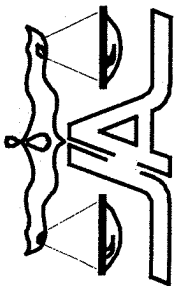


Justice & Associates



QUEMETCO, INC.

720 South 7th Avenue
City of Industry, CA 91746

Volume 1 of 3

AB2588
Health Risk Assessment
Report and Attachments

Prepared for:

Quemetco, Inc.
720 South 7th Avenue
City of Industry, CA 91746

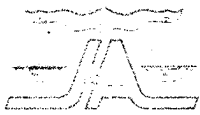
Justice & Associates

801 Pacific Coast Highway, Suite 200
Seal Beach, CA 90740

(562) 799-6111 Fax: (562) 799-6119

CONTACT: Mike Buckantz

Reference: C-6513



Justice & Associates

801 Pacific Coast Hwy., Suite 200
Seal Beach, CA 90740-6210
Phone: (562) 799-6111 Fax: (562) 799-6119

www.justice-assoc.com

910 S. Valley View Blvd.
Las Vegas, NV 89107-4416
Phone: (702) 822-2111 Fax: (702) 822-2113

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	1
A. FACILITY LOCATION & IDENTIFICATION	1
B. FACILITY PRODUCTS & PROCESSES	1
C. COMPOUNDS REVIEWED FOR INCLUSION IN THE HRA	2
D. RESULTS OF THE HEALTH RISK ASSESSMENT (HRA)	7
1. Maximum Individual Cancer Risk (MICR)	7
2. Acute Inhalation Health Risks	8
3. Chronic Inhalation Health Risks	8
E. EMISSIONS CONTRIBUTING SIGNIFICANTLY TO RISK	8
1. Cancer Risk	8
2. Acute Health Risk	8
3. Chronic Health Risk	9
F. CHANGES FROM PREVIOUS HEALTH RISK ASSESSMENTS	9
1. Operational Changes	9
2. Testing Updates	10
G. HRA SUMMARY FORM	10
II. HAZARD IDENTIFICATION	11
III. EXPOSURE ASSESSMENT	12
A. AB2588 CONTAMINANTS, SOURCES & EMISSION RATES	12
B. EMISSION & MODELING ASSUMPTIONS	13
C. AIR QUALITY DISPERSION & RISK ASSESSMENT METHODOLOGY	13
IV. RISK CHARACTERIZATION	14
V. CONCLUSIONS	15

DEC 13

Figures

1
2

Description

Site Location Map
Facility Layout

Attachments

"A"
"B"
"C"
"D"
"E"

Description

Emission Rates and Stack Data
HRA Program Output
Risk Isopleths
HRA Summary Form
Source Test Approval Letters



Justice & Associates

801 Pacific Coast Hwy., Suite 200
Seal Beach, CA 90740-6210
Phone: (562) 799-6111 Fax: (562) 799-6119

www.justice-assoc.com

910 S. Valley View Blvd.
Las Vegas, NV 89107-4416
Phone: (702) 822-2111 Fax: (702) 822-2113

I. EXECUTIVE SUMMARY

A. Facility Location and Identification

Facility Location Address: 720 S. 7th Avenue
(See Figure 1) City of Industry, CA 91746

SCAQMD Identification Number: 008547

B. Facility Products and Processes

Quemetco operates a secondary lead smelting facility primarily utilized for battery recycling. Used lead batteries and other lead-containing materials are delivered to the facility and stored until processing begins.

Initially, acid is drained from the battery casings. The casings are crushed and sent for recycling, while the lead-containing materials are directed to the reverberatory furnace. The molten lead from the reverberatory furnace is poured into molds and routed to the refinery for additional processing. The slag from the reverberatory furnace is routed to the electric arc furnace for further processing.

In the refinery, lead is treated in the refinery kettles to produce lead ingots for the battery manufacturing industry. Lead recovered in the electric arc furnace is redirected back to the reverberatory furnace and ultimately to the refinery.

These systems are well controlled through the use of scrubbers and baghouses. The entire process operates under negative air pressure to facilitate capture of air contaminants by the control systems. Quemetco's capture and control systems are considered to meet toxics best available control technology (TBACT) by the South Coast Air Quality Management District. This risk assessment essentially estimates the risk associated with contaminants not captured in the air pollution control systems.

Significant emission sources considered in this health risk assessment include the following:

- Battery Wrecker System
- Electric Arc Furnace Air Pollution Control System
- Refinery Air Pollution Control System
- Refinery Kettle Burner Stacks
- Reverberatory Process and Sanitary Air Pollution Control Systems
- General Building Ventilation Systems (Busch Units A-D)

C. Compounds Reviewed for Inclusion in the HRA

Prior to performing modeling runs and the actual health risk assessment, a preliminary list of compounds was developed for consideration. This preliminary list was developed through the use of historical source tests, process knowledge and previously developed health risk assessments (Proposition 65 / Department of Toxic Substances Control – RCRA Part B Permit Application). The list of compounds considered for each source, and the basis for consideration is provided in Table 1.

TABLE 1 – PRELIMINARY LIST OF COMPOUNDS CONSIDERED

Emission Source	Compound	Basis for Consideration
Battery Wrecker	Arsenic	Prior Source Test
	Lead	Proposition 65 Evaluation
	Selenium	Proposition 65 Evaluation
Electric Arc Furnace	1, 3 Butadiene	Prior Source Test
	1, 4 Dioxane	Prior Source Test
	Acetaldehyde	Prior Source Test
	Antimony	Prior Source Test
	Arsenic	Prior Source Test
	Benzene	Prior Source Test
	Beryllium	Prior Source Test
	Cadmium	Prior Source Test
	Chromium (Hexavalent)	Estimate Based on Baghouse Dust Analysis
	Copper	Prior Source Test
	Formaldehyde	Prior Source Test
	Hydrogen Sulfide	Proposition 65 Evaluation
	Lead	Prior Source Test
	Manganese	Prior Source Test
	Naphthalene	Prior Source Test
	Nickel	Prior Source Test
	PAH	Prior Source Test
Selenium	Prior Source Test	
Zinc	Prior Source Test	
Refinery Baghouse Stack	Acetaldehyde	Prior Source Test
	Acrolein	Prior Source Test
	Antimony	Prior Source Test
	Arsenic	Prior Source Test
	Benzene	Prior Source Test
	Cadmium	Prior Source Test
	Chromium (Hexavalent)	Estimate Based on Baghouse Dust Analysis
	Copper	Prior Source Test
	Formaldehyde	Prior Source Test

TABLE 1 CONTINUED

Emission Source	Compound	Basis for Consideration
Refinery Baghouse Stack Continued	Hydrogen Sulfide	Proposition 65 Evaluation
	Lead	Prior Source Test
	Manganese	Prior Source Test
	Mercury	Prior Source Test
	Naphthalene	Prior Source Test
	Nickel	Prior Source Test
	PAH	Prior Source Test
	Propylene	Prior Source Test
	Selenium	Prior Source Test
	Toluene	Prior Source Test
	Xylenes	Prior Source Test
	Zinc	Prior Source Test
Reverberatory Furnace Process and Sanitary Baghouse Stacks	1, 3 Butadiene	Prior Source Test
	1, 4 Dioxane	Prior Source Test
	Acetaldehyde	Prior Source Test
	Antimony	Prior Source Test
	Arsenic	Prior Source Test
	Benzene	Prior Source Test
	Benzidine	Prior Source Test
	Cadmium	Prior Source Test
	Chlorinated Dioxins	Prior Source Test
	Chlorinated Furans	Prior Source Test
	Chromium (Hexvalent)	✓ Process Stack – Estimate Based on Baghouse Dust Analysis Sanitary Stack – Prior Source Test
	Copper	Prior Source Test
	Formaldehyde	Prior Source Test
	Lead	Prior Source Test
	Manganese	Prior Source Test
	Mercury	Prior Source Test
	Naphthalene	Prior Source Test
	Nickel	Prior Source Test
	PAH	Prior Source Test
	Selenium	Prior Source Test
Silver	Prior Source Test	
Zinc	Prior Source Test	

TABLE 1 CONCLUDED

Emission Source	Compound	Basis for Consideration
General Building Ventilation Systems (Busch Units)	Antimony	Prior Source Test
	Arsenic	Prior Source Test
	Beryllium	Prior Source Test
	Cadmium	Prior Source Test
	Chromium (Hexavalent)	✓ Estimate Based on Baghouse Dust Analysis
	Copper	Prior Source Test
	Hydrogen Sulfide	Proposition 65 Evaluation
	Lead	Prior Source Test
	Manganese	Prior Source Test
	Mercury	Prior Source Test
	Nickel	Prior Source Test
	Selenium	Prior Source Test
	Silver	Prior Source Test
Zinc	Prior Source Test	
Refinery Burner Stacks	Acetaldehyde	Ventura County APCD Emission Factors
	Acrolein	Ventura County APCD Emission Factors
	Benzene	Ventura County APCD Emission Factors
	Formaldehyde	Ventura County APCD Emission Factors
	Naphthalene	Ventura County APCD Emission Factors
	PAH	Ventura County APCD Emission Factors
	Propylene	Ventura County APCD Emission Factors
	Toluene	Ventura County APCD Emission Factors
	Xylenes	Ventura County APCD Emission Factors

After establishing the preliminary list, emission rates were developed for all contaminants appearing in Appendix B-1 (Substances for which Emissions must be Quantified) of the document, *CAPCOA Air Toxics "Hot Spots" Program, Revised 1992 Risk Assessment Guidelines* (California Air Pollution Control Officers Association, October 1993). The emission rates for each contaminant and emission source, as well as relevant stack data for each source, are provided as Attachment "A" of this document.

Of the compounds considered for inclusion in the health risk assessment, 24 contributed to cancer risk, acute health risk or chronic health risk associated with facility operations. A list of these compounds and their associated impact(s) is presented in Table 2.

TABLE 2 – COMPOUNDS CONTRIBUTING TO RISK

Compound	Cancer Risk Contribution	Chronic Health Risk Contributor	Acute Health Risk Contributor
1, 3 Butadiene	X	X	
1, 4 Dioxane	X	X	X
Acetaldehyde	X	X	
Acrolein	X	X	X
Arsenic	X	X	
Benzene	X	X	
Benzidine	X	X	
Beryllium	X	X	
Cadmium	X	X	
Chlorinated Dioxins	X	X	
Chlorinated Furans	X	X	
Chromium (Hexavalent)	X	X	
Copper	X	X	X
Formaldehyde	X	X	X
Hydrogen Sulfide	X	X	X
Lead ⁽¹⁾	X	X	
Manganese	X	X	
Mercury	X	X	X
Nickel	X	X	X
PAH	X	X	
Selenium ⁽¹⁾	X	X	X
Toluene	X	X	
Xylenes	X	X	X
Zinc	X	X	

(1) Preliminary Compound

D. Results of the Health Risk Assessment (HRA)

The HRA examined the following impacts:

- Maximum Individual Cancer Risk (worker and resident)
- Acute Inhalation Health Risk
- Chronic Inhalation Health Risk

These risks were calculated through the use of dispersion modeling results (see Volumes 2 and 3 of this report) in conjunction with the "Health Risk Assessment" Program (Version 2.0e) developed by the California Air Resources Board (CARB) and the Office of Environmental Health Hazard Assessment (OEHHA). A summary of the results of each analysis is included herein. The program output for each analysis is provided as Attachment "B" of this report.

