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June 22, 2009

Lee Gribovicz
Project Manager
Western Regional Air Partnership (WRAP) and
Western Governor's Association (WGA)
1600 Broadway, Suite 1700
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Via E-Mail

Re: Comments on May 5, 2009 Revised Draft Report
Supplementary Information for Four-Factor Analyses for Selected Individual Facilities in New Mexico
Navajo Refining Company, LLC
Artesia, NM Refinery

On June 3, 2009, the New Mexico Environment Department (NMED) Air Quality Bureau (AQB) provided Navajo Refining Company, LLC (Navajo) with a copy of the May 5, 2009 draft report titled "Supplementary Information for Four-Factor Analyses for Selected Individual Facilities in New Mexico" and requested any comments by June 22, 2009. As requested, this letter contains Navajo's comments on the draft report.

Please update Page 3-2, Table 3-1 "Control Options for Selected Petroleum Refinery Operations in New Mexico", and the corresponding text on pages 3-3 and 3-4, to reflect the following:

- Under our Consent Decree, we conducted NOx reduction catalyst trials and an optimization plan. As a result of this exercise, we established a 365-day rolling average limit of 58.1 ppmvd NOx, corrected to 0% O_2. Therefore, the "Baseline emissions" value in "ppm" should be revised from 123 to 58.1 ppmvd. The "tons/yr" value should also be revised from 153 to 101.9 to match the current permit allowable NOx emission rate.
- The "Potential additional control measures" for NOx emission from the FCCU Regenerator should be revised to remove the option "Optimization of NOx reduction catalyst" because this has already been done as noted in the first comment.
- The "Potential emission reduction (tons/year)" values also need to be revised to reflect the lower NOx concentration limit.
- For SO_2 from the FCCU Regenerator, the "Existing control measures" should be updated to reflect hydrotreating of the gas-oil feed to the FCCU.
- The FCCU feed heater is an equipment number H-0312. This heater has a maximum permit allowable firing rate of 35 MM Btu/hr on a lower heating value basis. Although it might be technically possible to retrofit the heater with lower NOx burners, it should be noted that this is generally considered to be economically unreasonable for a heater of this size. Navajo is not aware of any Consent Decree that has required a refiner to retrofit heaters with lower NOx burners when the heaters are less than 40 MM Btu/hr. In addition, the NSPS Subpart Ja rules do not address NOx limits for heaters less than 40 MM Btu/hr. Therefore, it does not seem useful to project potential NOx reductions for retrofitting a small heater.

Page 3-3 contains an error at the end of the first sentence of the third paragraph. The draft document states "... synthetic catalytic reduction (SCR)." and it should read "... selective catalytic reduction (SCR)."

Page 3-4 discusses various options to reduce NOx emissions from process heaters in the third complete paragraph on this page. The last sentence states "Theses are based on the use of ULNB or LNB, with emission limitations ranging from 0.3 lb/MM Btu to 0.1 lb/MM Btu." Navajo believes that these numbers may not be correct. Current burner technology has emission limitations of 0.02 to 0.03 lb NOx per MM Btu, corrected to 3% O_2, when firing natural gas fuel. Therefore, it appears that this sentence may need to be revised.

Page 3-5 discuss ammonia emissions from SCR and SNCR systems but fails to include a critical point. The ammonia emissions will form additional fine particulate matter that will decrease visibility. Therefore, if visibility

impairment is the main criteria, it is much less desirable to use SCR or SNCR and increase the fine particulate that is generated when the ammonia reacts in the atmosphere.

Page 3-5 also discusses the "Factor 2 - Time Necessary for Compliance". Navajo agrees with the CAIR analysis that approximately 30 to 36 months is required to properly design, fabricate, and install complex control equipment such as a wet scrubber or SCR, especially for a source such as the FCCU regenerator.

Please update Page 3-6, Table 3-2 "Estimated Costs of Control for Selected Petroleum Refinery Operations in New Mexico" to reflect the following:

- Delete the "Optimization of NOx reduction catalyst" row for the Navajo Artesia Refinery FCCU Regenerator. Under our Consent Decree, we conducted NOx reduction catalyst trials and an optimization plan, so we have completed this option.
- The "Cost effectiveness ($/ton)" for installing SCR on the FCCU Regenerator has been dramatically underestimated at only $2,500 per ton of NOx. The emission reductions are lower than originally estimated because of the lower limits resulting from the NOx reduction catalyst optimization. No capital cost was shown in the draft and the table indicates that the $2,500 per ton cost effectiveness was assumed to be valid. Navajo estimates that the capital cost for SCR on the FCCU Regenerator would be between $8,000,000 and $12,000,000. Assuming the same equipment life used in the draft report of 15 years, annual capital cost interest rate of 7%, annual operating costs between $260,00 and $320,000, and reductions of 50 to 70 tons of NOx per year yields a control effectiveness of between $8,000 and $15,000 per ton. Navajo believes that these costs may not reflect a final installed capital cost and the interest rate of 7% used in the study may also be too low in the current credit environment. As noted in the text of the report, the cost for SCR will vary widely by the source type and configuration. Therefore, it is misleading to present an assumed cost effectiveness value of $2,500 per ton.

It should be noted that the actual NOx and SO_2 emission concentrations are noticeably lower than the allowable. The SO_2 concentrations ranged form 0.00 to 0.84 ppmvd, corrected to 0% O_2, and the NOx concentrations ranged from 32.8 to 50.7 ppmvd, corrected to 0% O_2 during the January 2008 Continuous Emission Monitoring System (CEMS) relative accuracy test audit (RATA) stack sampling. The SO_2 concentrations are typically less than 2 ppmvd and the NOx concentrations are typically below 50 ppmvd. Therefore, the estimated reductions are overestimated based on the current limits.

Navajo appreciates the opportunity to provide comments on the draft report in advance of issuing the final version. It is important that the information mentioned above be corrected so that the NMED will have appropriate information to consider during the revision of the implementation plan.

If you have any questions regarding the information provided, please contact me at the above address, by email (doug.price@hollycorp.com), or by telephone at (575) 746-5294.

Sincerely,

Douglas B. Price
Environmental Manager for Air Quality

Enclosures

cc (w/enc.): NMED: Rita Bates, Kerwin Singleton

Electronic cc (w/enc.): Navajo: MGW, JEL
Holly: David Jelmini

Environmental File: 2009-06-22 Navajo Comments on Draft NM Four Factor Analysis.doc (ADM ART – 1.F.02.a)