UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

5/20/91

MEMORANDUM

TO: Marius Gedgaudas, Section Chief
SIP/Permits Section

Tom Coulter, Model Application Section
OAQPS (MD-14)

FROM: Larry Svoboda, Chief
Technical Support Section

SUBJECT: Comments on East Helena Lead SIP by Dale Wells

I am responding to your memo of May 6, 1991, requesting an evaluation of the modeling and reconciliation by May 24, 1991. This memorandum provides the comments of Dale Wells on the ASARCO Chemical Mass Balance Study for the third and fourth quarters of 1990; and I am also enclosing a copy of the study for review to you, Tom. Please provide me with your questions and comments on this study by June 3, 1991, if possible.

We have reviewed this study using EPA's "Protocol for Applying and Validating the CMB Model". The study is excellent, and will be extremely useful in developing the SIP.

The study met or exceeded the requirements of the April 19, 1990 modeling protocol as approved by EPA. The sampling procedures utilized are appropriate for the collection of samples for source profiles for use with the CMB model including the NEA plume simulating dilution sampler and the Keystone/NEA moving sedge resuspension system. Seven stack sources and one building source were sampled with a modified Method 5 sampling train. This is also an appropriate method for source profile sampling. The filters from this sampling experienced fiber loss and so a correction factor was developed to calculate total mass based on the flow rate and the average particulate concentration. This correction technique seems appropriate; but in any case, the total mass is not important in the development of source profiles. Source profiles consist of the percentage of each chemical species in the sample. Four source profiles were obtained from sampling conducted in 1989, and the rest of the sampling was conducted in 1990. Certain area source profiles (diesels, wood smoke, etc.) were obtained from other areas. All

of these source profiles seem to be appropriate for use in the CMB modeling.

The results presented thus far are preliminary in that they have not yet been reconciled with the dispersion modeling. The results were able to explain the ambient concentrations very well, and were on the whole well within the statistical requirements of the EPA CMB Protocol document. The two largest source categories of lead contribution are the Blast Furnace fugitives and the Acid Plant stack and dust. The study notes that most of the source profile apportionments had standard errors of less than 30% of their values, and this seems to indicate surprisingly little variability for a source as variable as a smelter. The study also notes that using sodium as a fitting species caused the sinter storage baghouse stack to show up as a significant lead source at Old Railroad, while other sources would be indicated to a greater extent if this element is not used. However, the sinter storage stack also explained the organic carbon better. This discussion seems reasonable. On all but two of the days sampled the Firehall concentration was higher than the Old Railroad concentration, and Firehall will probably be the controlling site. On 12/20/90, the Old Railroad site had extremely high concentrations of lead (20.57 ug/m3), but other days had higher TSP concentrations at that site with very little lead. The dispersion modeling for that day did not show similar values, and the meteorological data for that day should be examined in detail to see if there is an explanation.

We are unable to determine whether the receptor and dispersion models reconcile at this time. To do so we need to see the statistical analysis required by the "Protocol for Reconciling Differences Among Receptor and Dispersion Models", which has not yet been applied by ASARCO.