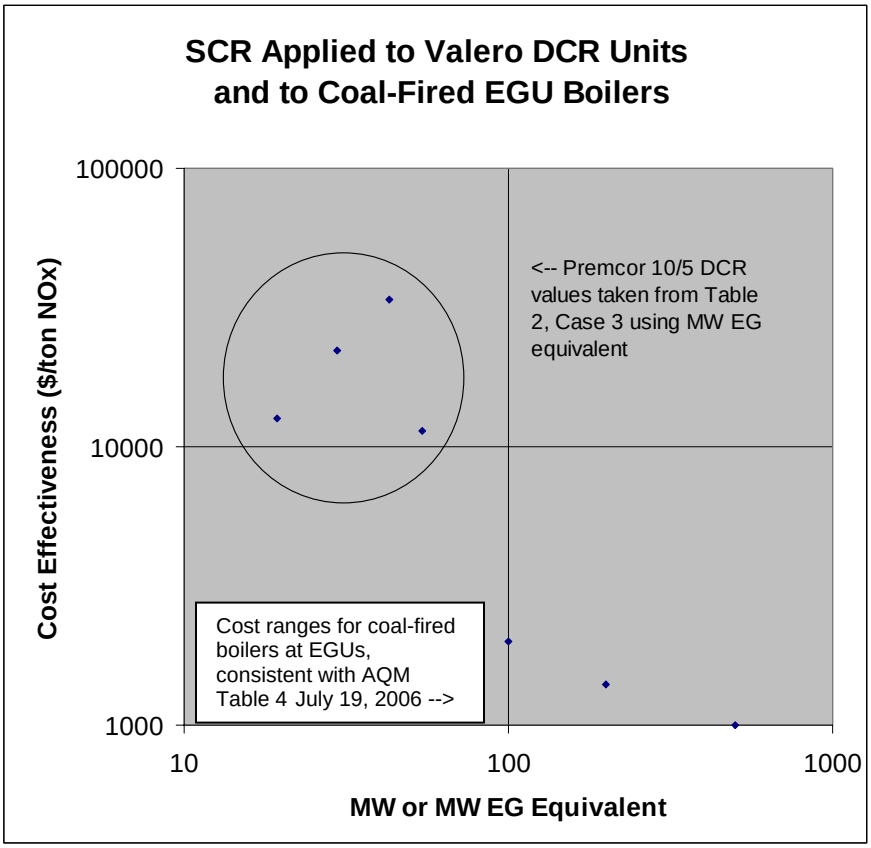
Following are comments on behalf of the American Lung Association of Delaware, following the October 5, 2006 Workshop on the proposed Regulation No. 1142, Section 2, including responses to Draft 3 of the regulation and to the submission that day of a technical and economic analysis for the Delaware City Refinery (I will reference as Premcor 10/5).

Items for consideration:

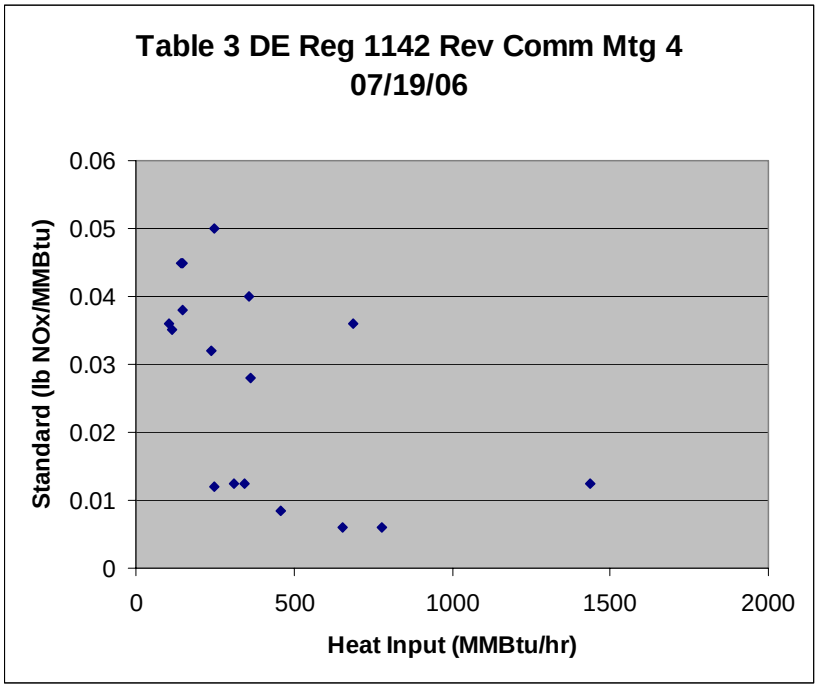
1) Premcor makes a claim that the evaluated cost-effectiveness figures for the anticipated NOx controls to be placed on its units are excessive. In an attempt to make a comparison as close to "apples-to-apples" as possible, we graphed cost effectiveness values strictly for SCR applied both to coal-fired EGU boilers (estimated from AQM's Table 4 of July 19, 2006 – referred to henceforth using "7/19") and to Premcor's DCR units as described in Case 3 of Table 2 of the Premcor 10/5 report., set to the same basis as each unit's actual or equivalent (using 30% conversion efficiency) electricity generating capacity in megawatts, as the case may be. The graph appears as follows:



