

**PALOMAR ENERGY PROJECT (01-AFC-24)  
CEC STAFF DATA REQUEST NUMBER 12**

**Technical Area: Air Quality**

**Response Date: April 8, 2002**

**REQUEST:**

Please discuss why the terrain surrounding the site was not included in the construction modeling analysis submitted with the AFC, or provide the construction modeling analysis incorporating the terrain into the analysis.

**RESPONSE:**

All construction modeling was performed using the ISCST3 model (version 00101). The ISCST3 model (and AERMOD also) can only incorporate the impact of terrain if the emission sources are modeled using the POINT source type and the keyword TERRHGTS is set to "ELEV" in the ISCST3 model. For sources modeled using the area, pit and volume source type, ISCST3 assumes that all emissions remain terrain-conformal at the specified height of release. No plume rise is allowed for area, pit and volume source types (EPA, 1995a,b). For the project, all construction sources were modeled as area sources using the AREAPOLY source type. Therefore, terrain could not be taken into account in the construction modeling as performed.

The point source representation of the construction sources was considered but not selected due to the difficulty of representing mobile construction sources moving over the entire project site as a few stationary point sources. The volume source algorithm was likewise considered, but it is less representative of the extended nature of the construction site than is the area source representation that was chosen. Finally, the pit source representation was considered but this source is designed for modeling PM<sub>10</sub> emissions where mining operations generate fugitive particulate matter emissions, only some of which are PM<sub>10</sub>. The pit source is designed to allow the heavier particulate matter to settle out in the pit, thereby reducing emissions of PM<sub>10</sub> out of the pit. As diesel exhaust particulate emissions are fine particulates not readily subject to settling, use of the pit source type would not improve the modeling representation of PM<sub>10</sub> from

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diesel equipment. The pit source algorithm is not applicable to modeling gaseous pollutants and would not affect modeling for CO or NO<sub>x</sub>. Therefore, there is no benefit from use of the pit source type for modeling construction emissions. Even if the pit source algorithm was used to model fugitive dust emissions due to movement of the construction vehicles, the net effect of the pit source algorithm would be to reduce modeled offsite impacts from those represented in the AFC. As the pit source algorithm requires input of settling velocity, some PM<sub>10</sub> would be modeled as settling prior to leaving the plant site, thereby reducing offsite impacts.

- Environmental Protection Agency, 1995a. “User’s Guide for the Industrial Source Complex (ISC3) Dispersion Models. Volume I – User’s Instructions”, Office of Air Quality Planning and Standards, Research Triangle Park, NC. September 1995.
  - Environmental Protection Agency, 1995b. “User’s Guide for the Industrial Source Complex (ISC3) Dispersion Models. Volume II – Description of Model Algorithms”, Office of Air Quality Planning and Standards, Research Triangle Park, NC. September 1995.
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