1. Maximum Individual Cancer Risk (MICR)

The maximum individual cancer risk is segregated by the maximum exposed individual resident (MEIR) and the maximum exposed individual worker (MEIW). The estimated cancer risk for the MEIW is 2.33×10^{-5} (23.3 per one million), including risk contributed by preliminary compounds (lead and selenium). The estimated cancer risk for the MEIR is 3.29×10^{-5} (32.9 per one million), including risk contributed by preliminary compounds. The MEIW is located along the western facility boundary. The MEIR is located southwest of the facility in the vicinity of 7th Avenue and Clark Avenue. Isopleths indicating the areas defined by risk values of 32.9×10^{-5} and 25×10^{-5} (Rule 1402 significance level) are provided as Attachment "C" of this report.

It should be noted that the MEIW risk level is likely to be greatly overstated. The MEIW level assumes worker exposure without protection beyond the plant air pollution control systems. OSHA regulations and Quemetco policies require workers to wear personal protective equipment (PPE) which includes air filtration respirators, safety glasses, coveralls, gloves and boots. The U.S. Food and Drug Administration considers the lowest observable adverse effect level (LOAEL) to be 30 $\mu\text{g}/\text{dL}$ in adults (CAL-EPA, 1992). Medical monitoring of Quemetco employees performed in December, 1998 indicates that actual on-site worker blood lead concentrations range from 4.2 to 40 $\mu\text{g}/\text{dL}$. Five (5) of the 175 employees have blood lead values greater than 30 $\mu\text{g}/\text{dL}$; four (4) of these five (5) individuals have worked at the facility for between 20 and 35 years. In summary, comparison of estimated on-site worker blood lead concentrations with actual measured concentrations indicates that PPE used by Quemetco workers controls lead exposure to levels which would be expected for business office and outdoor workers at the facility.

2. Acute Inhalation Health Risk

The maximum acute, non-cancer health risk due to emissions from Quemetco is estimated to be 0.065. The acute health risk is well below the public notification level of 1.0.

3. Chronic Inhalation Health Risk

The maximum chronic, non-cancer risk due to emissions from Quemetco is estimated to be 0.181. The chronic health risk is well below the public notification level of 1.0.

E. Emissions Contributing Significantly to Risk

1. Cancer Risk

Cancer risk is based on emissions of 24 AB2588 compounds. Ten (10) contaminants contributed greater than one percent (1%) of the MEIR risk:

• Arsenic:	30.22% of MEIR risk
• 1, 3 Butadiene:	24.17% of MEIR risk
• Cadmium:	13.15% of MEIR risk
• Benzene:	11.54% of MEIR risk
• Lead:	6.25% of MEIR risk
• Chlorinated Furans:	5.90% of MEIR risk
• Chromium (Hexavalent):	2.50% of MEIR risk
• PAH:	2.50% of MEIR risk
• Chlorinated Dioxins:	1.83% of MEIR risk
• Nickel:	1.07% of MEIR risk

All other contaminants contributed less than 1% of the MEIR risk.

2. Acute Health Risk

Acute risk is based on emissions of nine (9) AB2588 compounds. Five (5) contaminants contributed greater than one percent (1%) of the acute health risk:

• Nickel:	54.32% of Acute risk
• Hydrogen Sulfide:	27.01% of Acute risk
• Selenium:	7.56% of Acute risk
• Copper:	6.17% of Acute risk
• Mercury:	4.17% of Acute risk

All other contaminants contributed less than 1% of the acute risk.

3. Chronic Health Risk

Chronic risk is based on emissions of 22 AB2588 compounds. Ten (10) contaminants contributed greater than one percent (1%) of the chronic health risk:

• Lead:	47.62% of Chronic risk
• Mercury:	13.01% of Chronic risk
• Nickel:	9.30% of Chronic risk
• Chlorinated Furans:	6.65% of Chronic risk
• Manganese:	6.31% of Chronic risk
• Chromium (Hexavalent):	4.82% of Chronic risk
• Arsenic:	3.65% of Chronic risk
• Chlorinated Dioxins:	1.99% of Chronic risk
• Beryllium:	1.33% of Chronic risk
• Zinc:	1.22% of Chronic risk

All other contaminants contributed less than 1% of the chronic health risk.

F. Changes from Previous Health Risk Assessments

Since 1991, numerous changes have occurred that caused changes in emission rates for various AB2588 contaminants. Additionally, numerous source tests have been performed since 1991 resulting in revised emission rates.

1. Operational Changes

A summary of the significant operational changes since 1991 is provided below:

- 1993 – Installed dual stage scrubber for Reverb
- 1993 – Relocated stacks
- 1994 – Reverb Sanitary baghouse was replaced
- 1995 – Reverb feed chute emissions previously vented by Sanitary and Reverb stacks were re-ducted to direct all emissions to the Reverb stack
- 1995 – Reverb slag taps previously vented to the Sanitary stack were re-ducted to direct all emissions to the EAF stack
- 1995 – Demister for the Slag Furnace was installed
- 1995 – A second plastics separator auger was installed to remove more plastic from the Battery Wrecker material
- 1995 through 1997 – Zinc consumption in the Refinery was reduced from 20,000 pounds per month to 10,000 pounds per month

- 1996 (December) – Installed a 25Kva transformer in the EAF to replace a smaller transformer
- 1997 – Allowable feed rate to the Battery Wrecker was increased from 817,448 pounds per day to 1.2 million pounds per day
- 1997 – District allows plastic and rubber to be charged to the Reverb
- 1997 – The plastic trays in the Reverb scrubber were replaced with stainless steel trays to increase scrubber efficiency
- 1998 – Discontinued use of zinc in the Refinery
- 1998 – Reverb baghouse was replaced
- 1998 – District allowed use of petroleum coke in the Refinery
- 1998 – Stopped “punching” batteries in the Battery Wrecker
- 1999 (First Quarter) – Stopped supplying O2 to the Kiln
- 1999 (June) – New feed auger was installed in the Reverb

2. Testing Updates

The following source tests have been used to update facility emission rates:

- 1994 - Performed volatiles, dioxins and furans testing on the reverberatory furnace
- 1996 – Performed volatiles testing on the electric arc furnace
- 1997 – Performed metals testing on the refinery, reverberatory furnace, electric arc furnace and Busch units
- 1997 – Performed volatiles, dioxins and furans testing on the reverberatory furnace, sanitary stack
- 1999 – Performed lead and arsenic testing on the refinery, reverberatory furnace, electric arc furnace and Busch units

Currently, Quemetco is performing an extensive testing program throughout the facility in an effort to more accurately quantify emission rates of AB2588 contaminants. When the current testing program is complete, this health risk assessment will be updated and provided to the District for review and approval.

G. HRA Summary Form

The HRA Summary Form is provided as Attachment “D” of this report.



Justice & Associates

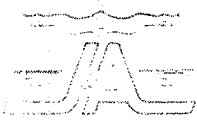
801 Pacific Coast Hwy., Suite 200
Seal Beach, CA 90740-6210
Phone: (562) 799-6111 Fax: (562) 799-6119

www.justice-assoc.com

910 S. Valley View Blvd.
Las Vegas, NV 89107-4416
Phone: (702) 822-2111 Fax: (702) 822-2113

II. HAZARD IDENTIFICATION

Contaminant	Substances Evaluated for Cancer Risk	Substances Evaluated for Non-Cancer Risk	Substances Evaluated for Multi-Pathway Analysis
1, 3 Butadiene	X	X	
1, 4 Dioxane	X	X	
Acetaldehyde	X	X	
Acrolein	X	X	
Arsenic	X	X	X
Benzene	X	X	
Benzidine	X	X	
Beryllium	X	X	X
Cadmium	X	X	
Chlorinated Dioxins	X	X	X
Chlorinated Furans	X	X	X
Chromium (Hexavalent)	X	X	X
Copper	X	X	
Formaldehyde	X	X	
Hydrogen Sulfide	X	X	
Lead	X	X	
Manganese	X	X	
Mercury	X	X	
Nickel	X	X	
PAH	X	X	X
Selenium	X	X	
Toluene	X	X	
Xylenes	X	X	
Zinc	X	X	



Justice & Associates

801 Pacific Coast Hwy., Suite 200
Seal Beach, CA 90740-6210
Phone: (562) 799-6111 Fax: (562) 799-6119

www.justice-assoc.com

910 S. Valley View Blvd.
Las Vegas, NV 89107-4416
Phone: (702) 822-2111 Fax: (702) 822-2113

III. EXPOSURE ASSESSMENT

A. AB2588 Contaminants, Sources and Emission Rates

AB2588 CONTAMINANTS AND EMISSION RATES

Contaminant	Highest Annual Concentration	Highest 1 – Hour Concentration	Units
1, 3 Butadiene	4.68×10^{-2}	1.05	$\mu\text{g}/\text{m}^3$
1, 4 Dioxane	2.06×10^{-3}	4.72×10^{-2}	$\mu\text{g}/\text{m}^3$
Acetaldehyde	6.54×10^{-3}	1.46×10^{-1}	$\mu\text{g}/\text{m}^3$
Acrolein	1.13×10^{-5}	5.14×10^{-4}	$\mu\text{g}/\text{m}^3$
Arsenic	1.10×10^{-3}	2.12×10^{-2}	$\mu\text{g}/\text{m}^3$
Benzene	1.31×10^{-1}	2.83	$\mu\text{g}/\text{m}^3$
Benzidine	1.67×10^{-4}	3.80×10^{-3}	ng/m^3
Beryllium	1.16×10^{-5}	2.51×10^{-4}	$\mu\text{g}/\text{m}^3$
Cadmium	1.03×10^{-3}	2.85×10^{-2}	$\mu\text{g}/\text{m}^3$
Chlorinated Dioxins	3.23×10^{-6}	5.67×10^{-5}	ng/m^3
Chlorinated Furans	1.04×10^{-5}	1.83×10^{-4}	ng/m^3
Chromium (Hexavalent)	5.81×10^{-6}	1.02×10^{-4}	$\mu\text{g}/\text{m}^3$
Copper	1.68×10^{-3}	3.97×10^{-2}	$\mu\text{g}/\text{m}^3$
Formaldehyde	3.64×10^{-3}	6.13×10^{-2}	$\mu\text{g}/\text{m}^3$
Hydrogen Sulfide	3.08×10^{-2}	7.36×10^{-1}	$\mu\text{g}/\text{m}^3$
Lead	2.58×10^{-2}	4.89×10^{-1}	$\mu\text{g}/\text{m}^3$
Manganese	2.28×10^{-3}	4.34×10^{-2}	$\mu\text{g}/\text{m}^3$
Mercury	1.42×10^{-3}	2.76×10^{-2}	$\mu\text{g}/\text{m}^3$
Nickel	1.35×10^{-3}	3.52×10^{-2}	$\mu\text{g}/\text{m}^3$
PAH	7.28×10^{-5}	1.39×10^{-3}	$\mu\text{g}/\text{m}^3$
Selenium	5.19×10^{-4}	9.84×10^{-3}	$\mu\text{g}/\text{m}^3$
Toluene	1.54×10^{-4}	7.00×10^{-3}	$\mu\text{g}/\text{m}^3$
Xylenes	1.14×10^{-4}	5.21×10^{-3}	$\mu\text{g}/\text{m}^3$
Zinc	3.83×10^{-2}	8.56×10^{-1}	$\mu\text{g}/\text{m}^3$

The emission concentrations in the table above were obtained from the ISC3 modeling results based on current facility operations. The modeling input and output files are on a disk included with this report. Modeling output is included as Volumes 2 and 3 of this report. As discussed earlier, itemized sources and individual emission rates are included as Attachment "A".

