DCPP PM-10 Emission Offset Discussion

The impact of the relative scarcity of PM-10 emission reduction credits on the development of a potential saltwater-based closed-cooling system at DCPP has been altered by the relatively recent promulgation of a Mojave Desert Air Quality Management District (MDAQMD) regulation (Rule 1406 - Generation of Emission Reduction Credits for Paving Unpaved Public Roads, January 2013). The following discussion addresses the consequences of this promulgation and the timeline of events associated with development of conclusions regarding the viability of saltwater closed cooling systems, which was initially addressed in Bechtel's Third-Party Interim Technical Assessment for the Alternative Cooling Technologies or Modifications to the Existing Once-Through Cooling System for Diablo Canyon Power Plant (Bechtel, October 2012). The regulatory framework for generating PM emission credits from road paving operations was not in place at the time the initial assessment of the viability of saltwater closed-cooling systems was completed.

The conclusions reached in the initial assessment (Bechtel 2012) were driven by the impact of scarce PM-10 emission reduction credits in the San Luis Obispo Air Pollution Control District (SLOAPCD). Details regarding this scarcity were based primarily on information received from a representative of the San Luis Obispo Air Pollution District in April 2012 (Willey, 2012). Mr. Gary Willey described a situation where the then current SLOAPCD PM-10 emission bank contained about 31 tons of PM-10 credits – a total that obviously fell well short the expected PM-10 emissions from the saltwater cooling systems under consideration for application at DCPP. There was some discussion with Mr. Willey regarding the methodology to generate additional PM-10 emission credits based on conversion of banked SO2 emissions into PM-10 credits, but this process was characterized as problematic. There was no discussion of any PM-10 credit generation process related to paving unimproved roads during this initial conversation with Mr. Willey. Consequently, the challenges associated with securing sufficient PM-10 emission reduction credits to offset these cooling systems' expected significant particulate emissions represented a clear barrier to pursuing saltwater closed-cooling options at that time. This conclusion was clearly delineated in the initial assessment (Bechtel, 2012) and it was the sole reason that saltwater closed cooling systems were deemed infeasible and excluded from further consideration in the estimating phase (Phase 2) of the Bechtel assessment for cooling system technologies.

The Phase 2 assessment concentrated on those cooling system technologies, which had been deemed feasible in the initial assessment. Consequently, there were no subsequent efforts to further address the viability of saltwater closed cooling systems or characterize the impact of PM-10 emission reduction credits. While a detailed analysis of salt water cooling tower designs specific to DCPP was not conducted, it is still reasonable to conclude that cooling towers utilizing salt water could perform adequately at this site provided that the impacts of this water source were properly taken into consideration during the designing of the towers. Salt water cooling towers have been used for large scale commercial power generation application, it is technically viable. A concentration of salt changes the physical properties of water, impacting the thermal performance of a cooling tower. These changes can typically be compensated with proper tower design including an increase in tower size or fan motor power consumption. Cooling tower and process system materials also need to be correctly selected to ensure the structural components, hardware, and fill are suitable for long term operation with salt water.

A follow-up discussion with Mr. Willey regarding the viability of generating PM-10 emission reduction credits from paving unpaved roads was pursued (promoted by public comments) following completion of the Phase 2 cooling technology assessment. During the subsequent telephone conversation with Mr. Willey, he confirmed that PM-10 emission credits were still scarce, but that a prospective applicant could pursue offsetting a project's PM-10 emissions by volunteering to pave unimproved public roads in the SLO District (Willey, 2013). This process would likely require a traffic study to confirm the vehicle miles traveled along selected subject roads, and the associated generated credits would be subject to Federal (USEPA) review and approval. Details on this methodology for the SLOAPCD remain somewhat unresolved, given the recent promulgation of the supporting MDAQMD regulation. No applicant has yet pursued this PM-10 credit generation methodology in the SLO District.

As described earlier, this road paving methodology was not addressed in the earlier conversation with Mr. Willey in April 2012, most likely because the final regulation outlining this methodology had yet to be finalized by the MDAQMD and could not be offered as guidance to prospective air permit applicants. Consequently, the conclusions reached in the Phase 1 assessment (Bechtel, 2012) regarding the availability of PM-10 credits were based on the factual and credible regulatory agency guidance available at that time. That guidance provided a clear basis for determining that the scarcity of PM-10 emission credits made the saltwater closed-cooling option infeasible for further consideration in Phase 2 of the Bechtel assessment.

References

Bechtel, *Third-Party Interim Technical Assessment for the Alternative Cooling Technologies or Modifications to the Existing Once-Through Cooling System for Diablo Canyon Power Plant*, October 2012.

Willey, G., San Luis Obispo Air Pollution Control District (personal communication, April 19, 2012).

Willey, G., San Luis Obispo Air Pollution Control District (personal communication, December 2, 2013).