The Premcor Refining Group Inc. Response to Comments on Proposed Regulation 1142

On October 20, 2006, The Premcor Refining Group Inc. ("Premcor") submitted comments to the Delaware Department of Natural Resources ("DNREC") concerning Draft 3 of proposed Regulation 1142, which proposes to regulate NOx emissions from large heater and boilers located at Delaware City Refinery, by establishing NOx emission limits for the affected units. In conjunction with its comments, Premcor suggested an alternative approach that would establish an aggregate NOx emissions limit, on a mass basis, for relevant units. DNREC requested comments on the mass-based approach from the other Committee members in the context of DNREC's review of Premcor's proposal. In that context, the American Lung Association of Delaware ("ALA"), the Mid-Atlantic Environmental Law Center ("MAELC"), and Green Delaware, recently supplied comments and DNREC circulated these comments to the rest of the Committee.

Premcor appreciates DNREC's evaluation of the proposed mass-based approach on an accelerated timetable, as well as the other Committee members' submittal of comments on the approach in a timely manner. After a review of those comments, however, Premcor feels it is important to clarify certain issues raised in the comments submitted by other Committee members.

1. Mass-Based Emission Limit Approach

The commenter's contend that the mass-based approach suggested by Premcor would result in greater NOx emissions from the affected units when compared to a limit that establishes a 0.04 lb/MMBtu NOx emission rate. In fact, Premcor derived its suggested NOx emission cap to achieve NOx emission reductions consistent with DNREC's original proposal for NOx emission standards, including the CO Boilers. As noted at the April 19, 2006 Committee meeting, complying with a 0.04 lb/MMBtu emission rate at all affected units, including the Coker and FCCU and CO Boilers, may result in approximately 5.26 tons per day of emission reductions. Applying those reductions to DNREC's 2002 NOx emission baseline for the Refinery of 8.71 tons per day results in total NOx emissions of 3.45 tons per day from all affected units. Consistent with that calculation, Premcor suggested a mass-based NOx emission cap of 3.4 tons per day for all affected units including the two CO Boilers.

ALA asserts through its comments that calculations discussed during the July 19, 2006 meeting demonstrate that a rate of 0.04 lb/MMBtu would result in NOx emissions of 1.81 tons per day. Although Premcor generally recalls some discussion by ALA at a committee meeting concerning a calculation of equivalent NOx mass emission rates, no such calculation is reflected in the minutes for that meeting. Without reviewing the relevant calculation, Premcor cannot provide specific commentary on ALA's reported results. However, based on general recollection of ALA's comments during the referenced meeting, we do not believe that ALA's NOx mass equivalent emission estimate accounts for emissions from either CO Boiler. We also believe that the calculation considers only limited actual heat input data, rather than the heat input capacity, for the relevant heaters and boilers upon which any emission cap must be based. Consistent with this expectation, it does not appear mathematically possible for the 0.04 lbs/MMBtu emission rate to correspond to an aggregate mass emission rate of 1.81 tpd for all relevant sources.

In sum, Premcor believes that a mass based NOx emission limit of 3.4 tons per day will achieve a comparable amount of emission reductions as requiring all affected units, including the CO Boilers, to achieve an emissions rate of 0.04lb/MMBtu, while preserving for Premcor the ability to achieve these emission reductions in what it determines to be the most efficient manner possible.

2. Cost effectiveness.

Both the comments from ALA and MAELC question the basis for the cost effectiveness analysis provided by Premcor to DNREC and the Committee on October 5, 2006, and request that DNREC commission an independent review of this data. As explained in the original submittal, the analysis was performed by an outside consultant, JD Consulting of Austin, Texas. Premcor commissioned this analysis in response to requests from DNREC and other members of the committee to provide additional data concerning the feasibility and economic impacts of proposed Regulation 1142. Moreover, Premcor welcomes any specific questions DNREC or other members of the Committee may have concerning the cost figures provided in the October 5 report.

MAELC raises specific questions regarding Premcor's analysis of the costs associated with retrofitting the SMR Heater with ultra-low NOx burners ("ULNBs"), citing a 1991 EPA BACT/LAER guidance memorandum as support. On this point, Premcor wishes to clarify two issues. First, the 1991 EPA guidance memorandum concerns the feasibility, efficiency and costs of NOx emission controls for ***new*** process heaters constructed at refineries for purposes of complying with the Tier 2 gasoline standards for passenger vehicles. To achieve a 0.04 lb/MMBtu emission rate at the SMR Heater, however, Premcor would be required to ***retrofit*** the unit, a fact that renders the 1991 EPA guidance memorandum inapplicable to any analysis of the technical and economic feasibility of proposed Regulation 1142. Second, as John Deemer noted at the April 19, 2006 Committee meeting, the SMR Heater is equipped with approximately 500 burners, each of which would have to be replaced if this unit is converted to ULNBs. The amount of capital required for this massive burner replacement would result in a cost effectiveness ratio of approximately $145,000 per ton of NOx reduction. Accordingly, the October 5 report analyzed the technical and economic feasibility of installing SCR at the SMR Heater to achieve a 0.04 lb/MMBtu emission rate. That analysis determined that the cost effectiveness ratio for retrofitting the SMR Heater with SCR was $22,230 per ton of NOx reduction, which remains well above any accepted value of cost effectiveness for NOx emission controls.

