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***Document Number:***

**62) II-B-2**

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***Docket Number:***

**A-87-09**

A-87-09

II-B-2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

January 2, 1987

MEMORANDUM

SUBJECT: Short-term Screening Analyses of Emissions from Zinc and Zinc Oxide Sources

FROM: Dennis Doll, Meteorologist *Dennis Doll*  
Model Application Section (MD-14)

TO: John J. Vandenberg, Environmental Protection Specialist  
Program Integration and Health Section (MD-12)

Attached are the results of the short-term screening analyses for zinc and zinc oxide emissions from several source categories. Except for the specialty steel and electric arc furnace categories, these analyses were based on the procedures described in the February 21, 1985 memorandum to R. Shell from J. Pearson. Because roof monitors and baghouses were among the emission sources for the specialty steel and electric arc furnace categories, an alternative screening approach was applied for these categories using the Industrial Source Complex (ISC) Model.

For the zinc emission sources, highest "worst-case" concentration estimates were predicted from the fanning plume meteorological scenario for the primary smelter source category.

For zinc oxide emission sources, highest "worst-case" concentration estimates were predicted during stable, light wind meteorological conditions for the specialty steel source category. Although annual emissions of zinc oxide are greater for the primary smelter source category compared to specialty steel, lower predicted plume heights from some of the specialty steel emission sources likely contributed to higher predicted ground-level concentrations near the source.

If you have any questions concerning these results, please call on extension 5690.

Attachment

Zinc Concentrations [ $10^4$  ( $\mu\text{g}/\text{m}^3$ )]

	<u>15-min</u>	<u>1-hour</u>	<u>8-hour</u>	<u>24-hour</u>
Primary Smelter				
Amax Zinc				
Worst Case	.1436	.1013	.0719	.0597
Complex Terrain	.2086	.1655	.1175	.0977
Specialty Steel				
Armco Butler				
Worst Case	.0102	.0080	.0057	.0047
Complex Terrain	.1322	.1049	.0745	.0619
Misc. Steel				
Furnace C				
Worst Case	.0082	.0065	.0046	.0038
Complex Terrain	.0810	.0643	.0456	.0379
Misc. Manufacturing				
Flomatic Corp.				
Worst Case	.0383	.0241	.0121	.0084
Complex Terrain	.1361	.1080	.0767	.0637

Zinc Oxide Concentrations [ $10^4 (\mu\text{g}/\text{m}^3)$ ]

	<u>15-min</u>	<u>1-hour</u>	<u>8-hour</u>	<u>24-hour</u>
Primary Smelter				
St. Joe Resources	.0018	.0062	.0013	.0006
Worst Case	.0234	.0186	.0051	.0035
Complex Terrain	.5259	.4174	.2964	.2463
Specialty Steel				
Armco Butler				
Worst Case	.0255	.0202	.0143	.0119
Complex Terrain	.3319	.2634	.1870	.1554
Misc. Steel				
Furnace C				
Worst Case	.0163	.0129	.0092	.0076
Complex Terrain	.1619	.1285	.0912	.0758
Basic Oxygen				
Furnace				
Plant 8				
Worst Case	.0003	.0001	.00003	.00001
Complex Terrain	.0275	.0218	.0155	.0129
Misc. Manufacturing				
Tam Ceramics				
Worst Case	.0003	.0002	.0001	.0001
Complex Terrain	.0741	.0588	.0418	.0347