B. Emission and Modeling Assumptions

Stack dimensions for each source are included as Attachment "A" of this report along with contaminant and source-specific emission rates. All sources were modeled as point sources based on source-specific emission rates, obtained primarily from source tests, and stack dimensions. Source test approval letters are included as Attachment "E" of this report.

C. Air Quality Dispersion Modeling and Risk Assessment Methodology

Emissions were modeled using ISC3. The highest annual concentrations and the highest one-hour concentrations from the ISC3 model were used as input to the Health Risk Assessment Program (Version 2.0e) developed by the California Air Resources Board (CARB) and the Office of Environmental Health Hazard Assessment (OEHHA). This program includes the risk factors, reference doses and calculation procedures established by the California Air Pollution Officers Association (CAPCOA) for use in the AB2588 program.



Justice & Associates

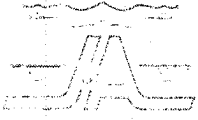
801 Pacific Coast Hwy., Suite 200
Seal Beach, CA 90740-6210
Phone: (562) 799-6111 Fax: (562) 799-6119

www.justice-assoc.com

910 S. Valley View Blvd.
Las Vegas, NV 89107-4416
Phone: (702) 822-2111 Fax: (702) 822-2113

IV. RISK CHARACTERIZATION

All calculations and printouts from the CARB/OEHHA program are provided as Attachment "B" of this report. The printouts provide the MEIR, MEIW, the acute hazard index and the chronic hazard index. Individual contaminant contributions and multi-pathway impacts are also presented. Isoleths indicating areas of 32.9×10^{-6} risk (MEIR), 25×10^{-6} risk (Rule 1402 reduction plan threshold) and 10×10^{-6} risk (Public Notice threshold) are included as Attachment "C" of this report.



Justice & Associates

801 Pacific Coast Hwy., Suite 200
Seal Beach, CA 90740-6210
Phone: (562) 799-6111 Fax: (562) 799-6119

www.justice-assoc.com

910 S. Valley View Blvd.
Las Vegas, NV 89107-4416
Phone: (702) 822-2111 Fax: (702) 822-2113

V. CONCLUSIONS

This preliminary Health Risk Assessment indicates that Quemetco is subject to the Public Notice requirements of AB2588 and the risk reduction requirements of SCAQMD Rule 1402. When the current test program is complete, a revised HRA will be submitted to the SCAQMD in order to provide the SCAQMD and the public with the best available data for determining risk.



QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Battery Wrecker System	239.1	168.1	10.4	0.15	76	23.8	Lead	1.69E-04	Not Found
							Selenium	8.88E-06	Not Found
							Arsenic	9.90E-07	6/88 Source Test
Electric Slag Reduction Furnace/APC	270.6	150.2	18.3	1.18	155	11.1	Acetaldehyde	3.38E-04	10/96 Source Test
							Antimony	6.30E-05	8/97 Source Test
							Arsenic	1.83E-05	6/99 Source Test
							Benzene	2.03E-04	10/96 Source Test
							Beryllium	4.62E-06	7/99 Source Test
							1,3 Butadiene	4.07E-05	10/96 Source Test
							Cadmium	1.13E-05	6/99 Source Test
							Chromium (hexavalent)	3.41E-08	02/00 Estimate
							Copper	1.15E-05	6/99 Source Test
							1,4 Dioxane	8.44E-06	10/96 Source Test
							Formaldehyde	4.59E-04	10/96 Source Test
							Hydrogen Sulfide	0.00E+00	
							Lead	3.44E-04	6/99 Source Test
							Manganese	7.00E-06	6/99 Source Test
							Naphthalene	2.49E-05	10/96 Source Test
							Nickel	6.04E-07	6/99 Source Test
							Selenium	1.76E-06	6/99 Source Test
							Zinc	8.83E-04	6/99 Source Test
							PAHs (total)	3.26E-07	10/96 Source Test

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Refinery Sanitary APC	275.6	101.3	18.3	0.92	143	8.29	Acetaldehyde	5.72E-06	
							Acrolein	3.59E-06	
							Antimony	2.14E-04	8/97 Source Test
							Arsenic	1.09E-04	6/99 Source Test
							Benzene	1.06E-05	
							Cadmium	6.94E-06	6/99 Source Test
							Chromium (hexavalent)	7.95E-08	02/00 Estimate
							Copper	5.94E-05	6/99 Source Test
							Formaldehyde	2.26E-05	
							Hydrogen sulfide	5.04E-03	
							Lead	9.65E-04	6/99 Source Test
							Manganese	1.65E-05	6/99 Source Test
							Mercury	5.87E-05	
							Naphthalene	3.99E-07	
							Nickel	3.71E-05	6/99 Source Test
							Propylene	9.73E-04	
							Selenium		
							Toluene	4.87E-05	
							Xylenes	3.62E-05	
							Zinc	1.99E-04	6/99 Source Test
							PAHs (total)	5.32E-07	

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Reverberatory Furnace/APC	273.3	150.1	18.3	1.07	153	14.3	Acetaldehyde	2.31E-03	4/94 Source Test
							Antimony	5.04E-05	8/97 Source Test
							Arsenic	2.70E-04	6/99 Source Test
							Benzene	3.74E-03	4/94 Source Test
							Benzidine	2.88E-10	4/94 Source Test
							1,3 Butadiene	4.79E-04	4/94 Source Test
							Cadmium	4.25E-07	6/99 Source Test
							Chromium (hexavalent)	1.33E-06	7/99 Source Test
							Copper	3.54E-05	6/99 Source Test
							1,4 Dioxane	8.57E-04	4/94 Source Test
Formaldehyde	2.27E-04	4/94 Source Test							

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
							Lead	2.96E-04	6/99 Source Test
							Manganese	2.77E-05	6/99 Source Test
							Mercury	4.76E-04	
							Naphthalene	5.13E-04	4/94 Source Test
							Nickel	3.96E-05	6/99 Source Test
							Selenium	1.64E-04	6/99 Source Test
							Silver	8.69E-07	6/99 Source Test
							Zinc	3.56E-03	6/99 Source Test
							PAHs (total)	2.35E-05	4/94 Source Test
							Chlorinated Dioxins	6.94E-10	
							Chlorinated Furans	2.23E-09	

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Reverberatory Sanitary APC			18.3	1.04	163	25.1	Acetaldehyde	1.84E-04	11/97 Source Test
							Antimony	1.13E-04	9/97 Source Test
							Arsenic	3.49E-05	6/99 Source Test
							Benzene	7.13E-02	11/97 Source Test
							Benzidine	9.74E-08	11/97 Source Test
							1,3 Butadiene	2.67E-02	11/97 Source Test
							Cadmium	7.46E-07	6/99 Source Test
							Chromium (hexavalent)	1.71E-08	02/00 Estimate
							Copper	2.40E-06	6/99 Source Test
							1,4 Dioxane	1.75E-05	11/97 Source Test
							Formaldehyde	1.14E-03	11/97 Source Test
							Hydrogen sulfide	9.51E-03	

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
							Lead	6.85E-03	6/99 Source Test
							Manganese	6.47E-05	6/99 Source Test
							Mercury	8.00E-05	
							Naphthalene	8.63E-04	11/97 Source Test
							Nickel	4.91E-05	6/99 Source Test
							Selenium	2.41E-05	6/99 Source Test
							Zinc	8.42E-04	6/99 Source Test
							PAHs (total)	9.03E-06	11/97 Source Test
							Chlorinated Dioxins	8.74E-10	
							Chlorinated Furans	2.83E-09	

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
General Building Ventilation System Busch Unit A	293.7	96.5	10.1	1.18	91	16.4	Antimony	2.52E-05	8/97 Source Test
							Arsenic	8.51E-07	6/99 Source Test
							Cadmium	7.78E-07	6/99 Source Test
							Chromium (hexavalent)	2.82E-08	02/00 Estimate
							Copper	1.69E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	3.96E-05	6/99 Source Test
							Manganese	7.53E-06	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	4.11E-05	6/99 Source Test
							Selenium		6/99 Source Test
							Zinc	3.37E-04	6/99 Source Test
Busch Unit B	293.7	101.8	10.1	1.18	113	17.3	Antimony	2.52E-05	8/97 Source Test
							Arsenic	0.00E+00	6/99 Source Test
							Cadmium	2.66E-06	6/99 Source Test
							Chromium (hexavalent)	2.33E-08	02/00 Estimate
							Copper	3.03E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	7.87E-05	6/99 Source Test
							Manganese	2.11E-05	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	2.72E-05	6/99 Source Test
							Selenium	0.00E+00	6/99 Source Test
							Silver	7.01E-07	6/99 Source Test
							Zinc	7.01E-04	6/99 Source Test

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Busch Unit C	293.7	101.8	10.1	1.18	88	15.4	Antimony	3.14E-05	8/97 Source Test
							Arsenic	2.65E-06	6/99 Source Test
							Beryllium	1.59E-07	7/99 Source Test
							Cadmium	5.42E-06	6/99 Source Test
							Chromium (hexavalent)	1.61E-08	02/00 Estimate
							Copper	2.06E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	3.05E-04	6/99 Source Test
							Manganese	1.36E-05	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	2.17E-05	6/99 Source Test
							Selenium	2.70E-06	6/99 Source Test
							Zinc	8.55E-04	6/99 Source Test
Busch Unit D	293.7	112.1	10.1	1.18	117	15	Antimony	3.78E-05	8/97 Source Test
							Arsenic	6.04E-07	6/99 Source Test
							Cadmium	1.15E-06	6/99 Source Test
							Chromium (hexavalent)	9.50E-08	02/00 Estimate
							Copper	3.18E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	8.54E-05	6/99 Source Test
							Manganese	6.18E-06	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	2.57E-05	6/99 Source Test
							Selenium	0.00E+00	6/99 Source Test
							Zinc	5.23E-04	6/99 Source Test

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Busch Unit E	200.5	157.7	10.1	1.18	101	20.4	Antimony	6.30E-05	8/97 Source Test
							Arsenic	1.69E-06	6/99 Source Test
							Cadmium	1.19E-04	6/99 Source Test
							Chromium (hexavalent)	1.30E-07	02/00 Estimate
							Copper	9.86E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	8.02E-04	6/99 Source Test
							Manganese	1.92E-04	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	4.68E-05	6/99 Source Test
							Selenium	0.00E+00	6/99 Source Test
							Zinc	2.41E-03	6/99 Source Test
Busch Unit F	195.3	157.7	10.1	1.18	95	18.4	Antimony	3.58E-05	6/97 Source Test
							Arsenic	1.82E-06	6/99 Source Test
							Cadmium	7.11E-05	6/99 Source Test
							Chromium (hexavalent)	1.50E-08	02/00 Estimate
							Copper	3.19E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	9.51E-04	6/99 Source Test
							Manganese	6.19E-05	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	3.51E-05	6/99 Source Test
							Selenium	0.00E+00	6/99 Source Test
							Zinc	1.16E-03	6/99 Source Test

