sources for the benefit of the Workgroup members. Alice Edwards said that they were if they move around. A question was raised about whether equipment transported by mobile sources can be considered to be stationary sources and, again, Alice said that they can be stationary. She illustrated her point with the example that drill rigs' non-road engines can be mobile sources but a drill rig may carry heaters and boilers, which are considered to be stationary sources.



John said that temporary Oil and Gas operations generally are not big enough for Title V permits on their own, because mobile source emissions are not counted towards their potential to emit. He said there is more than one way to handle a temporary Oil and Gas operation under an existing Title V permit for the operator. An existing Title V permit can include provisions to allow for the emissions of the temporary operation or the temporary Oil and Gas operation can be issued its own permit. John gave an example where Company ABC has a stationary source with a Title V permit and when another unit is brought on site, the permit must be extended to include the new unit.



John made the point that if the state stops issuing air quality permits, the USEPA can enforce the requirement to have a permit since the permit requirement is still a part of the federally approved SIP. John expanded on the second bullet point on this slide, stating that there has been some effort at USEPA to include monitoring instead of modeling, as is done in the state of Wyoming. The State of Wyoming uses a network of monitors for permitting mining operations. Unlike Wyoming, monitoring is in Alaska is conducted at a single point, which may not always be the best place to detect all of the emissions, so USEPA wants both modeling and monitoring in these cases.

John concluded his presentation at 14:27.

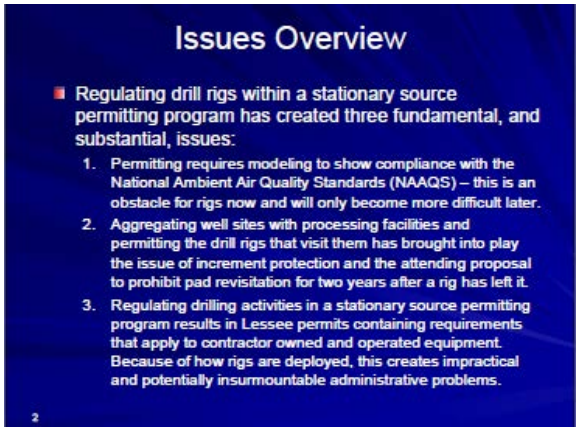
Action Item Generated From DEC Presentation with Q&A Discussion:

- **ADEC staff will research how drill rigs are permitted in the state of California and how monitoring and/ or modeling is used in permitting Oil and Gas operations in the state of Wyoming and bring this information to a future Workgroup meeting**

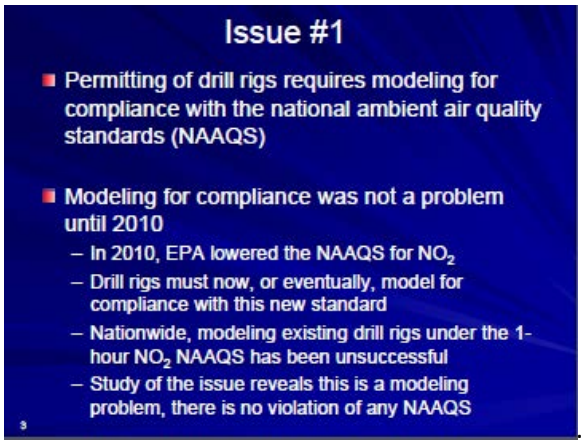
Alice Edwards said that the presentation finished early, according to the agenda, so she checked with the group and they determined to proceed with the second presentation before a break.

4) AOGA/ASIA Presentation with Q & A Discussion

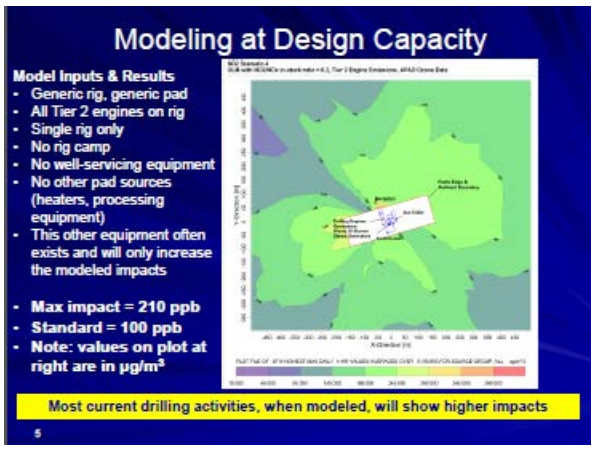
Brad Thomas began his presentation, "Drill Rig Permitting: The Issues", at 14:27.