As one can readily see, the Premcor values are approximately an order of magnitude greater than those estimated values that would be consistent with SCR controls applied to EGUs. Our question is simply: "Is it realistic that cost-effectiveness estimates for SCR controls for the Premcor units should be so much higher than for EGUs?" In contrast, Premcor states that their analysis "likely understates these cost values." Although the Lung Association has been on record, from the early months of the review committee's work, asking that a truly *independent* analysis of such cost values be sought by AQM, given the time constraints DNREC now faces, we ask that *AQM* respond with respect to the following:

a) AQM should study the background of the analysis that went into the Premcor 10/5 report. In particular, we request that AQM provide its own evaluation of the Premcor 10/5 analysis with special attention to the cost effectiveness figures. We also observe that the emission factors for Case 1 as compared with those used Cases 2 & 3 do not appear to show the differences intimated by Notes 1 and 2.
b) A useful tool for the purposes of this work would be a recasting of the top section of AQM Table 4 7/19 for units such as those at the Premcor facility. We ask that AQM reconstruct the table using information applicable for units in the 200 to 700 MMBTU/hr range (17.6 to 61.6 MW electricity generation equivalent).

2) Premcor also makes a claim that the NOx emission rate limits AQM would impose are too stringent from. We have prepared a scatter plot of the data included in AQM Table 3 7/19, plotting emission rate limits with heat input values. As the reader can see from the following graph, nearly all of the emission rate limits shown are less than 0.04 lb NOx / MMBtu, and several of these are well below this level. In contrast, the 0.07 lb NOx / MMBtu level proposed for the Steam Methane Reformer Heater is off the top of this plot.



While it has been suggested that the 0.03 lb NOx / MMBtu emission rate limit that

appeared in Draft 2 of the proposed regulation was based on regulations in Texas and California that included "provisions/programs that provide for emissions trading outside the subject facilities," we would point out the information in AQM Table 3 7/19 and the preceding graph is based on regulations from not two but eight different states. We therefore request that AQM contact those states determine the scenarios under which the lower emission rates are actually applied in the field. In the face of the rates shown in Table 3, if AQM determines that the Premcor facility should be permitted to emit at the 0.04 lb NOx / MMBtu level, we believe that the burden is on AQM to demonstrate that the rate needs to be that high.

3) Furthermore, given that the proposed rates have been expressed with one small significant digit, this allows for too much ambiguity as to what actual emission rate limit the facility or unit will be required to meet. For example, by some measures "0.044" could be regarded as meeting a "0.04" standard, even though it is ten percent higher than what a "0.040" standard would require. Therefore, the Lung Association recommends that the standards be written in such a way as to require compliance with an unambiguously strict value. This would also allow us to talk meaningfully of possible averaging scenarios between 0.030 and 0.040 lb NOx / MMBtu.

4) We would appreciate clarification by AQM that Boiler 80-2 at the DCR facility is in fact to be included within the purview of this regulation. The fact that it has been omitted from the Premcor 10/5 report – understandably, since its controls are already in place – nevertheless makes it more difficult to assess the impact of different emission control plans upon the facility-wide average emission rate.

