BAY AREA AIR QUALITY MANAGEMENT DISTRICT

FAX COVER MEMO

DATE: 5-2-91

TO: Scott Seery

FROM: Scott Lutz

MESSAGE:

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IF YOU ARE HAVING PROBLEMS RECEIVING, PLEASE CALL: Lorna (415) 771-6000, EXT 276

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
FAX NUMBER (415) 928-8560

TO Scott Seery
ACDEH
80 Swan Way, Rm 200
Oakland, CA 94621

ALAMEDA COUNTY WATER DISTRICT

43885 SOUTH GRIMMER BLVD.
P.O. BOX 5110
FREMONT, CALIFORNIA 94537
TELEPHONE (415) 659-1970

WE ARE PLEASED TO SEND YOU THE ATTACHED MATERIAL. IF YOU HAVE ANY QUESTIONS, FEEL FREE TO CONTACT OUR OFFICE.

SIGNED Jill

DATE 1 May 91

ACWD #464 (Doesn't appear that you were copied on this...)

TABLE C-1. Metals and Hydrogen Chloride Mass Emission Rates
U.S. Pipe & Foundry, Inc.
Union City, California

Metals		Test 1 10/18/90 Outlet (lb/hr)		Test 2 10/19/90 Outlet (lb/hr)		Test 3 10/23/90 Outlet (lb/hr)	Average Mass Emissions (lb/hr)	Average Mass Emissions (lb/yr)	Average Mass Emissions (g/s)
Arsenic	<	0.0005	<	0.0007		0.0033	0.0013	3.43	0.0002
Beryllium	<	0.0014	<	0.0021	<	0.0052	0	0	0
EPA Cadmium		0.0014		0.0014		0.0217	0.0077	20.20	0.0010
424 Cadmium		0.0013		0.0023		0.0025	0.0021	5.41	0.0003
Chromium (total)		0.0009		0.0026		0.1322	0.0452	118.75	0.0057
Chromium (VI)									0.0000342
Copper		0.0091		0.0107		0.0317	0.0171	44.97	0.0022
Lead		0.0283		0.1495		1.0673	0.4150	1089.47	0.0523
Manganese		0.1085		0.0299		4.1662	1.4348	3766.47	0.1808
Mercury		0.0002		0.0010		0.0126	0.0046	12.04	0.0006
Nickel	<	0.0047	<	0.0071	<	0.0167	0	0	0
Selenium	<	0.0009	<	0.0014	<	0.0052	0	0	0
Zinc		0.3207		0.4838		1.1496	0.6514	1709.87	0.0821
Hydrogen Chloride		10/18/90		10/18/90		10/18/90			
Hydrogen Chloride		0.2393		0.2331		0.1870	0.2198	577.07	0.0277

Source data from Compliance Testing to Quantify Emissions at U.S. Pipe and Foundary Company, Union City, California DRAFT Report prepared by EMCON Associates December, 1990.

Chromium VI based upon ratio of average Cr(VI) detected to average total Cr detected in inlet sampling. (0.001/0.178)

If not detected in any sample, the average mass emission rate is zero.
If detected in one sample and not in others, 1/2 the detection limit value was used to calculate the average mass emission rate.

Average mass emission rate assumes samples taken on 10/23 are valid and included in average mass emission rate calculation.

Cupola operates 10.5 hours/day, 5 days/week, and 50 weeks/year.

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TABLE C-2. **Dioxin/Furan Mass Emission Rates**
U.S. Pipe & Foundry, Inc.
Union City, California