On Point 1 presented in this slide, Brad stated the 1-hour NO_2 standard was causing particular problems; that their modeling could not show any way for a rig to operate and also to comply with this standard. On Point 2 presented in this slide, when a drill rig has to stay away from the pad for 24 months, it is a very big deal. On Point 3 presented in this slide, Brad said that Title V permits have to cover all equipment, that the Lessee has to ensure compliance with the permit for the time period covered by the permit, even when the rig is not operating on the Lessee's fields, where the Lessee can't control the maintenance or record-keeping.



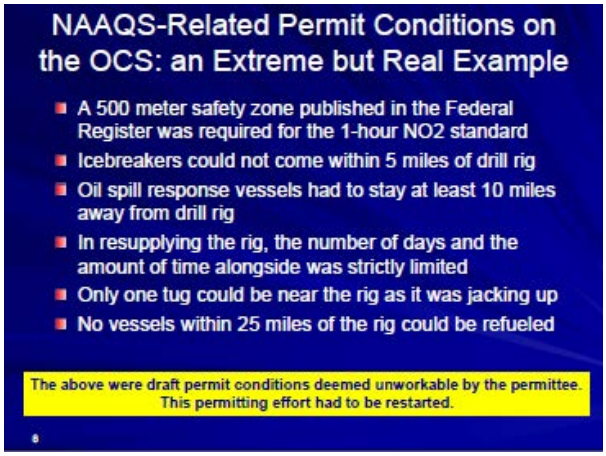
Brad said that the NO_2 standard was their biggest problem. The SO_2 standard was achievable after Ultra Low Sulfur Diesel (ULSD) was used as a fuel, and so far, the PM standards were not a problem. Bill Barron asked if model accuracy was part of the problem and Brad said that changing EPA's modeling algorithms might be beyond the scope of this committee. John Kuterbach asked if the models were run with operating restrictions applied and if that was the case, did the models still show that the drill rigs did not meet the standard, and Brad answered that the models did not include operating restrictions when they were run.



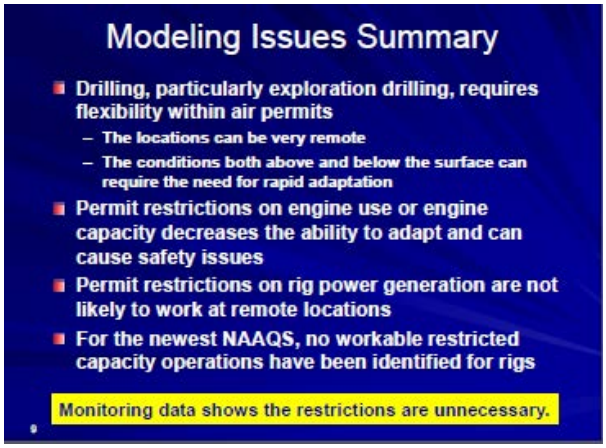
Brad said that to the issue of the second bullet point on this slide, the scenario includes all Tier 2 engines on the rig emitting NO_X. Randy Kanady said that, as operators, trying to reduce the size of the footprint of the drilling pads has had a compounding effect of being out of compliance with the 1-hour NO_2 standard at the gravel's edge. John Kuterbach asked how far outside the area shown on the slide would compliance be met and Tom Damiana responded that it would be beyond the area of the plot shown in the slide; about 600 meter radius. Randy said a drill rig as shown in the slide presented would be typically located in a very remote location. John asked if the public was prohibited from entering this

space. Randy replied that access was limited, except in winter. Bill Barron asked if there were workers present not under contract to or employees of the owner and also if there were government employees present. Randy answered that, typically, there were non-employees present during drilling operations. Gordon Brower asked if transient people were considered to be part of the public and Randy answered in the affirmative. Randy also said that transient ("transient" in this instance describes people who are not employees or contractors of the Permittee; ie, the general public) people were excluded from the immediate area due to safety reasons. John said that, regardless of distance from communities, ambient air quality needs to be protected.

