Model Clearinghouse Information Storage and Retrieval System

Record Information Report

Record Number: 00-VIII-04 Fiscal Year: 1900 Region: 08 Last Update: 07/17/00
Name: Colorado Cooling Tower-May 00

State(s): COLORADO
Pollutant(s): PM-10
Regulation(s): SIP
Source(s): Power Plant
Model(s): BPIP
ISC3
Subject(s): Downwash
Urban/Rural: Rural Only
Oral/Written: Oral
Terrain: Low Terrain (below stack height)
Guideline: Guideline
Database: Off-site
Involvement: Review and Comment
Record Comments:
Issue (from Colorado) We request technical guidance from EPA about how to model mechanical
draft cooling towers. We have a 1000MW power plant located less than 1 kilometer from the
Denver PM10 nonattainment area boundary. The applicant has used a volume source in
ISCST3 with a 50 meter release height, although the physical release height of the towers is about
15 m. The volume source release height is justified with plume rise assumptions.
If a lower volume height is used, the source has a significant impact for PM10. This might cause a
significant impact within the Denver PM10 nonattainment area.
In the past, we have allowed a variety of approaches to model cooling towers, but in those cases
the cooling tower impacts didn't have much effect on regulatory decisions. In this case, the
cooling tower modeling approach may have significant implications with respect to nonattainment
permitting rules.
Region VIII Comment:. This has always been an issue....what they are suggesting is a not

necessarily conservative screening approach.....latent heat and/or warm ambient temperatures
could easily put the plume on the ground. Do you know of any new techniques that have been
used lately ?
C/H Comment: Modeling cooling towers have been difficult in the past, with no real agreed upon
guidance. In your case, instead of a volume source with a somewhat arbitrary release height, why
not use BPIP to determine building dimension input to ISC3 for downwash calculations. Also,
stack tip downwash should be invoked. These comments are based on C/H records 87-IV-07 and
97-IV -01 in MCHISRS.