

COMMENTS OF THE PREMCOR REFINING GROUP INC.
ON PROPOSED REGULATION 1142, DRAFT 3

Introduction

The Premcor Refining Group Inc., (“Premcor”), a subsidiary of Valero Energy Corporation, owns and operates the Delaware City Refinery, the only refinery in the State of Delaware. All sources identified by the Delaware Department of Natural Resources Environmental Control (“DNREC”) as “affected units” under draft Regulation 1142 are located at the Refinery. Accordingly, Premcor is the only party in the State affected by the proposed Regulation 1142. Premcor has participated extensively throughout DNREC’s regulatory development process, and has provided comments on DNREC’s regulatory approach and prior draft versions of Regulation 1142.

On October 5, 2006, consistent with prior discussions between Premcor and DNREC, Premcor provided to DNREC a detailed technical and economic analysis evaluating the feasibility of achieving the NOx limitations identified by DNREC for specific sources at the Refinery. That detailed analysis clearly demonstrated that the emission control standards included by DNREC in Draft 2 of Proposed Regulation 1142 did not satisfy widely-accepted standards concerning technical and economic feasibility of the application of emission controls to existing sources.

Also on October 5, 2006, DNREC hosted a stakeholder committee meeting and public workshop concerning proposed Regulation 1142. During that meeting, participants discussed a number of issues related to proposed Regulation 1142, including Premcor’s technical and economic report, alternative approaches to achieving NOx emission reductions at the Delaware City Refinery, and the new language in Draft 3 of proposed Regulation 1142, which was distributed earlier that day. This new draft contained several significant changes relative to prior drafts, including new emission limits, new compliance dates, and new provisions concerning NOx control at the Fluid Coking Unit’s Carbon Monoxide Boiler (“Coker CO Boiler”). At the conclusion of the meeting, DNREC noted that it would be seeking additional comments and input from the committee on Draft 3 of proposed Regulation 1142. On October 6, DNREC requested committee members to provide this additional material by October 20.

In accordance with DNREC’s request, Premcor provides the following comments to Draft 3 of proposed Regulation 1142 as a supplement to the comments Premcor has made throughout the stakeholder committee process, including Premcor’s written comments distributed on September 15, 2006, and Premcor’s technical and economic analysis distributed on October 5, 2006.

Comments

1. The technical and economic feasibility analysis demonstrates that the unit-specific NOx emission limits prescribed by Section 2.3.1 of Draft 3 are neither cost-effective nor equitable.

The standards codified in Section 2.3.1.1 of Draft 3 of proposed Regulation 1142 would require Boilers 1, 3, and 4, the Crude Atmospheric Heater, the Vacuum Heater and the CCR

heaters each to achieve a NO_x emission rate of 0.04 lb/MMBtu on a 24-hour rolling average. Section 2.3.1.2 requires the Hydrogen Plant Heater (also known as the SMR Heater) to achieve a NO_x emission rate of 0.07 lb/MMBtu on a 24-hour rolling average. The technical and economic analysis submitted by Premcor at the October 5 committee meeting demonstrates that the cost of installing the control devices necessary to achieve these emission limits would exceed any accepted cost-effectiveness benchmark.

As explained in the feasibility analysis report, Premcor used very conservative assumptions in determining the absolute costs and relative cost effectiveness associated with controls necessary to achieve the prescribed NO_x emission limitations at the individual emission sources identified by DNREC within proposed Regulation 1142. Notwithstanding the conservatism included in this analysis, which likely understates these cost values, the technical and economic feasibility analysis concludes that the cost per ton of NO_x reductions from the three boilers ranges from \$8,269 to \$11,380 per ton. The costs per ton of NO_x reduction at the Vacuum Heater, Crude Heater, SMR Heater and CCR Heaters are \$12,598 per ton, \$84,530 per ton, \$22,230 per ton, and \$10,351 per ton respectively. The capital cost required to install these controls would exceed \$87.5 million.¹

This analysis reveals that, under any objective analysis, the proposed unit-specific emission standard is not reasonably feasible under accepted air quality regulatory analyses, particularly those applied under Title I of the Clean Air Act related to attainment demonstrations. Moreover, the analysis demonstrates the clear inequity of the unit-specific emission limitations identified in Draft 3 of the proposed Regulation relative to DNREC's NO_x emission control program simultaneously developed for electric generating units ("EGUs"). According to DNREC's published analysis, the cost imposed upon owners of EGUs to achieve NO_x reductions required by proposed Regulation 1146 is between \$1,200 and \$2,500 per ton for coal fired EGUs, and between \$2,400 and \$4,500 per ton for oil fired EGUs. Premcor's feasibility analysis demonstrates that the costs that would be imposed upon Premcor under Draft 3 of proposed Regulation 1142 are clearly not comparable to the relative cost of control imposed on other stationary sources. Therefore, in addition to showing that the unit-specific emission limitations identified in Draft 3 of proposed Regulation 1142 are not reasonably feasible, this analysis also shows that the refinery is being treated inequitably relative to other regulated stationary sources.²