5) Nevertheless, even without Boiler 80-2 in the calculation, it would seem to be possible to gain an appreciation for the effect of different control scenarios upon the facility-wide average emission rate. Not including the CO boilers, and omitting Boiler 80-2 as well, the estimated emission rates for the three cases identified in Premcor 10/5 Table 2, as well as for the additional case (identified as "Case 4") in which only the Crude Charge Heater is left uncontrolled, is shown below:

Source	Pre-control (tpy)	Case 1 (tpy)	Annual Cost	Case 2 (tpy)	Annual Cost	Case 3 (tpy)	Annual Cost	Case 4 (tpy)	Annual Cost
80-1	**384**	108	$2,282,303	108	$2,282,303	108	$2,282,303	108	$2,282,303
80-3	**344**	108	$2,535,892	108	$2,535,892	108	$2,535,892	108	$2,535,892
80-4	**352**	41	$3,539,176	41	$3,539,176	41	$3,539,176	41	$3,539,176
21-H-2	**116**	15	$1,272,419	15	$1,272,419	15	$1,272,419	15	$1,272,419
21-H-701	**92**	86	$507,178	**92**	$0	32	$2,018,105	**92**	$0
37-H-1	**105**	22	$1,845,129	**105**	$0	22	$1,845,129	22	$1,845,129
42-H-1,2,3	**160**	62	$1,014,357	62	$1,014,357	62	$1,014,357	62	$1,014,357
Totals	**1553**	442	$12,996,454	531	$10,644,147	388	$14,507,381	448	$12,489,276
Rates		0.0310	$11,698	0.0372	$10,415	0.0272	$12,453	0.0314	$11,303

If Boiler 80-2, now achieving 0.02-0.03 lb NOx / MMBtu, rated for 716 MMBtu/hr, would be included in the averages, what would the calculation of rates then show?

It is apparent that the different control scenarios studied for the non-CO Boiler units, not even including the well-controlled Boiler 80-2, provide an encouraging range of average emission rate values, between 0.027 and 0.037 lb NOx / MMBtu. It would seem to us that there is fruitful ground for some discussion here about what reductions are possible to achieve.

6) For the record, the American Lung Association of Delaware opposes any scenario in which seriously polluting units (for example, the Coker CO Boiler) are left inadequately controlled or even completely uncontrolled. It is our opinion that this is just giving away the store. We also believe it is long past time for emissions from units as old as the SMR Heater (35 years, according to Premcor's Mr. John Deemer) to be better controlled.

7) Given the closeness of the Crude Charge Heater to an emission rate of 0.040 lb NOx / MMBtu (Premcor lists it at its permitted rate of 0.043), the Lung Association is willing to discuss its possible support for a plan that would allow this unit to be exempt from further control, but only with the understanding that
    a) the regulation adopt a significantly low value (for example, something not exceeding 0.034 lb NOx / MMBtu) for the facility-wide emission rate for the non-CO boiler units
    b) the Coker CO Boiler be required to be controlled to the 20 ppmv level. This unit is the "elephant in the room," and potential reductions on the order of 500 tons per year simply should not be foregone. Discussions about control strategies for this unit should not become a debate about "if" the unit will be controlled, but should rather be focused on when and how the reductions will be accomplished.

8) In this vein, we believe it is critical for Premcor and AQM together to seek and identify ways to get the 511 tpy NOx reductions from the Coker CO Boiler in the most cost-effective manner possible. For example, it would appear clear by Premcor's own figures that the LoTOx® process is not the most cost-effective solution, both from the capital cost perspective as well as from that of O & M costs. If SCR would be used instead, this is already less costly.

    Furthermore, there was some discussion at the October 5 meeting exploring the use of a reheat process to allow for particulate cleaning of the Coker CO Boiler's exhaust stream prior to its treatment by the SCR process, a solution that might obviate the need for a dual train system. At the time, AQM ballparked the NOx emissions of such a reheat unit at around 25 tpy. And we believe a new reheat unit's emissions would be lower still if performance standards applying to it were more stringent than the somewhat lax 0.040 lb NOx / MMBtu. In any case, this solution could help achieve a net reduction in emissions on the order of 500 tpy.