	Test 1 10/15/90 Outlet (lb/hr)	Test 2 10/16/90 Outlet (lb/hr)	Test 3 10/17/90 Outlet (lb/hr)	Average Mass Emissions (lb/hr)	Average Mass Emissions (lb/yr)	Average Mass Emissions (g/s)
Dioxins						
2,3,7,8–TCDD	6.5E–09	6.2E–09	1.2E–08	8.1E–09	2.1E–05	1.0E–09
Total TCDD	9.0E–07	7.9E–07	1.3E–06	1.0E–06	2.6E–03	1.3E–07
1,2,3,7,8–PeCDD	1.5E–08	1.5E–08	2.9E–08	2.0E–08	5.2E–05	2.5E–09
Total PeCDD	5.0E–07	1.3E–06	9.1E–07	8.9E–07	2.3E–03	1.1E–07
1,2,3,4,7,8–HxCDD	4.0E–09	4.4E–09	9.8E–09	6.1E–09	1.6E–05	7.6E–10
1,2,3,6,7,8–HxCDD	7.7E–09	8.3E–09	2.1E–08	1.2E–08	3.2E–05	1.5E–09
1,2,3,7,8,9–HxCDD	7.0E–09	6.5E–09	2.0E–08	1.1E–08	2.9E–05	1.4E–09
Total HxCDD	1.4E–07	1.7E–07	3.5E–07	2.2E–07	5.7E–04	2.8E–08
1,2,3,4,6,7,8–HpCDD	2.7E–08	2.4E–08	8.1E–08	4.4E–08	1.2E–04	5.5E–09
Total HpCDD	6.2E–08	5.8E–08	1.8E–07	1.0E–07	2.7E–04	1.3E–08
OCDD	3.5E–08	2.8E–08	6.9E–08	4.4E–08	1.1E–04	5.5E–09
Furans						
2,3,7,8–TCDF	2.2E–08	2.4E–07	5.0E–07	2.5E–07	6.6E–04	3.2E–08
Total TCDF	7.4E–06	4.0E–06	8.7E–06	6.7E–06	1.8E–02	8.5E–07
1,2,3,7,8–PeCDF	1.3E–07	9.4E–08	1.8E–07	1.3E–07	3.5E–04	1.7E–08
2,3,4,7,8–PeCDF	7.7E–08	6.5E–08	1.4E–07	9.4E–08	2.5E–04	1.2E–08
Total PeCDF	2.0E–06	1.5E–06	3.3E–06	2.3E–06	6.0E–03	2.9E–07
1,2,3,4,7,8–HxCDF	4.5E–08	4.8E–08	1.1E–07	6.8E–08	1.8E–04	8.6E–09
1,2,3,6,7,8–HxCDF	3.7E–08	4.3E–08	1.0E–07	6.0E–08	1.6E–04	7.6E–09
2,3,4,6,7,8–HxCDF	2.4E–08	2.2E–09	8.3E–09	1.2E–08	3.0E–05	1.5E–09
1,2,3,7,8,9–HxCDF	2.4E–08	2.5E–08	7.7E–08	4.2E–08	1.1E–04	5.3E–09
Total HxCDF	4.5E–07	5.3E–07	1.1E–06	7.0E–07	1.8E–03	8.8E–08
1,2,3,4,6,7,8–HpCDF	3.5E–08	3.3E–08	1.2E–07	6.1E–08	1.6E–04	7.7E–09
1,2,3,4,7,8,9–HpCDF	4.7E–09	3.2E–09	1.4E–08	7.3E–09	1.9E–05	9.3E–10
Total HpCDF	6.7E–08	5.1E–08	2.1E–07	1.1E–07	2.9E–04	1.4E–08
OCDF	6.5E–09	4.2E–09	1.3E–08	7.8E–09	2.1E–05	9.9E–10

Source data from Compliance Testing to Quantify Emissions at U.S. Pipe and Foundary Company, Union City, California DRAFT Report prepared by EMCON Associates December, 1990.

Cupola operates 10.5 hours/day, 5 days/week, and 50 weeks/year.

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GERAGHTY & MILLER, INC.