¹ At the October 5 committee meeting, DNREC asserted that, under the unit-specific NO_x limits listed in Draft 3 of the proposed regulation, neither the Crude Heater nor the SMR Heater would require additional controls, because the "Pre-Control Emission Performance" data indicated emission rates (0.043 lb/MMBtu and 0.071 lb/MMBtu, respectively) that were sufficiently close to the prescribed limits. Even assuming that the Pre-Control Emissions data reflect operation of these units at or near capacity: (1) the performance data do not achieve the proposed regulatory limits; and (2) prescribing a regulatory limit so close to the performance data would likely require Premcor to install additional controls or take other action to ensure that Premcor consistently complied with these limits. Further, even if additional controls are not installed on the Crude Heater and SMR Heater, the total capital cost to control these units would still exceed \$73 million.

² This inequity is even more stark when considering that the majority of NO_x emission sources (whether considering statewide sources or those located in New Castle County) would not be required under DNREC's current rulemaking efforts to achieve any NO_x emission reductions to facilitate any attainment obligations imposed upon Delaware under the Clean Air Act.

2. There are no technically and economically feasible options available for NO_x emission controls to achieve the significant emission reduction contemplated for the Coker CO Boiler at the Refinery under Draft 3 of proposed Regulation 1142.

Section 2.3.2 of Draft 3 of proposed Regulation 1142 would impose NO_x emission rate limits upon the Coker CO Boiler of 20 ppmvd on a 365-day rolling average, and 40 ppmvd on a 7-day rolling average. DNREC has indicated that these rates are based upon the projected use of the LoTox® process as a control device. LoTox®, however, has never been employed to control FCU NO_x emissions at any location in the world, and Premcor is not aware of any plans to do so. To the extent that certain refineries are pursuing the LoTox® process to reduce NO_x emissions from certain Fluid Catalytic Cracking Units (“FCCUs”), we are not aware of any FCCU that has, to date, actually employed the LoTox® process, and thus it is unclear that the LoTox® process will ultimately be effective in reducing NO_x emissions from FCCUs. Further, to the extent that the technology is effective at reducing NO_x, there is no clear evidence that the NO_x emission rate can be effectively and consistently reduced to 20 ppm as an annual average.

As DNREC is aware, a control system cannot be classified as “technically available” for application to a certain source type if such control technology has never been proven in practice with respect to such source category. Therefore, under all accepted air quality regulatory standards, the application of LoTox®—or any other NO_x emission control standard that would achieve the types of reductions contemplated by Draft 3—cannot be classified as technically available for application to the FCU CO Boiler at the Refinery. Nonetheless, for purposes of conducting a comprehensive analysis of technical and economic feasibility for proposed controls under proposed Regulation 1142, Premcor performed an economic feasibility analysis for controlling NO_x emissions from the FCU CO Boiler as if the LoTox® emission control process could be classified as “technically available” for this application. This analysis concluded that the capital cost required for installation of this control system, if it could even be employed for this application, would approximate \$60 million for this single source at the Refinery. The analysis also calculated a relative cost effectiveness for NO_x emission controls, assuming the technical availability of this unproven technology, of \$19,976 per ton of NO_x removed. Thus, even assuming that the LoTox® process could allow the Coker CO Boiler to achieve the emission rate in Section 2.3.2 of Draft 3 of proposed Regulation 1142, the use of such technology would significantly exceed all acceptable cost-effectiveness benchmarks for NO_x reduction. This data indicating that LoTox® technology is not cost-effective for purposes of reducing NO_x at the Coker CO Boiler, combined with the fact that the technology is not technically “available” under regulatory principles, demonstrate that the Coker CO Boiler should not be subject to Draft 3 of proposed Regulation 1142.

3. Premcor proposes to achieve equivalent NO_x emission reductions from the heaters and boilers identified at affected units under Draft 3 of proposed Regulation 1142.

