Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

Background Report Reference

AP-42 Section Number: 12.20

Background Chapter: 4

Reference Number: 79

Title: Summary of Source Test Results, Mare Island Naval Shipyard

Bay Area Air Quality Management District

May 1988

DISTRIBUTION:
Firm
Permit Services
Enforcement
Technical Services
Source Inventory
Requester
D.A.P.C.O.

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

SUMMARY OF SOURCE TEST RESULTS

Report No. 88162
Test Date: Apri
Test Times: Run A: 11
Run B: 12
Run C: 1348-1436

AP-42 Section 12.20
Reference
Report Sect. 4
Reference 73

SOURCE INFORMATION

Firm Name and Address
Mare Island Naval Shipyd.
Code 461 Stop 032
Vallejo, CA 94592

Firm Representative and Title
Leslie Berlot, Env. Engineer
Phone No. (707) 646-2421 x3375

Source:
A436
Plant #44

Permit No.
on demand

Operates hr/day & days/yr

Permit Conditions
under review

Operating Parameters

TANK:	JFC	JQP
run 1	3600	4275 amps
run 2	3900	4400 amps
run 3	4150	4500 amps

Applicable Regulations: rule development

BAAQMD REPRESENTATIVES

Source Test Engineers
T. Underwood
G. Colwell

Permit Services Division

Enforcement Division

Test Requested by:
G. Karels (cds)

VN Recommended: NO

Test Results and Comments:

METHOD	TEST	RUN A	RUN B	RUN C	AVG.	LIMIT
ST-17	Volume flowrate, SDCFM	16600	17500	17000	17000	
	Stack Temperature, °F	80	72	72	75	
ST-23	Water Content, Volume %	.2	1.1	1.3	.9	
	Total Amps	7875	8300	8650	8275	
ST-35	Cr Emissions, mg/amp-hr	.1747	.1336	.1262	.1440	
ST-35	Cr Emissions, g/hr	1.38	1.11	1.09	1.19	
ST-35	Cr Emissions, gr/SDCF	2.13E-05	1.63E-05	1.65E-05	1.80E-05	
ST-35	Cr Emissions, lbs/hr	.00303	.00244	.00241	.00263	
	Isokinetic Ratio, act/theo	1.04	1.02	1.03	1.03	

NO COMMERCIAL USE OF THESE RESULTS IS AUTHORIZED

Source Test Team Leader — Date
T. Underwood 4/29/88
K. Kunaniec 5/9/88

Approved—Chief of Source Test — Date
G. Karels 5/9/88

DISTRIBUTION:
Firm
Permit Services
Enforcement
Technical Services
Source Inventory
Requester
D.A.P.C.O.

BAY AREA
AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

SUMMARY OF SOURCE TEST RESULTS

Report No. 88162
Test Date: Apr AP-42 Section 12.20
Reference
Test Times: 11 Report Sect. 4
Run A: Reference 79
Run B: 12
Run C: 1348-1436

SOURCE INFORMATION

Firm Name and Address
Mare Island Naval Shipyd.
Code 461 Stop 032
Vallejo, CA 94592

Firm Representative and Title
Leslie Berlot, Env. Engineer
Phone No. (707) 646-2421 x3375

Source:
A436
Plant #44

Permit No.
on demand

Permit Conditions
under review

Operates hr/day & days/yr

Operating Parameters

TANK:	JFC	JQP
run 1	3600	4275 amps
run 2	3900	4400 amps
run 3	4150	4500 amps

Applicable Regulations: rule development

BAAQMD REPRESENTATIVES

Source Test Engineers
T. Underwood
G. Colwell

Permit Services Division

Enforcement Division

Test Requested by:
G. Karels (cds)

VN Recommended: NO

Test Results and Comments:

METHOD	TEST	RUN A	RUN B	RUN C	AVG.	LIMIT
ST-17	Volume flowrate, SDCFM	16600	17500	17000	17000	
	Stack Temperature, °F	80	72	72	75	
ST-23	Water Content, Volume %	.2	1.1	1.3	.9	
	Total Amps	7875	8300	8650	8275	
ST-35	Cr Emissions, mg/amp-hr	.1747	.1336	.1262	.1440	
ST-35	Cr Emissions, g/hr	1.38	1.11	1.09	1.19	
ST-35	Cr Emissions, gr/SDCF	2.13E-05	1.63E-05	1.65E-05	1.80E-05	
ST-35	Cr Emissions, lbs/hr	.00303	.00244	.00241	.00263	
	Isokinetic Ratio, act/theo	1.04	1.02	1.03	1.03	

