

1 *Delaware Air Regulation Development*

2  
3 Regulation 1142 Section 2  
4 “Control of NOx Emissions from Large Boilers and Process Heaters  
5 At Petroleum Refineries”  
6  
7

8 **Committee Meeting #3 (June 21, 2006) Minutes**  
9 **(Approved by the committee on July 19, 2006)**

10  
11 **1. Committee members present**

12  
13 John Deemer, Premcor’s Delaware City Refinery  
14 Kevin Stewart, American Lung Association  
15 Pete Jacoby, Power Tech Solution  
16 Taras Lewus, Environmental Resources Management  
17 Alan Muller, Green Delaware  
18 Jerry Llewellyn, DHSS  
19 Rick Perkins, DHSS  
20 Ron Amirikian, AQM  
21 Ravi Rangan, AQM  
22 Bill Harris, AQM  
23 Mark Lutrzykowski, AQM  
24 Frank Gao, AQM  
25

26 **2. Meeting Minutes**

27  
28 Frank Gao opened the meeting at 10:05 AM, and all committee members made self-  
29 introductions.

30  
31 The committee first discussed the process to be followed for making meeting minutes  
32 available to the work group. Frank briefly reviewed the discussion on the second meeting  
33 minutes. Frank proposed a process for the committee’s consideration. After discussion,  
34 the committee agreed that (1) after a committee meeting, AQM will develop the first  
35 draft of meeting minutes in 7 days, and distribute it among the committee members, (2)  
36 all committee members will provide for comments and inputs in the next 7 days, (3) if  
37 necessary, the same process will repeat, and the minutes will be labeled “the first draft”,  
38 “the second draft”, etc., and all drafts will not be posted in DRENC website, (4) at the  
39 beginning of the next meeting, the committee will discuss the final “draft”, and amend it  
40 if necessary, then approve it. The committee agrees that the approved version the meeting  
41 minutes should be the most accurate version, and therefore should be the one to be on  
42 record and posted in DNREC website for public access.

43  
44 The second agenda item was to discuss and approve the second meeting minutes. The  
45 committee approved the minutes without further discussion.  
46

1 Next, follow-up issues resulting from the second meeting were discussed. For Valero,  
2 there were 3 issues: (1) better control options between burner replacement and stack  
3 control, (2) \$/ton reduction information for ULNB, SCR and SNCR, and (3) feasibility of  
4 controlling different units with different limits to average all units to 0.04 lb/mmBTU  
5 limit. John Deemer reported that there was no new information for (1) and (2) available  
6 for discussion. For (3), John mentioned that, though no new information, Valero may  
7 support the option of installing different controls on different units, based on availability  
8 and feasibility of control technology, to average an overall 0.04 lb/mmBTU level.

9  
10 After hearing John's statement, Alan alleged Valero was not representing itself in good-  
11 faith since it should have known for over 2 months that the committee would need the  
12 above (1), (2) and (3) information by this meeting. John replied that although he has  
13 submitted a request to Valero's engineering department after the second committee  
14 meeting, the information sought would not be provided until it has been reviewed and  
15 approved by its management.

16  
17 Regarding 0.04 lb/mmBTU rate, Alan asked if DNREC considered it as an appropriate  
18 limit for NOx control for refinery boilers. Ravi answered that 0.04 was adopted in the  
19 consent decree (CD) and represented a good start point for this rule, although it is  
20 possible there are better technologies available now. Alan mentioned that now around the  
21 country much lower limits were set, so the 0.04 worked as a "default" number. Ravi  
22 continued by pointing out that those units (at Valero) were not new sources but retrofits.  
23 In striking a balance between achieving the desired control at a reasonable cost 0.04  
24 lb/mmBtu represents a feasible and dependable benchmark as indicated by many CD  
25 cases in the country. Kevin said that in the first committee meeting we had discussed the  
26 issue and Ravi said the 0.04 was recommended in MARAMA's report. Ravi added that  
27 the information in MARAMA's report while still in draft form are consistent with the  
28 proposed level in this regulation. He also cited other state regulatory agencies regulations  
29 which range from 0.08 to 0.03, for both new and existing units. Alan still wanted to  
30 know if better new technology available beyond CD's 0.04 level. He said that a 0.03  
31 lb/mmBTU rate, average to all 10 units, seemed reasonable to him. Ravi said that  
32 MARAMA's report should have some cost information, but we haven't checked it yet.