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Busch Unit G	190.2	157.7	10.1	1.18	99	18.5	Antimony	5.04E-05	9/97 Source Test
							Arsenic	3.33E-06	6/99 Source Test
							Cadmium	1.64E-05	6/99 Source Test
							Chromium (hexavalent)	2.46E-07	02/00 Estimate
							Copper	5.03E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	1.45E-04	6/99 Source Test
							Manganese	1.08E-05	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	1.95E-05	6/99 Source Test
							Selenium	9.66E-06	6/99 Source Test
							Zinc	7.62E-04	6/99 Source Test
							Busch Unit H		
Arsenic	8.31E-07	6/99 Source Test							
Cadmium	2.26E-05	6/99 Source Test							
Chromium (hexavalent)	4.82E-08	02/00 Estimate							
Copper	2.18E-05	6/99 Source Test							
Hydrogen sulfide	1.40E-06								
Lead	2.37E-04	6/99 Source Test							
Manganese	2.21E-05	6/99 Source Test							
Mercury	3.01E-08								
Nickel	2.69E-05	6/99 Source Test							
Selenium	0.00E+00	6/99 Source Test							
Zinc	8.99E-04	6/99 Source Test							

QUEMETCO EMISSION DATA

Activity	UTM-X	UTM-Y	Stack Height (m)	Stack Diam (m)	Stack Temp (F)	Stack Vel (m/s)	Chemical	Emission Rate Dry (g/s)	Source
Busch Unit I	179.9	157.7	10.1	1.18	95	13.9	Antimony	2.52E-05	9/97 Source Test
							Arsenic	1.10E-06	6/99 Source Test
							Cadmium	4.39E-05	6/99 Source Test
							Chromium (hexavalent)	1.36E-07	02/00 Estimate
							Copper	3.70E-05	6/99 Source Test
							Hydrogen sulfide	1.40E-06	
							Lead	1.20E-04	6/99 Source Test
							Manganese	4.01E-05	6/99 Source Test
							Mercury	3.01E-08	
							Nickel	3.35E-05	6/99 Source Test
							Selenium	0.00E+00	6/99 Source Test
Zinc	6.87E-04	6/99 Source Test							
Refinery Burner Stacks			0.4572	5.32	784		Benzene	4.07E-06	Ventura Factors
							Formaldehyde	8.65E-06	Ventura Factors
							PAH (Total)	5.09E-08	Ventura Factors
							Naphthalene	1.53E-07	Ventura Factors
							Acetaldehyde	2.19E-06	Ventura Factors
							Propylene	3.72E-04	Ventura Factors
							Toluene	1.87E-05	Ventura Factors
							Xylenes	1.39E-05	Ventura Factors
							Acrolein	1.37E-06	Ventura Factors

California Air Resources Board
And
Office of Environmental Health Hazard Assessment
Health Risk Assessment Program
Version 2.0e

INDIVIDUAL CANCER RISK REPORT

Run Made By
Michael R. Buckantz

Quemetco

Project : Health Risk Assessment

Dec. 8, 2000

Pollutant Database Date : Sep. 30, 1996
Database Reference..... : CAPCOA Risk Assessment Guidelines

DILUTION FACTOR FOR POINT UNDER EVALUATION

X/Q (ug/m3)/(g/s) : 1.00E+00

ANNUAL AVERAGE EMISSION RATE INFORMATION

File: Q-R-ANNL.E96

Pollutant Name Emission Rate (g/s)

1,3-BUTADIENE	4.680E-02
1,4-DIOXANE	2.060E-03
ACETALDEHYDE	6.540E-03
ACROLEIN	1.130E-05
ARSENIC AND COMPOUNDS (INOR	1.100E-03
BENZENE	1.310E-01
BENZIDINE (AND ITS SALTS)	1.670E-07
BERYLLIUM	1.160E-05
CADMIUM AND COMPOUNDS	1.030E-03
CHLORINATED DIBENZO-P-DIOXI	3.230E-09
CHLORINATED DIBENZOFURANS (1.040E-08
CHROMIUM 6+	5.810E-06
COPPER AND COMPOUNDS	1.680E-03
FORMALDEHYDE	3.640E-03
HYDROGEN SULFIDE	3.080E-02
LEAD AND COMPOUNDS	2.580E-02
MANGANESE AND COMPOUNDS	2.280E-03
MERCURY AND COMPOUNDS (INOR	1.420E-03
NICKEL AND COMPOUNDS	1.350E-03
PAH AS BENZO(A) PYRENE	7.280E-05
SELENIUM AND COMPOUNDS	5.190E-04
TOLUENE	1.540E-04
XYLENES	1.140E-04
ZINC COMPOUNDS	3.830E-02

⇒ 0.2 #/w ⇒ 176 #/yr

44 YEAR
INDIVIDUAL CANCER RISK BY POLLUTANT AND ROUTE

Pollutant	Air	Soil	Skin	Garden	MMilk	Other
1,3-BUTADIENE	5.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,4-DIOXANE	9.97E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ACETALDEHYDE	1.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ARSENIC AND COM	2.28E-06	4.19E-06	8.88E-08	8.75E-07	0.00E+00	0.00E+00
BENZENE	2.39E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BENZIDINE (AND	1.47E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BERYLLIUM	1.75E-08	1.12E-07	2.37E-09	2.14E-08	0.00E+00	0.00E+00
CADMIUM AND COM	2.72E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHLORINATED DIB	7.72E-08	1.37E-07	1.35E-07	7.73E-08	2.31E-07	0.00E+00
CHLORINATED DIB	2.48E-07	4.42E-07	4.36E-07	2.49E-07	7.44E-07	0.00E+00
CHROMIUM 6+	5.11E-07	5.47E-09	1.16E-09	1.09E-09	0.00E+00	0.00E+00
FORMALDEHYDE	1.37E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NICKEL AND COMP	2.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PAH AS BENZO(A)	5.03E-08	7.43E-08	4.71E-08	3.50E-07	1.90E-07	0.00E+00
Route Total	1.36E-05	4.97E-06	7.10E-07	1.57E-06	1.16E-06	0.00E+00

TOTAL RISK: 2.20E-05

EXPOSURE ROUTE INFORMATION

File: Q-R-EXPR.I96

Deposition Velocity (m/s): 0.020

Fraction of Homegrown Produce ..: 0.100

Dilution Factor for Farm/Ranch X/Q (ug/m3)/(g/s): 0.0000

Fraction of Animals' Diet From Grazing: 0.0000

Fraction of Animals' Diet From Impacted Feed: 0.0000

Fraction of Animals' Water Impacted by Deposition: 0.0000

 Surface Area (m2): 0.000E+00

 Volume (liters): 0.000E+00

 Volume Changes: 0.000E+00

Fraction of Meat in Diet Impacted ...: 0.0000

 Beef: 0.0000

 Pork: 0.0000

 Lamb/Goat: 0.0000

 Chicken: 0.0000

Fraction of Milk in Diet Impacted ...: 0.0000

 Goat Milk Fraction ...: 0.0000

Fraction of Eggs in Diet Impacted ...: 0.0000

Fraction of Impacted Drinking Water : 0.0000

 X/Q at water source ...: 0.0000

 Surface Area (m2): 0.000E+00

 Volume (liters): 0.000E+00

 Volume changes: 0.000E+00

Fraction of Fish from Impacted Water: 0.0000

 X/Q at Fish Source: 0.0000

 Surface Area (m2): 0.000E+00

 Volume (liters): 0.000E+00

 Volume changes: 0.000E+00

44 YEAR
INDIVIDUAL CANCER RISK BY POLLUTANT AND ROUTE
For 2588 Screening Purposes Only

Pollutant	Air	Soil	Skin	Garden	MMilk	Other
LEAD AND COMPOU	1.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SELENIUM AND CO	4.57E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Route Total	1.34E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL RISK: 1.34E-06

70 YEAR
INDIVIDUAL CANCER RISK BY POLLUTANT AND ROUTE

Pollutant	Air	Soil	Skin	Garden	MMilk	Other
1,3-BUTADIENE	7.96E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,4-DIOXANE	1.59E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ACETALDEHYDE	1.77E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ARSENIC AND COM	3.63E-06	4.87E-06	1.03E-07	1.35E-06	0.00E+00	0.00E+00
BENZENE	3.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BENZIDINE (AND	2.34E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BERYLLIUM	2.78E-08	1.30E-07	2.75E-09	3.38E-08	0.00E+00	0.00E+00
CADMIUM AND COM	4.33E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHLORINATED DIB	1.23E-07	1.80E-07	1.77E-07	1.23E-07	0.00E+00	0.00E+00
CHLORINATED DIB	3.95E-07	5.80E-07	5.71E-07	3.96E-07	0.00E+00	0.00E+00
CHROMIUM 6+	8.13E-07	6.35E-09	1.34E-09	1.70E-09	0.00E+00	0.00E+00
FORMALDEHYDE	2.18E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NICKEL AND COMP	3.51E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PAH AS BENZO(A)	8.01E-08	1.15E-07	7.30E-08	5.57E-07	0.00E+00	0.00E+00
Route Total	2.16E-05	5.88E-06	9.28E-07	2.46E-06	0.00E+00	0.00E+00

TOTAL RISK: 3.08E-05

70 YEAR
INDIVIDUAL CANCER RISK BY POLLUTANT AND ROUTE
For 2588 Screening Purposes Only

Pollutant	Air	Soil	Skin	Garden	MMilk	Other
LEAD AND COMPOU	2.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SELENIUM AND CO	7.27E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Route Total	2.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TOTAL RISK: 2.14E-06

California Air Resources Board
And
Office of Environmental Health Hazard Assessment
Health Risk Assessment Program
Version 2.0e

ACUTE INHALATION EXPOSURE REPORT

Run Made By
Michael R. Buckantz

Quemetco

Project : Health Risk Assessment

Dec. 8, 2000

Pollutant Database Date : Sep. 30, 1996
Database Reference..... : CAPCOA Risk Assessment Guidelines

DILUTION FACTOR FOR POINT UNDER EVALUATION

X/Q (ug/m3)/(g/s) : 1.00E+00

MAX. 1-HR EMISSION RATE INFORMATION

File: Q-R-1HR.M96

Pollutant Name	Emission Rate (g/s)
1,4-DIOXANE	4.719E-02
ACROLEIN	5.140E-04
COPPER AND COMPOUNDS	3.970E-02
FORMALDEHYDE	6.126E-02
HYDROGEN SULFIDE	7.360E-01
MERCURY AND COMPOUNDS (INOR	2.760E-02
NICKEL AND COMPOUNDS	3.520E-02
SELENIUM AND COMPOUNDS	9.840E-03
XYLENES	5.210E-03

ACUTE INHALATION HAZARD INDEX

Pollutant	Resp	CV/BL	CNS	Eye	Repro	Kidn	GI/LV	Immun
1,4-DIOXANE	--	--	--	<.0001	--	--	--	--
ACROLEIN	0.0002	--	--	--	--	--	--	--
COPPER AND COMP	0.0040	--	--	--	--	--	--	--
FORMALDEHYDE	0.0002	--	--	--	--	--	--	--
HYDROGEN SULFID	0.0175	--	--	--	--	--	--	--
MERCURY AND COM	--	--	0.0009	--	--	0.0009	0.0009	--
NICKEL AND COMP	--	--	--	--	--	--	--	0.0352
SELENIUM AND CO	0.0049	--	--	--	--	--	--	--
XYLENES	<.0001	--	--	--	--	--	--	--
Total Acute	0.0268	--	0.0009	<.0001	--	0.0009	0.0009	0.0352

A Zero Background Concentration file was used to perform this analysis, therefore, there is no contribution from background pollutants.