NO COMMERCIAL USE OF THESE RESULTS IS AUTHORIZED

Source Test Team Leader	Date	Approved—Chief of Source Test	Date
T. Underwood	4/29/88	K. Kunaniec	5/9/88
K. Kunaniec	5/9/88	G. Karels	5/9/88

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 Ellis Street, San Francisco, California 94109
(415) 771-6000

	Test Number:	88162	
DISTRIBUTION	Test Date	April 5, 1988	
Firm	Test Times:		
Permit Services	Run A:	1150 to	1238
Enforcement	Run B:	1253 to	1341
Technical Services	Run C:	1348 to	1436
Source Inventory			
Requestor			
D.A.P.C.O.			

SUMMARY OF SOURCE TEST RESULTS

SOURCE INFORMATION

BAAQMD Representatives

Firm Name and Address	Representative and Title	Source Test Engineers
Mare Island Naval Shipyard	Leslie Berlot	Tim Underwood
Code 461 Stop 032	Env Eng	Glen Colwell
Vallejo, Ca 94592		

Phone No.(707) 646-2421 x3375
Plant No. 44
Source No.

Permit Services:

Pe[redacted]itions

Permit No A436

Enforcement Division:

Operates:On demand

Operating Parameters:

Tank:	JFC	JQP	
Run 1	3600	4275	amps
Run 2	3900	4400	amps
run 3	4150	4500	amps

Test Requested By:
~~CDC~~ G. Karels

Applicable Regulations: Rule Development VN Recommended? No

Test Results and Comments:

METHOD	TEST	RUN A	RUN B	RUN C	AVERAGE	LIMIT
ST-17	Volume Flowrate, SDCFM	1.66E+04	1.75E+04	1.70E+04	1.70E+04	
	Stack Temperature, F	80	72	72	75	
ST-23	Water Content, volume %	.2	1.1	1.3	.9	
	Total Amps	7875	8300	8650	8275	
ST-35	Cr Emissions, mg/amp-hr	.1747	.1336	.1262	.1440	
ST-35	Cr Emissions, g/hr	1.38	1.11	1.09	1.19	
ST-35	Cr Emissions, gr/SDCF	2.13E-05	1.63E-05	1.65E-05	1.80E-05	
ST-35	Cr Emissions, lbs/hr	3.03E-03	2.44E-03	2.41E-03	2.63E-03	
	Isokinetic Ratio, act/theo	1.04	1.02	1.03	1.03	

NO COMMERCIAL USE OF THESE RESULTS IS AUTHORIZED

Source Test Team Leader	Date	Approved-Chief of Source Test
Tim Underwood		Gale Karels
Ken Kunaniec		

COMPANY	Mare Island Naval Shipyard	Contact:	Leslie Berlot	Test No.	88162	Tim's spread sheet
Address	Code 461 Stop 032	Title	Env Eng			Updates:
City, Zip	Vallejo, Ca 94592	Phone	(707) 646-2421 x3375			11/27
Date:	April 5, 1988	Plant no.	44			1/28/88
		Permit No	A436			3/11
						4/22

	Traverse	Sample			
PITOT COEFFICIENT	.813	.813	Stack id [in]	46.00	35.00
Pbar	30.2		Stack Area [ft2]	11.18	
Pstatic	-.35		cap formula		
Process weight (tons/hr)	29.9592	40	39.99992		

particulate weight gains	run 1	run 2	run 3	Net weights				
nozzle diameter [mm]	5.9	5.9	5.9					
nozzle area [ft2]	.0002943	.0002943	.0002943	Run 1	Run 2	Run 3	Run 1	Run 2
nozzle wash	.0000105	0	0	.0000034	.0000036	.0000035		
nozzle tare	0	0	0					
probe wash	0	0	0	0	0	0		
probe tare	0	0	0					
filter weight	.0000265	.0000205	.0000205	.0000265	.0000205	.0000205		
filter tare	0	0	0					
impinger 1 final	578.5	582.1	614.5				3.7	6.3
impinger 1 tare	574.8	575.8	609.2					
impinger 2 final	594.8	567.7	563.3				-3.4	-1
impinger 2 tare	598.2	568.7	562.7					
acetone blank (gr/ml)	.000011	.000011	.000011	0	0	0		
acetone volume [ml]	0	0	0					
water blank (gr/ml)	0	0	0	0	0	0		
water volume [ml]	0	0	0					
			Totals	.0000299	.0000241	.000024	.7130104	5.575862