Premcor’s technical and economic analysis included an evaluation of a case that achieves an average NO_x emission rate of 0.04 lb/MMBtu across the heaters and boilers, exclusive of the Coker CO Boiler, identified as affected units under the draft Regulation 1142. Like the per-unit limit analysis, the cost of installing the required technology exceeds all accepted cost-effectiveness benchmarks for NO_x reduction. Nevertheless, Premcor has stated throughout this regulatory development process that Premcor is willing to pursue further NO_x emission

reductions to assist the State in achieving compliance with any applicable requirements under the Clean Air Act, to the extent that the burden imposed upon Premcor is equitable and reasonably feasible under both technical and economic analyses.³ Although Premcor's analysis suggests that NOx emission controls required to satisfy an average emission rate of 0.04 lb NOx/MMBtu would not be economically feasible, Premcor believes that an emission averaging approach affords sufficient flexibility to allow Premcor to realize these NOx emission reductions in the most efficient manner available.

The proposed emission averaging approach is entirely consistent with emission control requirements imposed upon sources throughout the country, notably including petroleum refineries. Federal regulations, as well as consent decrees under EPA's nationwide Refinery Enforcement Initiative, executed by the United States, numerous states (including Delaware) and individual refining companies, include emission averaging provisions for achieving emission reductions. Indeed, Draft 2 of Regulation 1142 included an emission averaging component. Mechanics of implementing an emission averaging approach are well established, including in the referenced Consent Decrees and in the manner generally consistent with the approach reflected in Draft 2 of Regulation 1142. Importantly, employing an average rate of 0.04 lb/MMBtu across these units will allow DNREC to take credit for *more* NOx reductions for SIP purposes relative to Draft 3 of Regulation 1142. Under the unit-specific approach in Draft 3, the emission rate attributed to the SMR Heater would be consistent with the proposed 0.07 lb/MMBtu emission rate limit. Under an averaging approach, the SMR Heater would be subject to the affected unit average of 0.04 lb/MMBtu, and thus DNREC would not be required to account for a higher NOx emission rate limit at the SMR Heater. Accordingly, utilizing a regulatory approach that requires 0.04 lb/MMBtu NOx emission average across all affected units (except the FCU CO Boiler) would not affect DNREC's ability to demonstrate NOx reductions for SIP purposes, while providing Premcor with the opportunity to determine the most economically efficient manner to achieve these NOx reductions.

Draft 3 of Regulation 1142 contemplates that affected units achieve required NOx emission reductions on a phased basis. Consistent with that approach, Premcor would implement the NOx emission averaging proposal over two phases. Specifically, by May 1, 2009, Premcor would ensure that 45% of the capacity of the affected units (calculated on a maximum heat input basis, excluding the Coker CO Boiler) achieves a NOx emission rate, averaged across these units, of 0.04 lb/MMBtu. By January 1, 2012, Premcor will complete its efforts to achieve an average NOx emission rate for all of the affected sources of 0.04lbs/MMBtu, excluding the Coker CO Boiler. In both cases, the emission averaging provision would be demonstrated on a 24 hour average basis.

4. A NOx control approach that requires specific NOx emission reduction on a mass basis from all affected units, including the Coker CO Boiler, is preferable to the arbitrary NOx emission limits for affected sources prescribed by Draft 3 of proposed Regulation 1142.

DNREC has consistently noted that the impetus for developing a NOx control regulation targeting large heaters and boilers at the Delaware City Refinery is Delaware's requirement to

³ As evidenced by extensive information previously submitted to the Department, Premcor is currently pursuing significant NOx emission reductions at the Refinery, requiring millions of dollars in capital investment.

meet its attainment obligation with respect to ozone and PM 2.5. As evidenced by the draft provisions of proposed Regulation 1142 that have been circulated during the stakeholder committee process, DNREC has argued that a control approach that sets NOx emission limits on a unit-by-unit basis would be a reasonable and effective way to meet this obligation. However, Premcor has asserted, at the October 5 committee meeting, that a combined NOx emission limit for all affected sources, including the Coker CO Boiler, on a mass basis would better serve DNREC's goal of ensuring that Delaware obtain appropriate and timely NOx emission reductions from the Delaware City Refinery. As noted previously, in any attempt to achieve significant NOx emission reductions at the "affected units," Premcor would be required to employ control technology that faces significant technical hurdles at a significant cost. In light of this significant and inequitable regulatory burden, at a minimum, Premcor should be given an opportunity to achieve DNREC's NOx emission reduction goals using what Premcor determines is the most appropriate and cost-efficient manner possible. Moreover, despite the absence of any technically available NOx control mechanisms for achieving additional significant NOx emission reductions at the Coker CO Boiler, Premcor is willing to accept a NOx mass-cap approach that includes the Coker CO Boiler. Specifically, Premcor is willing to accept an approach that by May 1, 2009, initially requires NOx emissions from all heaters and boilers with a heat input capacity of 200MM/Btu or greater – including the Coker CO Boiler and the FCCU CO Boiler – to be reduced to 6.9 tons per day. By January 1, 2012, NOx emissions from these sources would be further reduced to 3.4 tons per day. Thus, the mass cap option would achieve NOx emission reductions from the Refinery to the aggregate extent identified by DNREC for large heaters and boilers, including the FCCU and Coker CO Boilers.