California Air Resources Board
And
Office of Environmental Health Hazard Assessment
Health Risk Assessment Program
Version 2.0e

CHRONIC INHALATION EXPOSURE REPORT

Run Made By
Michael R. Buckantz

Quemetco

Project : Health Risk Assessment

Dec. 8, 2000

Pollutant Database Date : Sep. 30, 1996
Database Reference..... : CAPCOA Risk Assessment Guidelines

DILUTION FACTOR FOR POINT UNDER EVALUATION

X/Q (ug/m3)/(g/s) : 1.00E+00

ANNUAL AVERAGE EMISSION RATE INFORMATION

File: Q-R-ANNL.E96

Pollutant Name	Emission Rate (g/s)
1,3-BUTADIENE	4.680E-02
1,4-DIOXANE	2.060E-03
ACETALDEHYDE	6.540E-03
ACROLEIN	1.130E-05
ARSENIC AND COMPOUNDS (INOR	1.100E-03
BENZENE	1.310E-01
BENZIDINE (AND ITS SALTS)	1.670E-07
BERYLLIUM	1.160E-05
CADMIUM AND COMPOUNDS	1.030E-03
CHLORINATED DIBENZO-P-DIOXI	3.230E-09
CHLORINATED DIBENZOFURANS (1.040E-08
CHROMIUM 6+	5.810E-06
COPPER AND COMPOUNDS	1.680E-03
FORMALDEHYDE	3.640E-03
HYDROGEN SULFIDE	3.080E-02
LEAD AND COMPOUNDS	2.580E-02
MANGANESE AND COMPOUNDS	2.280E-03
MERCURY AND COMPOUNDS (INOR	1.420E-03
NICKEL AND COMPOUNDS	1.350E-03
PAH AS BENZO(A) PYRENE	7.280E-05
SELENIUM AND COMPOUNDS	5.190E-04
TOLUENE	1.540E-04
XYLENES	1.140E-04
ZINC COMPOUNDS	3.830E-02

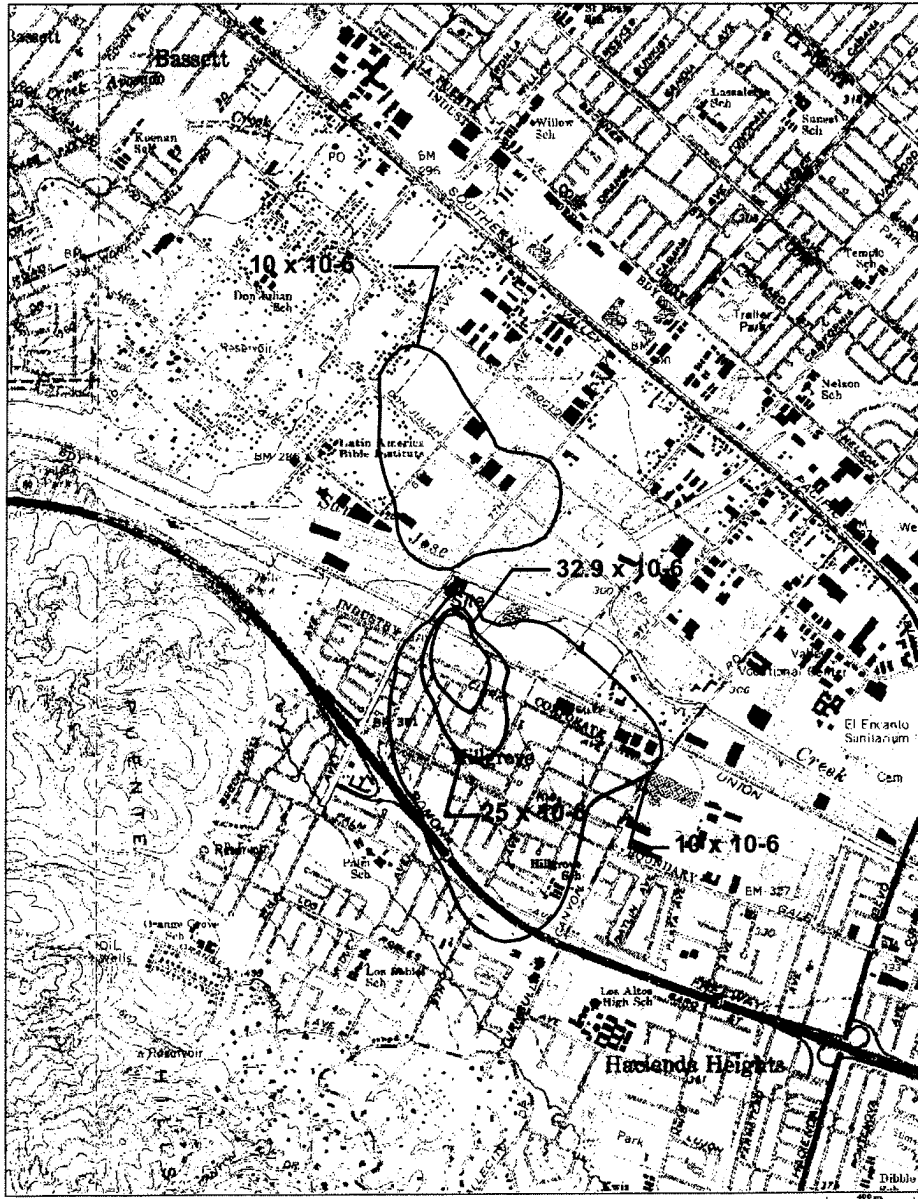
CHRONIC INHALATION HAZARD INDEX

Pollutant	Resp	CV/BL	CNS	Skin	Repro	Kidn	GI/LV	Immun
1,4-DIOXANE	<.0001	--	<.0001	--	--	<.0001	<.0001	--
ACETALDEHYDE	0.0007	--	--	--	--	--	--	--
ACROLEIN	0.0006	--	--	--	--	--	--	--
ARSENIC AND COM	0.0022	--	0.0022	0.0022	--	--	--	--
BENZENE	--	--	0.0018	--	--	--	--	--
BENZIDINE (AND	--	--	<.0001	--	--	--	<.0001	--
BERYLLIUM	0.0024	--	--	--	--	--	--	--
CADMIUM AND COM	0.0003	--	--	--	--	0.0003	--	--
CHLORINATED DIB	--	--	--	0.0009	0.0009	--	0.0009	0.0009
CHLORINATED DIB	--	--	--	0.0030	0.0030	--	0.0030	0.0030
CHROMIUM 6+	0.0029	--	--	--	--	0.0029	0.0029	--
COPPER AND COMP	0.0007	--	--	--	--	--	--	--
FORMALDEHYDE	0.0010	--	--	--	--	--	--	--
HYDROGEN SULFID	--	--	0.0007	--	--	--	--	--
LEAD AND COMPOU	--	0.0172	0.0172	--	0.0172	0.0172	--	0.0172
MANGANESE AND C	0.0057	--	0.0057	--	--	--	--	--
MERCURY AND COM	0.0047	0.0047	0.0047	--	--	0.0047	0.0047	--
NICKEL AND COMP	0.0056	--	--	--	--	0.0056	--	0.0056
SELENIUM AND CO	0.0010	--	--	--	--	--	--	--
TOLUENE	--	--	<.0001	--	<.0001	--	--	--
XYLENES	<.0001	--	--	--	<.0001	--	--	--
ZINC COMPOUNDS	0.0011	0.0011	--	--	--	--	--	--
Total Chronic	0.0290	0.0230	0.0324	0.0061	0.0211	0.0308	0.0115	0.0267

A Zero Background Concentration file was used to perform this analysis, therefore, there is no contribution from background pollutants.

Quemetco

Cancer Risk Isopleths



HEALTH RISK ASSESSMENT SUMMARY FORM
(Required in Executive Summary of HRA)

Company Name Quemetco, Inc.
Facility Name _____
Facility Address 720 S. 7th Avenue
City of Industry, CA 91746
AQMD ID Number 008547

A. CANCER RISK * *

I. Inventory Report Basis. ATIR or verified reductions or other
(circle one only) (If other, explain why in text.)

2. Maximum Cancer Risk to Receptors (based on Tables III-5* and III-6* substances)

a. Max Offsite 32.9 x 10⁻⁶ location: Southwest of the facility
b. Residence 32.9 x 10⁻⁶ location: Southwest of the facility
c. Worker 23.3 x 10⁻⁶ location: Western facility boundary

3. Substances Accounting for 90% of Cancer Risk Arsenic, 1, 3-butadiene, Cadmium, Benzene, Lead, Furans
Processes Accounting for 90% of Cancer Risk EAF, Reverberatory Furnace, Refinery, Busch Units

4. Population Exposed to Specific Risk Levels (including worker population)

a. >1x10⁻⁶ _____
b. 1x10⁻⁶ to 1x10⁻⁵ _____
c. 1x10⁻⁵ to 1x10⁻⁴ _____
d. 1x10⁻⁴ to 1x10⁻³ _____
e. >1x10⁻³ _____

5. Cancer Burden _____ (including worker population)

6. Maximum Distance to Edge of 1 x 10⁻⁶ Cancer Risk Isopleth (meters) _____

7. Screening Cancer Risk to Most Exposed Individual (based on Table III-7 * substances)

a. Residence (without silica) _____
b. Residence (silica only) _____

B. HAZARD INDICES * *

1. Highest Chronic Hazard Indices (based on Tables III-8* and III-10 * Substances)

Residential chronic HI: 0.181 toxicological endpoint: _____
Worker chronic HI: _____ toxicological endpoint: _____

2. Substances Accounting for 90% of Chronic Hazard Index Lead, Mercury, Nickel, Furans, Manganese, Chromium (Hexavalent), Arsenic
Processes Accounting for 90% of Chronic Hazard Index EAF, Reverberatory Furnace, Refinery, Busch Units

3. Highest Acute Hazard Indices (based on Table III-9* substances)

Residential acute HI: 0.065 toxicological endpoint: _____
Worker acute HI: _____ toxicological endpoint: _____

4. Substances Accounting for 90% of Acute Hazard Index Nickel, Hydrogen Sulfide, Selenium, Copper, Mercury
Processes Accounting for 90% of Acute Hazard Index EAF, Reverberatory Furnace, Refinery, Busch Units

* CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993

** Provide Tables listing contribution of each substance to Chronic HI and/or Acute HI.

REPORT REVIEW

PAGE 2

GENERAL GUIDELINES

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
MONITORING & ANALYSIS DIVISION * MONITORING & SOURCE TEST ENGINEERING

REPORT REVIEW

DATE: 8/5/99 EVALUATOR: Scott A. Wilson EXT: 2257

ST ID: R98039

COMPANY: Quemetco Inc., City of Industry, CA 91745

IDENTIFICATION: (Application No. 307569) (Facility ID No. 008547)

EQUIPMENT: Reverberatory Furnace Sanitary Stack

LOCATION: 720 South 7th. Ave., City of Industry

TEST FIRM: Western Environmental Services (WES)

EVALUATE: Dioxins, Furans, PAHs, Benzene, Aldehydes, 1-4 Dioxane, Benzidine, TGNMOC

TYPE EVAL:

CEMS APPL CEMS PROT CEMS RPRT PERF PROT PERF RPRT OTHER:

RECLAIM Specific Requirements (MAJ LGE PRC):

CEMS PLAN 6/12 MO RECERT ALT EMIS FACT 3-YR (RE)CERT ACEMS OTHER:

1. SUMMARY / CONCLUSIONS:

CONDITIONALLY ACCEPTABLE

Monitoring & Source Test Engineering has evaluated the subject source test report dated 11/30/94, for the equipment located at 720 South 7th. Ave., City of Industry.