Fixed Gas Analysis:	Run 1	Run 2	Run 3					
Pbar evac	29.92	29.92	29.92		Sat imp contrib		.4130104	.2758617
Pbar analysis	29.92	29.92	29.92					
Initial Vacuum	29.92	29.92	29.92					
Final Vacuum	-12	-12	-12					
Analysis Pressure	12	12	12					Dry mol w
			tank factor	1	1	1		Run 1
O2	20.9	20.9	20.9	20.9	20.9	20.9		28.8424
CO2	.04	.04	.04	.04	.04	.04		Wet mol w
CO	0	0	0	0	0	0		28.8255
Other	0	0	0	0	0	0		
Other Molecular Weight	100	100	100					

Field Data Run 1 — Time interval 4

Time	Meter Reading	Ts	Tm	Tsat	delta P	iso	Ts(R)	Tm(R)	Tsat(R)	sdcf
1150	968.772	(start)								
1154	970.9	79	64	39	.3	1.047554	539	524	499	2.172509
1158	973.2	82	64	39	.37	1.022346	542	524	499	2.348106
1202	975.4	81	64	43	.33	1.034512	541	524	503	2.246015
1206	976.6	80	64	44	.1	1.024116	540	524	504	1.225099
1210	977.9	80	64	44	.1	1.109459	540	524	504	1.327191
1214	979.9	80	65	44	.28	1.018101	540	525	504	2.037942
1218	981	82	65	44	.08	1.049519	542	525	504	1.120868
1222	981.8	80	65	44	.05	.963707	540	525	504	.815177
1226	983.6	80	65	42	.2	1.08417	540	525	502	1.834148
1230	985.6	78	66	42	.27	1.032895	538	526	502	2.034068

1234	987.5	77	66	42	.25	1.018797	537	526	502	1.932365
1238	990.013	75	67	42	.38	1.088853	535	527	502	2.550957

48	21.241	79.5	64.91667	42.41667	.2258333	1.041169	539.5			21.64445

Run 2 Time Int Run 2 4 (Q60)

Time	Meter Reading	Ts	Tm	Tsat	delta P	iso	Ts(R)	Tm(R)	Tsat(R)	sdcf
1253	-9.22	(start)								
1257	-6.8	70	67	40	.4	1.007141	530	527	500	2.456552
1301	-4.5	71	67	40	.33	1.054837	531	527	500	2.33474
1305	-2.1	70	69	40	.38	1.020891	530	529	500	2.427039
1309	-.8	72	69	43	.12	.9858947	532	529	503	1.314646
1313	.6	72	69	44	.13	1.02008	532	529	504	1.415773
1317	2.8	73	69	44	.3	1.056204	533	529	504	2.224786
1321	4.9	73	69	44	.3	1.008194	533	529	504	2.123659
1325	5.8	72	69	44	.05	1.05739	532	529	504	.9101397
1329	7.7	72	69	44	.24	1.018886	532	529	504	1.921406
1333	9.4	70	70	44	.2	.9948867	530	530	504	1.715909
1337	11.1	72	70	44	.18	1.050679	532	530	504	1.715909
1341	13.332	72	70	44	.33	1.018814	532	530	504	2.252888