5. Premcor offers the following additional comments concerning current regulatory language within Draft 3 of proposed Regulation 1142.

Premcor has identified, above, its significant concerns concerning the approach reflected in Draft 3 of proposed Regulation 1142, and has offered alternative means of achieving the same objectives identified by the Department. In addition, Draft 3 includes certain provisions that could potentially be applicable to any of these regulatory approaches, and should be addressed to ensure consistency and clarity.

For example, although the proposed Regulation currently is intended to afford phased scheduling in the manner discussed above, the current version of the proposed Regulation includes, as Condition 2.2.3 a requirement that would appear to impose an obligation to satisfy requirements no later than May 1, 2009 in each case.

Further, Draft 3 appears to include provisions that would afford a regulated source the opportunity to demonstrate that required controls would not be technically or economically feasible. However, as currently drafted, the provision really imposes an obligation upon the source owner to develop and submit annual plans, regardless of whether the source owner would seek to utilize this opportunity. More fundamentally, the draft regulation does not provide that this exercise would have any bearing upon any other obligation imposed upon a regulated source. Finally in this context, there is no criteria reflected in the proposed language pursuant to which DNREC would evaluate the demonstration, making it impossible for an affected source to consider and present information relative to the criteria that will ultimately prove significant.

The draft regulation also includes extensive interim reporting requirements that do not bear on the ultimate compliance obligation. Specifically, current draft condition 2.4.1 would require an affected source to develop and submit schedules and compliance methods associated with its plan to achieve ultimate compliance. These provisions merely pose additional recordkeeping obligations and re-direct resources away from effective emission control efforts. Neither federal or state regulations typically impose preliminary requirements upon sources to demonstrate, on a detailed basis, the manner by which they would ultimately satisfy the regulation, but merely impose the ultimate compliance obligation on the source.

Similarly, draft condition 2.4.2 would include a certification provision that is not consistent with typical regulatory practice. Because the sole facility that would be subject to the draft regulation operates under a Title V air quality operating permit, compliance certification obligations are clearly identified and applied through that permit. Further, to the extent that certification requirements have been included within federal or regional NO_x emission control programs, such certifications are specifically linked to administration of the emission trading provisions of such programs. DNREC, however, has rejected this flexible approach in favor of facility-specific emission limits. Accordingly, there is no basis to establish and impose an independent certification process specific to this regulation.

In addition, Section 2.3.3 of proposed Regulation 1142 generally required that compliance be demonstrated through CEMS data. As DNREC is aware, the NO_x emissions from many of the units potentially subject to this proposed regulation are already measured through the use of a CEMS installed and operated on a common stack. Although we understand that DNREC agrees that the use of such common CEMS would be acceptable for compliance demonstration purposes under this program, Premcor believes that the proposed language in Section 2.3.3 should be clarified to confirm that this practice is acceptable.

Finally, DNREC has noted that Draft 3 of proposed Regulation 1142 was not intended to apply to the FCCU CO Boiler. Section 2.2.1, however, states that the proposed Regulation applies to “any carbon monoxide (CO) boiler,” and there is no other provision within the proposed Regulation that specifically excludes the FCCU CO Boiler. Thus, by its terms, the provisions of proposed Regulation 1142 would apply to the FCCU CO Boiler, contrary to DNREC’s previous representation. Thus, DNREC should clarify the FCCU CO Boiler is not subject to the provisions of Draft 3 of proposed Regulation 1142.

Conclusion

Premcor remains concerned that fundamental questions about the technical basis for this rule, posed throughout the participatory sessions and submitted in written commentary, remain unanswered. Even at this stage in the rulemaking process, DNREC still has not provided sufficient modeling or other scientific support to justify the extraordinarily expensive controls that would be required under this proposed regulation. Nevertheless, Premcor appreciates the opportunity to offer these comments in the hope of developing an equitable and feasible approach to enable the Delaware City Refinery to assist DNREC in achieving additional NO_x emission reductions in the State of Delaware.