05/02/91 10:02 BAY AREA AIR QUALITY MGMT DISTR 003

TABLE C-3

PAH Mass Emission Rates
U.S. Pipe & Foundry, Inc.
Union City, California

PAH	Test 1 10/15/90 Outlet (lb/hr)	Test 2 10/16/90 Outlet (lb/hr)	Test 3 10/17/90 Outlet (lb/hr)	Average Mass Emissions (lb/hr)	Average Mass Emissions (lb/yr)	Average Mass Emissions (g/s)
Naphthalene	1.4E-06	5.4E-07	2.4E-05	8.8E-06	0.0230	1.1E-06
Acenaphthylene	7.8E-07	2.6E-06	1.9E-05	6.6E-06	0.0174	8.4E-07
Acenaphthene	3.2E-06	1.2E-06	2.6E-06	2.4E-06	0.0062	3.0E-07
Fluorene	1.1E-05	4.1E-06	1.7E-05	1.1E-05	0.0286	1.4E-06
Phenanthrene	2.2E-04	9.4E-05	2.4E-04	1.9E-04	0.4877	2.3E-05
Anthracene	2.3E-05	1.1E-05	2.3E-05	1.9E-05	0.0492	2.4E-06
Fluoranthene	1.3E-03	6.4E-04	1.2E-03	1.0E-03	2.7245	1.3E-04
Pyrene	8.8E-04	4.7E-04	9.0E-04	7.5E-04	1.9663	9.4E-05
Benzo(a)Anthracene	5.7E-04	4.4E-04	2.4E-04	4.2E-04	1.0922	5.2E-05
Chrysene	2.2E-04	1.8E-04	2.1E-04	2.0E-04	0.5325	2.6E-05
Benzo(b)Fluoranthene	2.7E-04	1.6E-04	2.1E-05	1.5E-04	0.3925	1.9E-05
Benzo(a)Pyrene	2.9E-05	2.1E-05	1.2E-05	2.1E-05	0.0542	2.6E-06
Benzo(g,h,i)Perylene	4.9E-04	9.4E-06	2.4E-05	1.7E-04	0.4543	2.2E-05
Dibenzo(a,h)Anthracene	1.7E-04	1.2E-05	8.2E-06	6.4E-05	0.1693	8.1E-06
Indeno(1,2,3-cd)Pyrene	4.9E-04	1.0E-05	2.4E-05	1.7E-04	0.4568	2.2E-05
Benzo(k)Fluoranthene	2.5E-04	1.1E-04	1.7E-05	1.3E-04	0.3337	1.6E-05

Source data from Compliance Testing to Quantify Emissions at U.S. Pipe and Foundary Company, Union City, California
DRAFT Report prepared by EMCON Associates December, 1990.

Cupola operates 10.5 hours/day, 5 days/week, and 50 weeks/year.

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Table 4. Emission Rates of Toxic Compounds from Melting Bag House, U.S. Pipe and Foundry, Inc., Union City, California.

Contaminant	Emission Rate (g/sec)	Method of Estimation
Metals		
Arsenic	2.0E-4	Source test
Cadmium	3.0E-4	Source test
Chromium (total)	5.7E-3	Source test
Chromium (VI)[a]	3.4E-5	Source test
Copper	2.2E-3	Source test
Lead	5.2E-2	Source test
Manganese	1.8E-1	Source test
Mercury	6.0E-4	Source test
Zinc	8.2E-2	Source test
Organics		
Dibenzodioxins		
2,3,7,8-TCDD	1.0E-9	Source test
Total TCDD	1.3E-7	Source test
1,2,3,7,8-PeCDD	2.5E-9	Source test
Total PeCDD	1.1E-7	Source test
1,2,3,4,7,8-HxCDD	7.6E-10	Source test
1,2,3,6,7,8-HxCDD	1.5E-9	Source test
1,2,3,7,8,9-HxCDD	1.4E-9	Source test
Total HxCDD	2.8E-8	Source test
1,2,3,4,6,7,8-HpCDD	5.5E-9	Source test
Total HpCDD	1.3E-8	Source test
OCDD	5.5E-9	Source test
Dibenzofurans		
2,3,7,8-TCDF	3.2E-8	Source test
Total TCDF	8.5E-7	Source test
1,2,3,7,8-PeCDF	1.7E-8	Source test
2,3,4,7,8-PeCDF	1.2E-8	Source test
Total PeCDF	2.9E-7	Source test
1,2,3,4,7,8-HxCDF	8.6E-9	Source test
1,2,3,6,7,8-HxCDF	7.6E-9	Source test
2,3,4,6,7,8-HxCDF	1.5E-9	Source test
1,2,3,7,8,9-HxCDF	5.3E-9	Source test
Total HxCDF	8.8E-8	Source test

Table 4. Emission Rates of Toxic Compounds from Melting Bag House, U.S. Pipe and Foundry, Inc., Union City, California.