3. Technical and Economic Feasibility of Controlling the Coker CO Boiler.

The MAELC and ALA comments question Premcor's conclusion that there are no technically and economically feasible options available to meet the NOx emission reductions contemplated for the Coker CO Boiler under Draft 3 of proposed Regulation 1142, arguing that SCR is a viable control option and that the absence of actual use of a given technology should not affect the analysis as to whether the technology is feasible.

Initially, MAELC insists that Premcor's feasibility analysis actually recognizes SCR as a technically feasible control option for the CO Boiler, because the report includes an economic

feasibility analysis for this technology. However, this comment reflects a misunderstanding of the report. Premcor's October 5 technical and economic feasibility analysis clearly reports that SCR has not been employed at any other Coker CO Boilers. On this basis, the technology necessarily cannot be regarded as technically available for control of NOx emissions from the Coker CO Boiler. In addition, the report specifically notes that catalyst plugging would likely require the unprecedented use of a dual train system to avoid multiple unit shut-downs and start-ups (which in turn affect the reliability of the other pollution control devices associated with the unit). Nonetheless, in order to demonstrate that the use of SCR technology would also fail any economic feasibility analysis, Premcor performed an economic feasibility analysis for controlling the source as if SCR constituted a technically feasible control option. That cost-effectiveness analysis concludes that the cost of SCR technology for the Coker CO Boiler was $16,210 per ton of NOx removed, which exceeds any accepted cost-effectiveness benchmark for NOx emission control.

Nevertheless, both ALA and MAELC continue to suggest that a single train SCR system is a feasible control technology for the Coker CO Boiler. These assertions, however, are devoid of any analyses of basic engineering considerations, such as available space for the potential additional equipment necessary to re-heat the exhaust from the CO Boiler rendering them mere speculation. Moreover, even if these engineering issues could be addressed in some manner, it does not obviate the fact that SCR technology has not been applied to a Coker CO Boiler, meaning that the use of SCR technology at the Coker CO Boiler, regardless as to whether a single or dual train is employed, is no more technically available than LoTOx® technology, which itself has not been proven in practice at any Coker CO Boiler.

Finally on this point, ALA complains that any requirement that a control technology must be proven in practice for a particular source category before it can be regarded as technically feasible is flawed. The policy of requiring proof of technological and economic feasibility with respect to retrofitting existing units through regulation, however, has been widely recognized as a lynchpin of the Clean Air Act and its implementing regulations. This regulatory development process is not the correct forum to challenge these fundamental principles of air emission regulation.

4. Phased Approach

As the initial phase of NOx emission control under the regulation, Premcor proposed to control 45% of the affected units on a heat input basis (excluding the Coker CO Boiler) to achieve an average emission rate of 0.04 lb/MMBtu by May 1, 2009. This figure reflects an analysis of current turnaround schedules and available resources, taking into account the significant pollution control projects currently taking place at the refinery and similar projects planned for the future. Nevertheless, both ALA and MAELC challenge Premcor's suggested phase-in schedule, with MAELC characterizing – without any support – the commitment to spend tens of millions of dollars to install significant pollution control equipment over the next two years as "an ambling, convenient pace."

Contrary to this suggestion, Premcor has regularly shared with DNREC the status of various projects at the refinery as well as current turnaround schedules. Furthermore, as has been demonstrated by the recent pollution control upgrade projects associated with a number of

units at the refinery, the process of engineering, securing permits, obtaining materials, and constructing equipment can take years of intensive effort. Taking these factors into account, Premcor believes that the proposed phased approach is reasonably aggressive taking into account the significant amount of planned compliance and maintenance work scheduled over the next several years.

5. Proposed Emission Rate of 0.04 lb/MMBtu

In its comments, ALA recommends that any emission rate limit in proposed Regulation 1142 be expressed to the thousandth of a pound of NOx per MMBtu. As DNREC is aware, the Committee has consistently evaluated proposed emission rate limits expressed to the hundredth of a pound of NOx per MMBtu. Further, Premcor's detailed analysis demonstrates that the proposed regulatory standard of 0.04 lb/MMBtu is not economically feasible for relevant refinery sources under any accepted regulatory benchmarks. Clearly, a proposal to render the standard even more stringent by adding another significant digit would only serve to further contribute to the economic and/or technical infeasibility of the proposed standard.