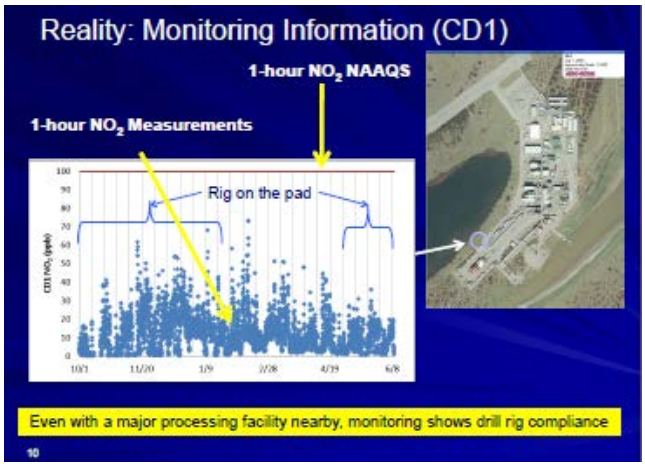
(Mike Munger arrived at 14:47)



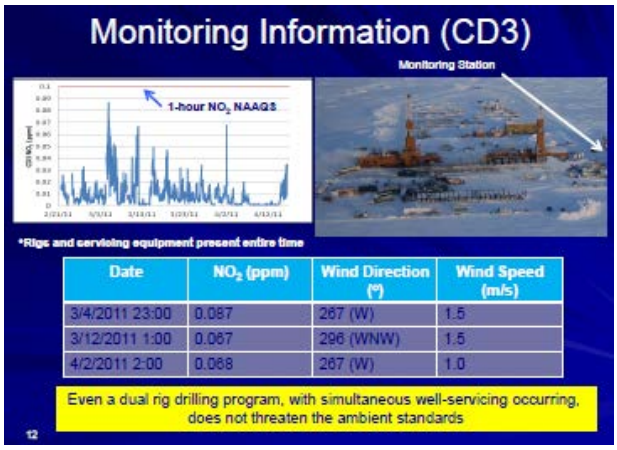
John Kuterbach said that Shell Oil Company (Shell) was able to get an air quality permit with the restrictions similar to those shown on this slide. Bill Barron said that there may be unintended consequences of such restrictions; personnel safety or oil spill response might be compromised if work boats cannot operate near the rigs.



John Kuterbach asked if there are any technology improvements that would make air quality standards easier to meet and Brad answered that there was no improvement going from"Tier Zero" equipment (equipment manufactured before Tier standards from EPA were set) and Tier 2 engines, in the sense that it would not solve the modeling problem. Bradsaid that there might be a solution in operating Tier 4 engines, but it would take time to switch to the Tier 4 engines.

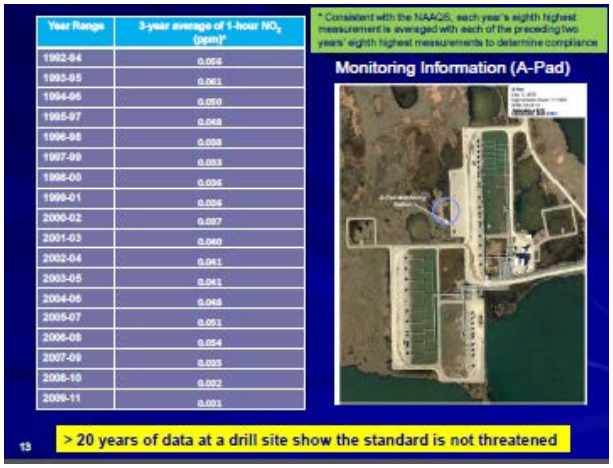


John Kuterbach asked if the monitoring data shown was PSD-quality data and Randy Kanady answered him in the affirmative. Alice Edwards asked where the maximum (emission) zone was located and Randy said it was on the location of the monitoring station in mid-January. Gordon Brower asked, in the discussion of modeling vs. monitoring, what was the height of the monitoring station's air intake. Randy said it was 10 feet off the ground. John asked if the engines were operating when the rig was on the pad. Randy said that yes, there were heaters and boilers and more than one generator (gen) sets operating.