The test report is "conditionally acceptable", meaning that interpretation of the data contained in the source test report may be subject to certain restrictions. These restriction(s) are summarized below:

- Monitoring & Source Test Engineering (M&STE) noted that WES used a value of 0.78 for their pitot tube factor, calibration data is included for this value however it is lower that is commonly encountered.
- WES used Method 100.1 for the gas density measurements, of which the CO₂ values reported were less than the twenty percent allowed by the method. Additional low level calibrations were not conducted to justify the readings. The error introduced by this is not detectable in the mass emission rates.

The attached evaluation clarifies these restrictions concerning the data.

2. SPECIFIC DETERMINATIONS:

The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain sufficient information, as presented.

REPORT REVIEW

PAGE 3

GENERAL GUIDELINES

The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain insufficient information, or requires further explanation, in the following area(s) (see complete attached discussion):

- Equipment/Process/Test Overview
- Completeness of Report.
- Representativeness of Data & Process.
- Rule/Permit Fulfillment.
- Sampling & Analytical Methods.
- Quality Assurance
- Calculations.

3. GENERAL GUIDELINES:

An overview of general evaluation criteria used by M&STE Engineers to judge the quality of source test results.

EQUIPMENT/PROCESS/TEST OVERVIEW

M&STE has recalculated the values reported by WES and recommends that they be accepted as representative of the process as tested.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
APPLIED SCIENCE & TECHNOLOGY DIVISION * SOURCE TESTING & ENGINEERING**

REPORT REVIEW

DATE: 2/20/97 EVALUATOR: Scott A. Wilson EXT: 2257

ST ID: PR96188
(P95113 Protocol Conditionally Acceptable)

COMPANY: Quemetco Inc., City of Industry, CA 91745

IDENTIFICATION: (Application No. REC229) (Facility ID No. 008547)

EQUIPMENT: Slag Furnace

LOCATION: 720 South 7th. Ave., City of Industry

TEST FIRM: Western Environmental Services (WES)
Tom Rooney (310) 540-4676

EVALUATE: As, Cd, Pb, Dioxins, Furans, PAHs, Benzene, Aldehydes, 1-4
Dioxane, Benzidine, TGNMOC, NOx, CO, SOx

TYPE EVAL:

- | | | | | | |
|---|--|---|---|--|--|
| <input type="checkbox"/> CEMS
APPL | <input type="checkbox"/> CEMS
PROT | <input type="checkbox"/> CEMS
RPRT | <input type="checkbox"/> PERF
PROT | <input checked="" type="checkbox"/> PERF
RPRT | <input checked="" type="checkbox"/> OTHER:
TOXICS |
| RECLAIM Specific Requirements (<input type="checkbox"/> MAJ <input type="checkbox"/> LGE <input type="checkbox"/> PRC): | | | | | |
| <input type="checkbox"/> CEMS
PLAN | <input type="checkbox"/> 6/12 MO
RECERT | <input type="checkbox"/> ALT EMIS
FACT | <input type="checkbox"/> 3-YR
(RE)CERT | <input type="checkbox"/> ACEMS | <input type="checkbox"/> OTHER: |

1. SUMMARY / CONCLUSIONS:

Source Testing & Engineering has evaluated the subject source test report dated October 7-11, 1996, for the equipment located at 720 South 7th. Ave., City of Industry.

The test report is "acceptable", meaning that the testing and analytical methods meet District approved standards, the test conditions are indicative of the process under normal or stipulated conditions, and the reported source test results accurately reflect these qualifications.

2. SPECIFIC DETERMINATIONS:

- The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain sufficient information, as presented.
- The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain insufficient information, or requires further explanation, in the following area(s) (see complete attached discussion):
 - Equipment/Process Overview
 - Completeness of Application/Report/Report.
 - Representativeness of Data & Process.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
APPLIED SCIENCE & TECHNOLOGY DIVISION * SOURCE TESTING & ENGINEERING**

REPORT REVIEW

- Rule/Permit Fulfillment.
- Sampling & Analytical Methods.
- Quality Assurance
- Calculations.

1. GENERAL GUIDELINES:

An overview of general evaluation criteria used by ST&E Engineers to judge the quality of source test results.

EQUIPMENT/PROCESS OVERVIEW

Stationary Source Compliance (SSC) requested an expedited evaluation on this report due to permit modifications to be implemented in early 1997. Initial review of the report revealed that the raw laboratory analytical data was not included in the submittal. Western Environmental Services (WES) was contacted concerning this and all laboratory data was submitted to Source Testing & Engineering (ST&E). An in depth review of this laboratory data was conducted and found to be acceptable. Due to the magnitude of testing contained in this report, spot checking of emissions calculations were conducted. No errors were discovered in the reported emission values. ST&E recommends that the listed emissions be accepted as representative of the process as tested.

REPORT REVIEW

PAGE 2

GENERAL GUIDELINES

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
MONITORING & ANALYSIS DIVISION * MONITORING & SOURCE TEST ENGINEERING**

REPORT REVIEW

DATE: 6/9/98 EVALUATOR: Scott A. Wilson EXT: 2257

S/T ID: **R00167**

COMPANY: **Quemetco Inc., City of Industry**

IDENTIFICATION: (Application No. REC029) (Facility ID No. 8547)

EQUIPMENT: **Reverberatory Furnace process APCS
Slag Furnace process APCS
Reverberatory Furnace Sanitary Baghouse
Refing Kettles Sanitary Baghouse
Nine (9) Room Ventilation Baghouses (A-I)**

LOCATION: **720 South 7th. Ave., City of Industry, CA 91745**

TEST FIRM: **World Environmental**

EVALUATE: **Mass Emissions of Multiple Metals: (Arsenic, Beryllium, Cadmium, Copper, Lead, Manganese, Nickel, Selenium, Silver, Zinc)**

TYPE EVAL:

<input type="checkbox"/> CEMS APPL	<input type="checkbox"/> CEMS PROT	<input type="checkbox"/> CEMS RPRT	<input type="checkbox"/> PERF PROT	<input checked="" type="checkbox"/> PERF RPRT	<input checked="" type="checkbox"/> OTHER: AB2588
RECLAIM Specific Requirements (<input type="checkbox"/> MAJ <input type="checkbox"/> LGE <input type="checkbox"/> PRC):					
<input type="checkbox"/> CEMS PLAN	<input type="checkbox"/> 6/12 MO RECERT	<input type="checkbox"/> ALT EMIS FACT	<input type="checkbox"/> 3-YR (RE)CERT	<input type="checkbox"/> ACEMS	<input type="checkbox"/> OTHER:

1. SUMMARY / CONCLUSIONS:

CONDITIONALLY ACCEPTABLE

Monitoring & Source Test Engineering has evaluated the subject source test report dated 9/10/1999 & the addendum report dated 7/13/2000, for the equipment located at 720 South 7th. Ave., City of Industry, CA 91745.

The test report is "conditionally acceptable", meaning that interpretation of the data contained in the 9/10/1999 source test report had some computational errors. The 7/13/2000 addendum (attached) corrected these errors, the attached evaluation clarifies these restrictions concerning the data.

- The 7/13/2000 addendum report corrected data input and computational errors found in the 9/10/1999 report. The mass emissions and emission factors listed in the addendum are accurately reported, raw data and QA/QC information is retained in the 9/10/1999 submittal.

The attached evaluation clarifies these restrictions concerning the data.

GENERAL GUIDELINES**2. SPECIFIC DETERMINATIONS:**

The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain sufficient information, as presented.

The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain insufficient information, or requires further explanation, in the following area(s) (see complete attached discussion):

- Equipment/Process/Test Overview
- Completeness of Report.
- Representativeness of Data & Process.
- Rule/Permit Fulfillment.
- Sampling & Analytical Methods.
- Quality Assurance
- Calculations.

3. GENERAL GUIDELINES:

An overview of general evaluation criteria used by M&E Engineers to judge the quality of source test results.

EQUIPMENT/PROCESS/TEST OVERVIEW

Monitoring & Source Test Engineering (M&STE) has verified that the mass emissions and emission factors listed in the 7/13/2000 addendum report (attached) accurately corrected the errors noted in the original submittal. The raw data and QA/QC information required for verification of the mass emissions has been retained in the original submittal, only the emissions data listed in the 7/13/2000 addendum should be used for emissions quantification and Health Risk Assessment (HRA) determination.



July 14, 2000

Mr. Scott Wilson
SCAQMD
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

M&AD RECEIVED

JUL 14 2000

M&E BRANCH

SUBJECT: Addendum to Source Test Report For NESHAPS Testing at Quemetco, Inc.
World Environmental Project #WER350

Dear Mr. Wilson:

Per your conversation with Mr. Keith Shannon, enclosed is a copy of the addendum to the subject Source Test Report

If you have any questions, comments, or require additional information, please feel free to contact me at (714) 258-2829.

