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# ***OAR Box 1817***

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

17 MAR 1987

MEMORANDUM

SUBJECT: 24-Hour Urban SO<sub>2</sub> Concentrations Above the Standard (0.14 ppm)

FROM: Bob Faoro *RF*  
Data Analysis Section (MD-14)

TO: William F. Hunt, Jr.  
Chief, Data Analysis Section (MD-14)

As requested, I have examined SO<sub>2</sub> data for all Metropolitan Statistical Areas (MSA's) with population greater than 200,000 focussing on those MSA's with sites with measured concentrations exceeding the 24-hour SO<sub>2</sub> NAAQS of 0.14 ppm or the proposed 1-hour alert level of 0.75 ppm.

Out of the 192 MSA's with 1983 population greater than 200,000, 157 reported some SO<sub>2</sub> data in 1983-85. The 1983-85 SO<sub>2</sub> data only show two MSA's - Syracuse and Pittsburgh - with violations of the 24-hour SO<sub>2</sub> standard of 0.14 ppm. In Syracuse, NY, a 1985 2nd maximum 24-hour average of 0.285 ppm was reported in Solvay, NY at a suburban-industrial site. Twelve 24-hour violations were reported at this site with a maximum and 2nd maximum 1-hour concentrations of 1.16 and 1.04 ppm. Pittsburgh has violated the 24-hour SO<sub>2</sub> standard in each of the 3 years with 2nd maximums of 0.197, 0.210 and 0.168 ppm over the 1983-85 time period respectively. Violations of the 24-hour standard ranged from a high of 13 in 1984 to a low of two in 1985. The two highest hourly averages were 1.05 and 0.99 ppm in 1983, 1.12 and 0.98 ppm in 1984, and 0.41 and 0.39 ppm in 1985. These data were reported at two center city-industrial locations in Pittsburgh.

Four other MSA's had 2nd maximum 24-hour averages above 0.13 ppm. These MSA's were Evansville, IN-KY, Gary-Hammond, IN, Galveston-Texas City, TX, and St. Louis MO-IL. None of these MSA's violated the 24-hour standard; however, both Evansville and Gary-Hammond did show one contravention of the standard in a year. The maximum hourly SO<sub>2</sub> averages did not exceed 0.75 ppm in these four MSA's. The table attached provides the necessary information on these cases.

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My review of the data suggests that Appendix G of the monitoring regulations should consider using two subindex functions for SO<sub>2</sub>. One function should be based on the 24-hour NAAQS and associated episode criteria, and significant harm level. A second function should be based on the 1-hour episode criteria and significant harm level.

Attachment

cc: R. Rhoads (MD-14)  
J. O'Connor (MD-12)  
S. Sleva (MD-14)  
J. Bachmann (MD-12)  
N. Frank (MD-14)  
D. Shipman (MD-14)

URBAN AREAS WITH 2nd Max 24-hour Averages Greater THAN 0.13 PPM

URBAN AREA	YEAR	* 2ND MAX    MAX    2-MAX 24-hr    HOUR    HOUR			SITE
		**			
SYRACUSE, NY	1985	0.285(12)	1.16	1.04	336320003F02 SUBURBAN-INDUSTRIAL
PITTSBURGH, PA	1983	0.197(5)	1.05	0.99	397260033G05 CENTER CITY-INDUSTRIAL
"	1984	0.210(13)	1.12	0.98	" "
"	1985	0.168(2)	0.41	0.39	397260021G01 "
EVANSVILLE, IN	1983	0.135(0)	0.52	0.52	154360001J02 RURAL-INDUSTRIAL
"	1984	0.134(1)	0.54	0.48	154360002J02 "
"	1985	0.135(1)	0.50	0.50	" "
GARY-HAMMOND, IN	1985	0.131(1)	0.60	0.53	151780008F01 CENTER CITY-INDUSTIAL
GALVESTON-TEXAS CITY, TX	1985	0.132(0)	0.32	0.31	455170002F01 SUBURBAN-RESIDENTIAL
ST LOUIS, MO-IL	1984	0.136(0)	0.35	0.35	140160008F01 CENTER CITY

\* ALL VALUES ARE IN PPM UNITS

\*\* NUMBER IN ( ) ARE THE NUMBER OF 24-HR VIOLATIONS