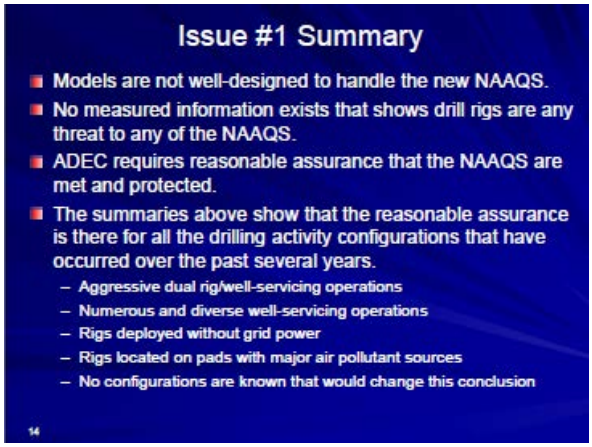


Brad explained that to exceedthe statistical standard, the NO_2 level, measured hourly 8,760 times per year, had to register eight times in one year over the 1-hour NO_2 NAAQS, indicated in this slide by the

vertical red line at the top of the graph. Brad added that the operation shown was of an aggressive drilling program. Mike Munger asked which direction the wind was blowing. Randy Kanady responded that the wind was blowing from the west, across the rig at the monitoring station. Randy said that there were bimodal wind patterns. ,. Bill Barron asked that in the next presentation, if it would be possible to show the model results superimposed on the plot. Tom Damiana said that in a contour plot with the 1-hour NO_2 standard, the high point could be anywhere.

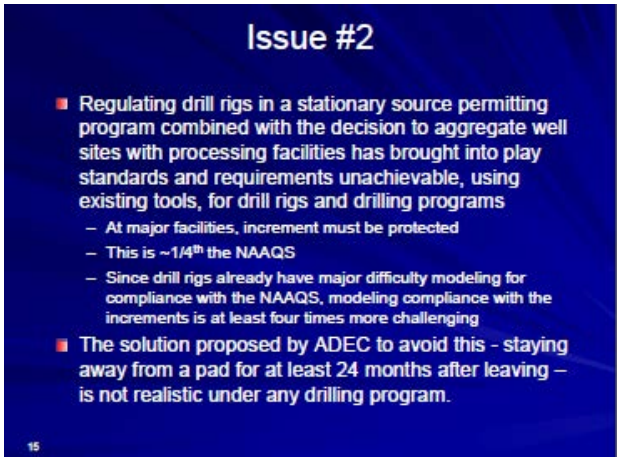


Brad explained that this slide shows a long-term dataset where the 3-year average of 1-hour NO_2 emissions are around half of that allowed by the standard. Alejandra Castaño said that when drill rigs are present they are not equipped with highline power. John Kuterbach asked if, for all the results shown, were the rigs operating according to current laws?

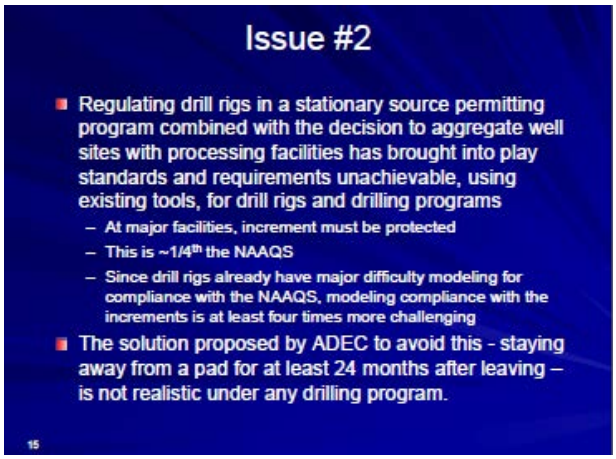


Alice Edwards asked if the monitoring was performed, using permit restrictions in place, and whether the equipment was operating at the levels of Potential to Emit (PTE) which is what was modeled in the scenarios for permitting. John Kuterbach asked if the drill rigs were operating less than the maximum

level. Randy Kanady said that for short terms, the drill rigs were operating at their maximum, but the rest of the time, they were operating below the maximum.



John Kuterbach remarked that it is actual emissions that affect increment.