    Premcor's argument that a control technology "has never been proven in practice with respect to such a source category [as the FCU CO Boiler]" is one that we do not find especially convincing. By this logic, if no one voluntarily applies such control technology to such a source category, and if no such new sources come on line that would require the use of such technology, then such technology can never be imposed.

The American Lung Association does not support what in effect would be the permanent grandfathering of rare or even unique large sources of air pollution with respect to requirements for improved air pollution controls.

9) While the Lung Association respects Premcor's concerns about practical realities associated with turnaround schedules and management of resources in order to accomplish all of this work, these can be given credence only to the extent that Premcor formally demonstrates, to the satisfaction of AQM and other reasonable observers, that a certain schedule of work is the best that can be achieved. In the absence of any clearly articulated timetable from Premcor to which we and AQM can respond, the Lung Association's position is to begin by advocating that the regulation, in sections 2.3.1.3 and 2.3.2.2, require that 100% of the affected facilities meet the emission rate standards by May 1, 2009.

10) Response re Premcor's Mass Approach:
    a) In principle, ALA prefers a mass approach (tpd) *as a supplement* to a rate approach (lb/MMBtu) because it prevents increasing the emissions total from what we would expect to achieve if heat input to each unit were held constant. As we have indicated previously, relying solely on a rate approach could allow slippage in term of a unit's mass emissions, just as we have seen in the case of the Coker CO Boiler's increase in heat input on the order of 25%, cancelling out most of the anticipated benefit of the SNCR controls. The Lung Association believes that any plan to control emissions must not allow annual emissions tonnage to exceed that that which would be expected if NOx controls were applied and heat inputs were held constant.
    b) Since Premcor is proposing some specific daily mass emission figures and a timeline, it seems apparent that Premcor has envisioned practical scenarios for what it will control, by what amount, by what time. For us to evaluate this proposal fairly, Premcor should produce tables similar in the style to those of the Premcor 10/5 report showing for each unit the expected control technology, the level of control in tons per day, and for comparison, the rate in lb NOx / MMBtu corresponding to those emissions. Premcor should also provide a detailed rationale for its proposal to control only 45% of the capacity of its affected units (excluding the Coker CO Boiler) to the 0.04 lb NOx / MMBtu average by the May 1, 2009, date. For example, why not 50%, or 75%, or 90%?
    c) It is our immediate observation that, compared to the expected required emission reduction to achieve 0.040 lb NOx / MMBtu as a facility-wide average, Premcor's mass approach proposal appears to fall short. We simply note that AQM Table 1 7/19 shows a total 2002 emission amount of 8.71 tpd at a weighted average rate of 0.1923 lb NOx / MMBtu for all units, including both CO Boilers. As attendees of that July 19 meeting will recall, a calculation showed that if a rate of 0.040 lb NOx / MMBtu is achieved, the emissions would fall to 1.81 tpd. In contrast, we observe that the 3.4 tpd emission level Premcor proposes as the January 1, 2012 target corresponds to the round number of 0.075 lb NOx / MMBtu, based upon 2002 heat input figures.

d) This proposed emission rate is far too high. Therefore, in response to this weak proposal, the American Lung Association of Delaware strongly recommends that AQM reject it.

11) Section 2.2.1 includes language identifying the regulation as applicable to certain units any of "which is operated within a petroleum refinery facility on the effective date of this section." The question was raised at the October 5 meeting, essentially asking – only in part facetiously – "What if the plant is shut down on that date? Does that mean no units are 'operated' and that the regulation would therefore be applicable to none of them?" We therefore request that the language here be made unambiguous (perhaps by changing "operated" to "permitted to operate") so that the regulation is clearly applicable to all of the units currently permitted to operate identified on AQM Table 1 7/19, with the possible exception only of the FCCU CO Boiler (23-H-3).

12) In the interest of supporting the rights of affected communities to know about the levels of emissions to which they are potentially exposed, continuous simultaneous public display of the CEM data should be included within section 2.3.3 as a requirement, with:
    a) appropriate interpretive treatment,
    b) access to archival datasets,
    c) suitable caveats about the need for validation of posted data, and
    d) a clearly delineated process for handling responses from citizens and the regulated entity with respect to the emissions data.

Submitted by

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American Lung Association of Delaware

October 24, 2006

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