Contaminant	Emission Rate (g/sec)	Method of Estimation
Dibenzofurans (continued)		
1,2,3,4,6,7,8-HpCDF	7.7E-9	Source test
1,2,3,4,7,8,9-HpCDF	9.3E-10	Source test
Total HpCDF	1.4E-8	Source test
OCDF	9.9E-10	Source test
PAHs		
Acenaphthene	3.0E-7	Source test
Acenaphthylene	8.4E-7	Source test
Anthracene	2.4E-6	Source test
Benzo(a)anthracene	5.2E-5	Source test
Benzo(a)pyrene	2.6E-6	Source test
Benzo(b)fluoranthene	1.9E-5	Source test
Benzo(g,h,i)perylene	2.2E-5	Source test
Benzo(k)fluoranthene	1.6E-5	Source test
Chrysene	2.6E-5	Source test
Dibenzo(a,h)anthracene	8.1E-6	Source test
Fluoranthene	1.3E-4	Source test
Fluorene	1.4E-6	Source test
Indeno(1,2,3-cd)pyrene	2.2E-5	Source test
Phenanthrene	2.3E-5	Source test
Pyrene	9.4E-5	Source test
Naphthalene	1.1E-6	Source test
Other		
Hydrochloric acid	2.8E-2	Source test

a Concentration shown is 0.56 percent of total chromium concentration. Estimate based on average chromium VI concentrations compared to total chromium concentrations in inlet air samples collected on October 16, 17, and 18, 1990 (EMCON Associates, 1990), as referenced in Appendix B1. Chromium VI was only detected in the October 18 inlet air sample. It was conservatively assumed to be present at a concentration equal to one-half the detection limit in the other two samples.

Table 2. Annual Emissions of Carcinogens, U.S. Pipe and Foundry, Inc., Union City, California.

Carcinogen	Annual Amount (lb/yr)
Metals	
Arsenic	3.4
Cadmium	5.4
Chromium (total)	0.67
Organics	
Dioxins	
2,3,7,8-TCDD	2.1E-5
1,2,3,7,8-PeCDD	5.2E-5
1,2,3,4,7,8-HxCDD	1.6E-5
1,2,3,6,7,8-HxCDD	3.2E-5
1,2,3,7,8,9-HxCDD	2.9E-5
1,2,3,4,6,7,8-HpCDD	1.2E-4
Furans	
2,3,7,8-TCDF	6.6E-4
1,2,3,7,8-PeCDF	3.5E-4
2,3,4,7,8-PeCDF	2.5E-4
1,2,3,4,7,8-HxCDF	1.8E-4
1,2,3,6,7,8-HxCDF	1.6E-4
2,3,4,6,7,8-HxCDF	3.0E-5
1,2,3,7,8,9-HxCDF	1.1E-4
1,2,3,4,6,7,8-HpCDF	1.6E-4
1,2,3,4,7,8,9-HpCDF	1.9E-5
PAHs	
Benzo(a)anthracene	1.1
Benzo(b)fluoranthene	0.39
Benzo(a)pyrene	0.05
Chrysene	0.53
Dibenzo(a,h)anthracene	0.17
Indeno(1,2,3-cd)pyrene	0.46

Table 3. Annual Emissions of Non-Carcinogens, U.S. Pipe and Foundry, Inc., Union City, California.

Contaminant	Annual Amount (lb/yr)
Metals	
Copper	45
Lead	1,089
Manganese	3,766
Mercury	12
Zinc	1,710
Organics	
PAHs	
Acenaphthene	0.0062
Acenaphthylene	0.017
Anthracene	0.049
Benzo(g,h,i)perylene	0.45
Benzo(k)fluoranthene	0.33
Fluoranthene	2.7
Fluorene	0.029
Naphthalene	0.023
Phenanthrene	0.49
Pyrene	2.0
Other	
Hydrochloric acid	577

a Concentration shown is 0.56 percent of total chromium emissions (119 lb/year). Estimate based on average chromium VI concentrations compared to total chromium concentrations in inlet air samples collected on October 16, 17, and 18, 1990 (EMCON Associates, 1990), as referenced in Appendix B1. Chromium VI was only detected in the October 18 inlet air sample. It was conservatively assumed to be present at a concentration equal to one-half the detection limit in the other two samples.