A discussion arose when this slide was shown about whether permits are site-specific and whether Permittees are required to oversee permitted equipment after it is offsite. Alejandra Castaño said that the Permittee has to provide some records spanning the time when the equipment was out of the Permittee's control. Bill Barron said that this issue should be noted for further discussion.

Brad concluded his presentation at 15:15.

BREAK FOR 15 MINUTES

(Meeting resumed at 15:26)

Alice Edwards asked if anyone had any further discussion on the presentation. Bill Barron said that Slide 13 of the AOGA/ASIA presentation should be annotated with footnotes describing how the 3-year averages of the 1-hour NO_2 are calculated.

Action Items Generated From AOGA/ASIA Presentation with Q&A Discussion:

- **AOGA/ASIA will show an illustration with a modeling the CD3 operation's actural emissions as a comparison to the monitoring station's readings superimposed on a photograph of a drill site where a monitoring station has been set up, as in Slide 12 of the AOGA/ASIA presentation.**
- **Further information from AOGA-ASIA and/ or ADEC will present information about site-specificity of permits, particularly as regard to information/records on equipment needed to satisfy the permit when the equipment is out of control of the Permittee.**
- **AOGA/ASIA will add a footnote to Slide 13 of their presentation with a footnote describing how the 3-year averages of 1-hour NO_2 are calculated**

5) Discuss Next Meeting (July 9) and Action Items

Alice Edwards said that today's meeting was intended to give all of the Workgroup members and interested public a similar base of knowledge and that for the next meeting on July 9, the Workgroup members should formulate a goal or purpose of the group. Bill Britt asked general question about which air permitting rules are federal standards and which are state rulemaking. Bill said it was difficult to tell where workarounds could be looked at. Bill Barron agreed with this question and asked the general question about what is within our purview to change. Matt Narus asked about flexibility in other states' SIPs, in particular, those in Wyoming. Nikki Martin agreed with Matt's question. Alice said that it would not be possible to get this kind of information on all states' SIPs in two weeks. There ensued a general discussion about the boundaries seen in private property compared to boundaries in Alaska. Bill Barron said it should be an action item to compare Alaska with other states. Gordon Brower said that it would be important to make comparisons to states with similar geographic features and also to look into what European states do; to look at other ways of doing things. Bill Barron agreed with Gordon and said that other types of modeling could be investigated. Matt Cohen said we could create some flexibility in ambient air exclusion zones and that there are policy reasons not to require fences. John Kuterbach said that we had to be mindful of what USEPA would let through.

Gordon Brower raised a question on the meaning of Tier engines and Brad Thomas explained that Tier Zero engines were manufactured before the Tier system began. Gordon said we should look into state credits for incentives in this area, considering the Roads to Resources was proposed as a realistic solution to development.

Alice Edwards asked if industry could purchase other Tier engines that would make it easier to meet the 1-hour NO_2 standard. Eric Fierson said EPA has a flexibility program that extends for seven years, with a cap on how many new engines can replace older engines each year. Randy Kanady said that Tier Zero engines are used on the North Slope, their usability depends on the time on the engine and it is also rig dependent. John Kuterbach asked if, when Tier Zero engines are replaced, were they were replaced with Tier 2 engines and Randy answered in the affirmative. Brad Thomas said that ambient air quality has only improved over time.

Alice Edwards proposed that the group consider setting up/formatting the goal(s) in a manner that the workgroup will provide recommendations on ways to address the issues, then listing out the issues and the bounding criteria that would need to be addressed to have a successful solution for each item. Bill Barron said that Workgroup members should each bring problems to solve to the table. Brad Thomas agreed, and said members should identify criteria and propose solutions. The Workgroup members agreed that there was a need to move forward with the Workgroup's agenda. Sara Longan said that it might be a good idea to include The US Department of Interior's Bureau of Ocean Energy Management (BOEM) to attend the meetings.

1) **Action Items Generated From Discuss Next Meeting (July 9) and Action Items**

- **ADEC will arrange for transcriptionist for the meeting**
- **ADEC will invite a representative from BOEM to attend the meetings**
- **Workgroup members will prepare a statement of a goal or purpose of the Workgroup**
- **ADEC will provide an agenda for the July 9 meeting to the Workgroup members and interested parties and also post it to the website**

The meeting was adjourned at 15:52

Respectfully submitted,

Jeanne Swartz ADEC/AQ