Sincerely,
World Environmental

Keith Shannon
President

File Ref: add350b.WPD

GENERAL GUIDELINES

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
APPLIED SCIENCE & TECHNOLOGY DIVISION * SOURCE TESTING & ENGINEERING**

REPORT REVIEW

DATE: 9/10/96 EVALUATOR: Scott A. Wilson EXT: 2257

S/T ID: PR94021a

COMPANY: **Quemetco Inc.
720 South 7th. Ave
City of Industry, CA 91745**

IDENTIFICATION: (Application No. REC029) (Facility ID No. 008547)

EQUIPMENT: **Reverberatory Furnace**

LOCATION: **720 South 7th. Ave., City of Industry**

TEST FIRM: **Western Environmental Services (WES)
Tom Rooney (310) 540-4676**

EVALUATE: **Arsenic (As), Cadmium (Cd), Lead (Pb), Dioxins, Furans, PAHs, Benzene,
Aldehydes, 1-4 Dioxane, Benzidine, PM10, TGNMOC, NOx, CO, SOx**

TYPE EVAL:

<input type="checkbox"/> CEMS APPL	<input type="checkbox"/> CEMS PROT	<input type="checkbox"/> CEMS RPRT	<input type="checkbox"/> PERF PROT	<input checked="" type="checkbox"/> PERF RPRT	<input checked="" type="checkbox"/> OTHER: <u>TOXICS</u>
RECLAIM Specific Requirements (<input type="checkbox"/>MAJ <input type="checkbox"/>LGE <input type="checkbox"/>PRC):					
<input type="checkbox"/> CEMS PLAN	<input type="checkbox"/> 6/12 MO RECERT	<input type="checkbox"/> ALT EMIS FACT	<input type="checkbox"/> 3-YR (RE)CERT	<input type="checkbox"/> ACEMS	<input type="checkbox"/> OTHER: _____

1. SUMMARY / CONCLUSIONS:

Source Testing & Engineering has evaluated the subject source test report dated 11/30/94 and the addendum submitted 9/10/96, for the equipment located at 720 South 7th. Ave., City of Industry.

The test report is "conditionally acceptable", meaning that interpretation of the data contained in the source test report may be subject to certain restrictions. These restriction(s) are summarized below:

• TGNMOC and SOx data have been revised from the values listed in the report.

The attached evaluation clarifies these restrictions concerning the data.

2. SPECIFIC DETERMINATIONS:

- The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain sufficient information, as presented (see complete attached discussion):
- The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain insufficient information, or requires further explanation, in the following area(s)

GENERAL GUIDELINES

- Equipment/Process Overview
- Completeness of Application/Report/Report.
- Representativeness of Data & Process.
- Rule/Permit Fulfillment.
- Sampling & Analytical Methods.
- Quality Assurance
- Calculations.

3. GENERAL GUIDELINES:

An overview of general evaluation criteria used by ST&E Engineers to judge the quality of source test results.

EQUIPMENT/PROCESS/TEST OVERVIEW

This comprehensive test program was conducted to quantify the emissions from this unit after process modifications were conducted. The NO_x & CEM portion was evaluated previously and a memo sent to the Toxics group on 2/28/95 (STID # PR94021) documenting the results of the CEM portion of the testing.

A thorough review of test results and analytical procedures were reviewed and recalculated. Only noted problems will be addressed in this evaluation, all other listed test results may be accepted as reported in the original report.

SAMPLING & ANALYTICAL METHODS

The TGNMOC sampling was conducted by two different methods. SCAQMD Draft Modified Method 25.1 which uses a mist water impinger to trap the condensible fraction (rather than the cryogenic trapping used in Method 25.1) and a non-official method commonly referred to as Method 25.2. Method 25.2 was never adopted as an official method due to the common under reporting of TGNMOC (without a trap to catch the condensible fraction heavy compounds were found to condense on the inner walls of the sampling container, resulting in these compounds not being quantified). Run #1 from the Draft Modified Method 25.1 listed a TGNMOC concentration of 1ppm, review of the analytical results showed that this sample leaked and must be discounted. Although the unofficial Method 25.2 results are usually lower than the 25.1 results that trap the condensible fraction, the results for this testing corresponded well with the trapping method and are therefor being accepted for this sampling program. Averaging the three remaining runs yielded an average TGNMOC concentration of 25ppm.

CALCULATIONS

Recalculating the SO_x train calculations revealed that there was a computational error in the spreadsheet. Tom Rooney of WES was contacted and the referenced pages were recalculated and submitted on 9/10/96 (attached). The SO_x emissions listed in the original report are in error and the following values should be used for reporting of SO_x mass emissions: **Baghouse Outlet SO_x concentration and mass emission rate reported as SO₂ (average of two runs); 117.54 ppm & 22.25 lb/hr.**

The metals testing conducted by CARB Method 436 reported emissions with only one significant figure in the report. WES was contacted and the emissions calculations were reformatted to show four significant figures for more accurate reporting of mass emissions of metals. These reformatted results were submitted to Source Testing & Engineering (ST&E) on 9/17/96 (attached).

C O V E R

S H E E T

FAX

To: Scott Wilson - SCAQMD
Fax #: (909) 396-2099
Subject: Quemetco Reverb Furnace - May 6, 1994
Date: September 10, 1996
Pages: Five, including this cover sheet.

COMMENTS:

From the desk of...

Thelma J. Muzik
Business Manager
Western Environmental Services
1010 So. Pacific Coast Highway
Redondo Beach, CA 90277

(310) 540-4676
Fax: (310) 543-2798

TABLE 2.8a SCAQMD METHOD 6.1

SITE: QUEMETCO - BAGHOUSE INLET
DATE: MAY 6, 1994

PARAMETER	TEST	TEST
	1	2
SAMPLING PARAMETERS		
Barometric Pressure, Pb	29.9	29.9
Sample Volume, Ft ³	60.925	71.905
Meter, F	76	73
Orifice Press, "H ₂ O	0.75	1.00
Meter Calibration	1.001	1.001
Stack Flow Rate, DSCFM	17370	20166
TEST CALCULATIONS		
Gas Sampled, SDCF	59.236	70.348
LABORATORY ANALYSIS		
Impinger Gain, g	15	19
Silica Gel Gain, g	6	7
Probe + Filter Catch		
Acid		
Vm Soln, (mls)	129	100
Va aliquot, (mls)	10	10
NaOH, N	0.1	0.1
Titrant, mls	8.4	1.7
Acid as SO ₃ , mg	726.01	113.90
Sulfate		
Vm Soln, (mls)	129	100
Va aliquot, (mls)	10	5
Ba(ClO ₄) ₂ , N mg/ml	0.01	0.01
Titrant, mls	4.7	2.3
Sulfate as SO ₃ , mg	40.62	30.82

Revised

TABLE 2.8b SCAQMD METHOD 6.1

SITE: QUEMETCO - BAGHOUSE INLET
DATE: MAY 6, 1994

PARAMETER	TEST	TEST
	1	2
2-Propanol Catch		
Acid		
Vm Soln, (mls)	136	123
Va aliquot, (mls)	10	10
NaOH, N	0.1	0.1
Titrant, mls	1.0	1.7
Acid as SO ₃ , mg	54.45	83.71
Sulfate		
Vm Soln, (mls)	136	123
Va aliquot, (mls)	10	5
Ba(ClO ₄) ₂ , N mg/ml	0.01	0.01
Titrant, mls	2.85	2.0
Sulfate as SO ₃ , mg	15.52	19.70
Peroxide Catch		
Acid		
Vm Soln, (mls)	241	389
Va aliquot, (mls)	1	1
NaOH, N	0.1	0.1
Titrant, mls	15.6	3.3
Acid as SO ₂ , mg	12043.88	4112.33
SO(2)		
Vm Soln, (mls)	241	389
Va aliquot, (mls)	0.2	0.2
Ba(ClO ₄) ₂ , N mg/ml	0.01	0.01
Titrant, mls	32.6	7.85
Sulfate as SO ₂ , mg	12584.31	4891.18
EMISSION RATES		
Sulfuric Acid Mist		
Emission Rate, #/Hr	2.63	1.95
Sulfur Dioxide Concentration, ppm		
Total Sulfur Compounds as SO ₂	2773.52	907.71
	2859.54	917.81
Emission Rate, SO(2), #/Hr		
Emission Rate Total Sulfur	488.12	185.46
Compounds as SO(2), #/Hr	503.25	187.53

Revised

TABLE 2.9a SCAQMD METHOD 6.1

SITE: QUEMETCO - BAGHOUSE OUTLET

DATE: MAY 6, 1994

PARAMETER	TEST 1	TEST 2
SAMPLING PARAMETERS		
Barometric Pressure, Pb	29.80	29.90
Sample Volume, Ft ³	59.462	58.133
Meter, F	90	82
Orifice Press, "H ₂ O	0.75	0.75
Meter Calibration	1.031	1.031
Stack Flow Rate, DSCFM	19348	18326
TEST CALCULATIONS		
Gas Sampled, SDCF	58.031	57.571
LABORATORY ANALYSIS		
Impinger Gain, g	230	237
Silica Gel Gain, g	15	18
Probe + Filter Catch		
Acid		
Vm Soln, (mls)	175	100
Va aliquot, (mls)	10	10
NaOH, N	0.1	0.1
Titrant, mls	0.1	0.4
Acid as SO ₃ , mg	11.73	26.80
Sulfate		
Vm Soln, (mls)	175	100
Va aliquot, (mls)	20	5
Ba(ClO ₄) ₂ , N mg/ml	0.01	0.01
Titrant, mls	3.35	3.2
Sulfate as SO ₃ , mg	19.64	42.88

Revised

TABLE 2.9b SCAQMD METHOD 6.1

SITE: QUEMETCO - BAGHOUSE OUTLET

DATE: MAY 6, 1994

PARAMETER	TEST		
	1	2	
2-Propanol Catch			
Acid			
Vm Soln, (mls)	265	188	
Va aliquot, (mls)	10	10	
NaOH, N	0.1	0.1	
Titrant, mls	0.1	1.3	
Acid as SO ₃ , mg	10.61	97.85	
Sulfate			
Vm Soln, (mls)	265	188	
Va aliquot, (mls)	20	10	
Ba(ClO ₄) ₂ , N mg/ml	0.01	0.01	
Titrant, mls	3.5	14.55	
Sulfate as SO ₃ , mg	18.57	109.51	
Peroxide Catch			
Acid			
Vm Soln, (mls)	349	254	
Va aliquot, (mls)	10	2	
NaOH, N	0.1	0.1	
Titrant, mls	2.9	1.4	
Acid as SO ₂ , mg	324.23	569.58	
SO(2)			
Vm Soln, (mls)	349	254	
Va aliquot, (mls)	5	1	
Ba(ClO ₄) ₂ , N mg/ml	0.01	0.01	
Titrant, mls	15.1	4.65	
Sulfate as SO ₂ , mg	337.64	378.37	
EMISSION RATES			
Sulfuric Acid Mist			
Emission Rate, #/Hr	1.45	3.02	Ave
Sulfur Dioxide Concentration, ppm	75.96	85.80	
Total Sulfur Compounds as SO ₂	81.41	153.67	117.54
Emission Rate, SO(2), #/Hr	14.89	15.93	
Emission Rate Total Sulfur Compounds as SO(2), #/Hr	15.96	28.53	22.25

Revised

C O V E R

S H E E T

FAX

To: Scott Wilson - SCAQMD
Fax #: (909) 396-2099
Subject: Quemetco Reverb Furnace - April 28, 1996
Date: September 16, 1996
Pages: Two, including this cover sheet.

COMMENTS:

From the desk of...