33  
34 Along the above discussion, Alan asked if DNREC evaluated costs when developing  
35 regulations such as RACT and BACT. Ravi answered that BACT determinations are  
36 made on a case-by-case basis that evaluates the economic considerations that accompany  
37 a particular technology. Delaware's NOx RACT regulations, on the other hand was  
38 promulgated in 1993 and the RACT standards in Regulation 12 incorporated what was  
39 then considered reasonable. Additional and more up to date cost information are likely  
40 available from EPA's web RACT/BACT/LAER clearinghouse. We will review the  
41 clearinghouse for examples supporting the 0.04 limit proposed in this regulation..  
42 Regarding BACT, John mentioned that his impression from the first committee meeting  
43 was that we were not applying BACT in this regulation. He asked if this was right. Ravi  
44 answered that impression was right.

1 Pete Jacoby suggested that we should look at each individual unit for available and  
2 effective control and do cost evaluation. Ravi agreed and asked John to provide control  
3 and cost information for individual units. Ron stated that we put 0.04 in the proposal and  
4 we had rationale for it. It could be an average level for all units. John could provide  
5 reasons why it was too low and suggest another higher limit. On the other hand, we could  
6 provide supporting information showing 0.04 was too high and suggest a lower number.  
7 Kevin agreed and said we could consider new technology and cost-effectiveness to  
8 support, for example a 0.035 limit. John asked Ravi if MARAMA's 0.04 was based on  
9 cost-effectiveness. Ravi said "no" but numerous CDs around the country have control  
10 requirements consistent with this level of control demonstrating achievable and practical  
11 controls. Alan stated that at this point he did not have enough information to agree with  
12 and support the 0.04 limit. John mentioned that he put a cost evaluation request for  
13 Valero's engineering team, but they did not do it yet.

14  
15 During the course of the discussion, John asked what cost effectiveness was being  
16 applied to the rule for the EGUs. An AQM member (John's notes do not reflect whether  
17 it was Ron, Ravi or Frank) stated that the cost effectiveness that was being applied to the  
18 EGUs was between \$800 and \$5000 per ton NOx reduction.

19  
20 Some committee members asked if there were monitoring data available to show the  
21 current emission rates of the affected units. Mark Lutrzykowski reported to the  
22 committee that stack test data from the most recent relative accuracy test audits  
23 conducted on the affected units indicated the following NOx emissions rates:

24		
25	21-H-2:	0.121 lb/mmBtu
26	37-H-1 East & West:	0.097 lbs/mmBtu / 0.097 lbs/mmBtu
27	42-H-1,2,3:	0.093 lbs/mmBtu
28	80-1 Boiler #1:	0.132 lbs/mmBtu
29	80-2 Boiler #2:	0.031 lbs/mmBtu
30	80-3 Boiler #3:	0.112 lbs/mmBtu
31	80-4 Boiler #4:	0.150 lbs/mmBtu
32		

33 Rick Perkins expressed a concern about upwind states' transport of ozone and precursors  
34 to cause Delaware's ozone non-attainment problems. Ron explained that EPA  
35 implemented regional rules, OTC and other interstate organizations developed regional  
36 model rules, and CAA had Section 126 provisions. All those would help reduce impacts  
37 of transport. In addition, our modeling results showed that Delaware's own emissions  
38 could cause ozone violations for some days at some monitor sites.

39  
40 At this point, Frank summarized the discussion on control/cost, stating that (1) John did  
41 not have information for the issues left from the second committee meeting, but would  
42 have the information available in the next meeting; (2) AQM would prepare control and  
43 cost evaluation information to support an appropriate rate limit, with 0.04 lb/mmBTU as  
44 a starting point, and (3) Alan did not have enough information to agree with the 0.04  
45 limit, and he would provide control and cost information supporting a 0.03 limit in the  
46 next meeting.

