Docket Optical System - Fwd: Palmdale Visible Plume - Issues with Applicant's Plume Analysis foruse in the VR writeup

From: Jim Adams
To: Docket Optical System
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Subject: Fwd: Palmdale Visible Plume - Issues with Applicant's Plume Analysis foruse in the VR writeup

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>>> Will Walters <WWalters@aspeneg.com> 12/11/2009 11:58 AM >>>
Jim,

See if this works for you, and please edit as you see fit (the last paragraph in particular might be something you want to make your own)…

The applicant's plume analyses has a few problems. First, staff believes that the applicant's modeling analysis underestimates the plume size potential; second, the applicants analysis does not provide data relevant to staff's visible plume significance criteria; and finally, the applicant's cooling tower design/exhaust data does not match the supplied cooling tower fogging frequency curve. The applicant uses the SACTI model that allows only one heat rejection and air flow input and groups met data into only a few categories so that the plume results are disjointed and do not adequately determine plume size under the thousands of actual different meteorological conditions. Additionally, the applicant's SACTI model inputs used heat rejection values that were somewhat too low and air flow values that were somewhat too high as compared with the cooling tower design specification data supplied in the data responses (AECOM 2009h), which both would cause some underestimation of the plume sizes. Staff's plume frequency and plume size analysis uses the CSVP model that integrates both hourly meteorological data and hourly estimated cooling tower exhaust data based on a heat balance adjusted for each specific ambient condition modeled.

The applicant provided information on plume sizes for maximum, 90th percentile, and 50th percentile based on all hours modeled. Staff's significance visible significance criteria/determination is based on the 20th percentile plume sizes during seasonal (November through April) daylight clear hours. The applicant's assessment neglects the significant difference in Summer and Winter ambient conditions and associated plume dimensions at this site location. There is no reasonable way to use the SACTI model, considering its oversimplified approach to grouping meteorological data, to provide technically consistent output for the 20th percentile of seasonal daylight clear hours. Therefore, the applicant's modeling approach and assessment of plume significance is not representative of staff's long established visible plume significance assessment procedures.

Finally, the applicant's fogging frequency curve does not match the cooling tower design/exhaust data provided (please see the figures in Appendix VR-2). Staff's has attempted to resolve this issue with the applicant, but has yet to receive a satisfactory explanation of this data inconsistency.

Therefore, considering all of these issues, for this visual resources analysis of the visible plumes from the cooling tower staff has relied on its own hourly ambient condition and hourly cooling tower exhaust based CSVP modeling analysis, which uses the cooling tower design/exhaust data provided by the applicant in Data Responses 151 and 152 (AECOM 2009h).

A bit more than one paragraph but it tells the whole story…if you want actual values for the discrepancies for the heat rejection and flow inputs in SACTI noted in the first paragraph that my take me a while to dig up this many months after I completed my analysis.

Will
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