Thelma J. Muzik
Business Manager
Western Environmental Services
1010 So. Pacific Coast Highway
Redondo Beach, CA 90277

(310) 540-4676
Fax (310) 543-2798

TABLE 2.5a CARB METHOD 436 ANALYSIS

SITE: Quemetco
 UNIT: Reverberator Furnace
 DATE: April 28, 1994

Analytical Data	Test 1	Test 2	Test 3	Average
Arsenic, ug	55.0	170.0	330.0	185.0
Blank, ug	0.0	0.0	0.0	0.0
Total, ug	55.0	170.0	330.0	185.0
Concentration, ug/m3	18.2394	54.3963	110.5460	61.0606
Emission Rate, #/Hr	1.268E-03	4.067E-03	7.667E-03	4.334E-03
Cadmium	9.5	12.0	11.0	10.8
Blank, ug	0.0	0.0	0.0	0.0
Total, ug	9.5	12.0	11.0	10.8
Concentration, ug/m3	3.1504	3.8397	3.6849	3.5584
Emission Rate, #/Hr	2.190E-04	2.871E-04	2.558E-04	2.539E-04
Lead, ug	1000.00	470.00	610.00	693.33
Blank, ug	1.9	1.9	1.9	1.9
Total, ug	998.1	468.1	608.1	691.4
Concentration, ug/m3	330.9957	149.7819	203.7061	228.1612
Emission Rate, #/Hr	2.301E-02	1.120E-02	1.413E-02	1.611E-02

REPORT REVIEW

PAGE 2

GENERAL GUIDELINES

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
MONITORING & ANALYSIS DIVISION * MONITORING & SOURCE TEST ENGINEERING**

REPORT REVIEW

DATE: 6/9/98 EVALUATOR: Scott A. Wilson EXT: 2257

S/T ID: **R00224**

COMPANY: **Quemetco Inc., City of Industry**

IDENTIFICATION: (Application No. REC029) (Facility ID No. 8547)

EQUIPMENT: **Reverberatory Furnace process APCS**

LOCATION: **720 South 7th. Ave., City of Industry, CA 91745**

TEST FIRM: **World Environmental**

EVALUATE: **Mass Emissions of Cr^(tot) & Cr⁽⁺⁶⁾**

TYPE EVAL:

CEMS APPL
 CEMS PROT
 CEMS RPRT
 PERF PROT
 PERF RPRT
 OTHER: AB2588

RECLAIM Specific Requirements (MAJ LGE PRC):

CEMS PLAN
 6/12 MO RECERT
 ALT EMIS FACT
 3-YR (RE)CERT
 ACEMS
 OTHER:

1. SUMMARY / CONCLUSIONS:

CONDITIONALLY ACCEPTABLE

Monitoring & Source Test Engineering has evaluated the subject source test report dated 10/13/1999 & the addendum dated 7/21/2000, for the equipment located at 720 South 7th. Ave., City of Industry, CA 91745.

The test report is "conditionally acceptable", meaning that the data contained in the 10/13/1999 source test report had some computational errors. The 7/21/2000 addendum (attached) corrected these errors, the attached evaluation clarifies these restrictions concerning the data.

- The 7/21/2000 addendum corrected data input and computational errors found in the 10/13/1999 report. The mass emissions and emission factors listed in the addendum are accurately reported, raw data and QA/QC information is retained in the 10/13/1999 submittal.

The attached evaluation clarifies these restrictions concerning the data.

2. SPECIFIC DETERMINATIONS:

- The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain sufficient information, as presented.

G E N E R A L G U I D E L I N E S

The document indicated above has been reviewed by the Evaluations Unit staff and has been determined to contain insufficient information, or requires further explanation, in the following area(s) (see complete attached discussion):

- Equipment/Process/Test Overview
- Completeness of Report.
- Representativeness of Data & Process.
- Rule/Permit Fulfillment.
- Sampling & Analytical Methods.
- Quality Assurance
- Calculations.

3. GENERAL GUIDELINES:

An overview of general evaluation criteria used by M&E Engineers to judge the quality of source test results.

EQUIPMENT/PROCESS/TEST OVERVIEW

This test report was requested as a priority review due to the time constraints involved for the Health Risk Assessment (HRA) review. Monitoring & Source Test Engineering (M&STE) determined that the raw laboratory analytical data was not included in the report. WORLD supplied this data and it has been verified to be accurately reported. There were some data entry errors found in the report which have been corrected and supplied to M&STE as an addendum (attached). The attached mass emission spreadsheets and emission summaries are the corrected values to be used in emissions quantification and HRA evaluation.



World Environmental 15405 Redhill Avenue, Suite E Tustin, CA 92780 714/258-2029 FAX 714/258-8642

July 21, 2000

Mr. Scott Wilson
SCAQMD
21865 East Copley Drive
Diamond Bar, CA 91765

RE: Quemeteo Addendum

Mr. Scott Wilson:

Please accept these three revised spreadsheets for Data entry Errors.

Sincerely,
World Environmental

A handwritten signature in black ink, appearing to read "Keith Shannon".

Keith Shannon
President

WORLD ENVIRONMENTAL
15405 REDHILL AVENUE, STE. E
TUSTIN, CA 92680

CLIENT:	QUEMETCO
DATE:	JULY 20, 1999
PROJECT#:	WER350
UNIT/DIV:	REVERBERATORY
RON#:	1

ANALYSIS METHOD

PARAMETER:				
EXHAUST GAS FLOW RATE (DSCFM):	22187			
SAMPLE VOLUME (DSCF):	191.280			
PROCESS RATE (TONS/HOUR):	19.8			

PARAMETER	CONCENTRATION	CONCENTRATION	EMISSIONS	EMISSIONS
MEAS.	UG/SAMPLE	MG/SCFM	MG/HR	MG/HR
TOTAL CHROME	4.16	7.68E-04	6.38E-05	3.22E-06
HEXAVALENT CHROME	1.02	1.88E-04	1.56E-05	7.90E-07

EQUATIONS

- $$\text{LB/HR} = \text{UG}/1\text{E}06 \times 1\text{LB}/454\text{GR} \times \text{DSCFM}/\text{DSCF} \times 60 \text{ MIN/HR}$$
- $$\text{LB/TON OF PROCESS} = (\text{LB/HR})/(\text{TONS/HR})$$

UG = UG OF METAL (REAGENT BLANK CORRECTED)
 454 = CONVERSION FROM GRAMS TO LBS
 DSCF = TOTAL VOLUME OF SAMPLE GAS
 DSCFM = EXHAUST GAS FLOW RATE
 TONS/HR = PROCESS PRODUCTION RATE
- $$\text{MG/DSCM} = ((\text{UG}/\text{SAMPLE})/1000)/(\text{SAMPLE DSCF} * 0.02832)$$

UG/SAMPLE = UG OF METAL PER SAMPLE (REAGENT BLANK CORRECTED)
 1000 = CONVERSION FROM MICROGRAMS TO MILLIGRAMS
 SAMPLE DSCF = TOTAL VOLUME OF SAMPLE GAS
 0.02832 = CONVERSION FROM CUBIC FEET TO CUBIC METERS

WORLD ENVIRONMENTAL
15405 REDHILL AVENUE, STE. E
TUSTIN, CA 92680

CLIENT:	QUEMETCO
DATE:	JULY 22, 1999
PROJECT#:	IWER350
UNIT#:	REVERBERATORY
RUN#:	2

PARAMETER				
EXHAUST GAS FLOW RATE (DSCFM)	22123			
SAMPLE VOLUME (DSCF)	185.014			
PROCESS RATE (TONS/HOUR)	18.25			

PARAMETER	CONCENTRATION	CONCENTRATION	EMISSIONS	EMISSIONS
TOTAL CHROME	5.13	9.79E-04	8.11E-05	4.44E-06
HEXAVALENT CHROME	0.83	1.58E-04	1.31E-05	7.19E-07

EQUATIONS

- $LB/HR = UG/1000 \times 1LB/454GR \times DSCFM/DSCF \times 60 \text{ MIN/HR}$
- $LB/TON \text{ OF PROCESS} = (LB/HR)/(TONS/HR)$
 UG = UG OF METAL (REAGENT BLANK CORRECTED)
 454 = CONVERSION FROM GRAMS TO LBS
 DSCF = TOTAL VOLUME OF SAMPLE GAS
 DSCFM = EXHAUST GAS FLOW RATE
 TONS/HR = PROCESS PRODUCTION RATE
- $MG/DSCM = ((UG/SAMPLE)/1000)/(SAMPLE \text{ DSCF} \times 0.02832)$
 UG/SAMPLE = UG OF METAL PER SAMPLE (REAGENT BLANK CORRECTED)
 1000 = CONVERSION FROM MICROGRAMS TO MILLIGRAMS
 SAMPLE DSCF = TOTAL VOLUME OF SAMPLE GAS
 0.02832 = CONVERSION FROM CUBIC FEET TO CUBIC METERS

WORLD ENVIRONMENTAL
15405 REDHILL AVENUE, STE. E
TUSTIN, CA 92680

CLIENT	QUEMETCO
DATE	JULY 23, 1999
PROJECT	WER350
UNIT/D#	REVERBERATORY
RUN#	3

PARAMETER				
EXHAUST GAS FLOW RATE (DSCFM)	21282			
SAMPLE VOLUME (DSCF)	184.377			
PROCESS RATE (TONS/HOUR)	20.2			

PARAMETER	CONCENTRATION	CONCENTRATION	EMISSIONS	EMISSIONS
TOTAL CHROME	1.90	3.64E-04	2.90E-05	1.43E-06
HEXAVALENT CHROME	0.19	3.64E-05	2.90E-06	1.43E-07

EQUATIONS

1. $LB/HR = UG/1E06 \times 1LB/454GR \times DSCFM/DSCF \times 60 \text{ MIN/HR}$

2. $LB/TON \text{ OF PROCESS} = (LB/HR)/(TONS/HR)$
 UG = UG OF METAL (REAGENT BLANK CORRECTED)
 454 = CONVERSION FROM GRAMS TO LBS
 DSCF = TOTAL VOLUME OF SAMPLE GAS
 DSCFM = EXHAUST GAS FLOW RATE
 TONS/HR = PROCESS PRODUCTION RATE

3. $MG/DSCM = ((UG/SAMPLE)/1000)/(SAMPLE \text{ DSCF} \times 0.02832)$
 UG/SAMPLE = UG OF METAL PER SAMPLE (REAGENT BLANK CORRECTED)
 1000 = CONVERSION FROM MICROGRAMS TO MILLIGRAMS
 SAMPLE DSCF = TOTAL VOLUME OF SAMPLE GAS
 0.02832 = CONVERSION FROM CUBIC FEET TO CUBIC METERS

SUMMARY OF RESULTS FOR TOTAL CHROMIUM

Unit I.D.	Exhaust Gas Flow Rate (DSCFM)	Concentration (ug/sample)	Emission Rates		
			(Lb/hr)	(mg/DSCM)	(Lb/Ton)
Reverberatory	21,864	3.73	5.80E-05	7.04E-04	3.03E-06

Note: All values are average of triplicate test runs.

SUMMARY OF RESULTS FOR HEXAVALENT CHROMIUM

Unit I.D.	Exhaust Gas Flow Rate (DSCFM)	Concentration (ug/sample)	Emission Rates		
			(Lb/hr)	(mg/DSCM)	(Lb/Ton)
Reverberatory	21,864	0.68	1.05E-05	1.27E-04	5.51E-07

✓ ✓ ✓

Note: All values are average of triplicate test runs.