1  
2 Next, Frank dealt with AQM's issues left from the second committee meeting. First, he  
3 explained how AQM estimated the 78.1 TPD NO<sub>x</sub> reduction required under the 8-hour  
4 ozone standard. Regarding the estimated emission growth rate of 2% per year, Kevin  
5 asked if the growth was "compounded". Frank explained that the growth rate was  
6 estimated based on our experience from 1990 to 2002, and simply counted on 2002  
7 emission level and not compounded. Ron further explained that this was the way we were  
8 required by CAA to do SIP planning and emission projection.

9  
10 Next issue for AQM was to estimate NO<sub>x</sub> emission reductions from individual source  
11 sectors. Frank showed to the committee that the estimated reduction from point source  
12 sector was 13 TPD, from area sources 11 TPD, from off-road mobile sector 14 TPD and  
13 from on-road mobile sector 19 TPD. One committee member asked if the reduction  
14 estimates were NO<sub>x</sub> only or NO<sub>x</sub> equivalent (i.e., with VOC reduction being converted to  
15 NO<sub>x</sub>). Frank replied that he was positive for NO<sub>x</sub> equivalent, but since he did the  
16 estimates a while ago, he would double check this after the meeting (the post-meeting  
17 check confirmed that the NO<sub>x</sub> numbers were NO<sub>x</sub> equivalent). With a total of 57 TPD  
18 reduction, Kevin figured out that Delaware had 21 TPD shortfall. Ron pointed out that  
19 the actual reduction would be bigger since the 78 TPD requirement was for 2002-2008  
20 rate-of-progress reduction, and we still had to achieve additional reduction for 2008-2010  
21 period for attaining the ozone standard in 2010. The whole committee agreed with Ron's  
22 comment.

23  
24 Next, Alan gave the committee a presentation concentrating on ozone effects on asthma  
25 in Delaware. He pointed out that ozone was a burden to Delawareans for asthma, and we  
26 should estimate contribution of ozone to asthma in Delaware. Jerry Llewellyn said he  
27 agreed with Alan, but it would be very hard to estimate such contribution. He said that we  
28 could certainly do more to reduce ozone level and its asthma and health impacts, and he  
29 would prefer to see 0 level of ozone. But in practice, it would be impossible to have a 0  
30 level.

31  
32 Next, Kevin gave a presentation, representing his organization, on ozone air pollution and  
33 health perspectives in Delaware. His main point was that ozone exacerbates Delaware's  
34 health problems. To support his statement, he provided rough annual estimates of adverse  
35 public health outcomes from ozone exposure in Delaware. Jerry agreed with Kevin's  
36 statement and pointed out that diseases in Delaware had other primary causes. He asked  
37 DNREC if air quality had been improved in the past decade. Ron answered yes, and said  
38 for example violations of the 1-hour ozone standard had dropped drastically. Kevin added  
39 that he learned that violations of the 8-hour ozone standard decreased as well. In addition,  
40 Kevin made a critical point that there is a significant body of evidence that the current 8-  
41 hour ozone standard is inadequate to protect public health, that the standard will be under  
42 review by EPA, and that the Lung Association will be advocating for strengthening the  
43 standard. Kevin pointed out that all those would support an approach by the Committee  
44 that anticipates Delaware's needs for more pollution reduction in the future.

1 The last agenda item was a reminder of the two future committee meetings. Frank  
2 reminded all committee members to reserve strictly the meeting dates (the July 19<sup>th</sup> for  
3 the fourth meeting, and the August 16<sup>th</sup> for the fifth meeting). He said that we postponed  
4 the process for a month already, and must not be postponed again. He reminded also that  
5 the major topic of the fourth meeting would be discussion of the regulatory language,  
6 especially the emission standards and related language. All committee members should  
7 review the proposed draft language again and provide comments. He would remind the  
8 committee members when sending out the meeting minutes next week.  
9  
10 The meeting adjourned at 12:30 PM.  
11