48	22.552	71.58333	68.91667	42.91667	.2466667	1.024491	531.5833			22.81345

Run 3 Time Int Run 3 4 Q80

Time	Meter Reading	Ts	Tm	Tsat	delta P	iso	Ts(R)	Tm(R)	Tsat(R)	sdcf
1348	13.424	(start)								
1352	16	72	70	43	.43	1.030076	532	530	503	2.600107
1356	18.3	72	71	43	.36	1.003265	532	531	503	2.317152
1400	20.8	72	71	43	.39	1.047723	532	531	503	2.518644
1404	22.1	72	71	43	.11	1.025855	532	531	503	1.309695
1408	23.4	73	71	43	.12	.983104	533	531	503	1.309695
1412	25.5	72	71	43	.28	1.038674	532	531	503	2.115661
1416	26.6	72	71	43	.08	1.017857	532	531	503	1.108203
1420	27.6	72	71	43	.06	1.068472	532	531	503	1.007457
1424	29.5	73	72	45	.25	.9936037	533	532	505	1.910571
1428	31.4	73	73	45	.23	1.03396	533	533	505	1.906986
1432	33.2	73	74	45	.2	1.048474	533	534	505	1.803236
1436	35.757	73	75	45	.35	1.123787	533	535	505	2.556808

48	22.333	72.41667	71.75	43.66667	.2383333	1.034571	532.4167	Q(100)	22.46421

Water percentage calcs from below

Run 3	Run 1	Run 2	Run 3
5.3			
.6			
6.271486	.001559	.0114524	.0130602
.3714859			

Run 2	Run3
28.8424	28.8424
28.71823	28.7008

Vaccuum	imp water	k	
15	.034597	.2382641	.5477226
22	.0702698	.2382641	.6082763
17.5	.0502919	.2781452	.5744563
4	.013664	.2889944	.3162278
4	.0148026	.2889944	.3162278
14	.0370155	.2889944	.5291503
5	.0130033	.2889944	.2828427
5	.0094569	.2889944	.2236068
10	.0246297	.2676595	.4472136
12	.0303607	.2676595	.5196152
12	.0288426	.2676595	.5

22	.0860765	.2676595	.6164414

.4130104 .20868

Vaccuum imp water k

10	.030501	.2477309	.6324555
8	.0263475	.2477309	.5744563
9	.0286963	.2477309	.6164414
5	.0146724	.2781452	.3464102
5	.0164245	.2889944	.3605551
7	.028063	.2889944	.5477226
7	.0267874	.2889944	.5477226
3	.0097739	.2889944	.2236068
7	.0242362	.2889944	.4898979
6	.0207389	.2889944	.4472136
5	.0199064	.2889944	.4242641
8	.0297144	.2889944	.5744563

.2758617 .2324206

Vaccuum imp water k

19	.0662165	.2781452	.6557439
14	.0404793	.2781452	.6
15	.0469478	.2781452	.6244998
6	.0152281	.2781452	.3316625
6	.0152281	.2781452	.3464102
12	.0328348	.2781452	.5291503
5	.0123683	.2781452	.2828427
3	.0104086	.2781452	.244949
10	.0288239	.3002191	.5
10	.0287699	.3002191	.4795832
9	.0259029	.3002191	.4472136
14	.0482776	.3002191	.591608

.3714859 .2204039

REQUEST FOR LABORATORY ANALYSIS

FL-1

NAME Mare Island Naval Shipyard
ADDRESS Mare Island, Vallejo
CITY Vallejo ZIP
TEL. PLT #
SOURCE OPERATION (S#) A436, A439

LAB # 85-327
S.T. #
BOOK
PAGE
FILM

SAMPLE DESCRIPTION Nitric Acid impingers (0.1N #7103) and 6 filters for digestion (teflon filts)
NOTE: A436 ACETONE RINSE IS THE ONLY ONE WITH ACETONE

☐ TWO PART SAMPLE ☐ SPEC. SHEET ATTACHED

SAMPLE TAKEN FROM
SAMPLE TAKEN BY Tim Underwood DATE 4-5, 6-88 TIME
SAMPLE TAKEN IN PRESENCE OF B.A.A.Q.M.D. ☒ YES ☐ NO
SAMPLE RCVD. BY [illegible] DATE 4-7-88 TIME 11:30
SAMPLE RCVD. BY DATE TIME
CONTAINER DESCRIPTION AND MARKINGS: R1, R2, R3 ~~R4~~ R5, R6, R7, R8, R9, R10, R11, R12
A436 LINE RINSE, A436 ACETONE RINSE NOTE: THESE MAY BE COMBINED
A439 RINSE
MFG. NAME BLANK, A436 Filters R1, R2, R3
MFG. CODE(S) BLANK, A439 Filters R1, R2, R3

☐ COPY FL-2 TO: (OTHER THAN REQUESTOR)

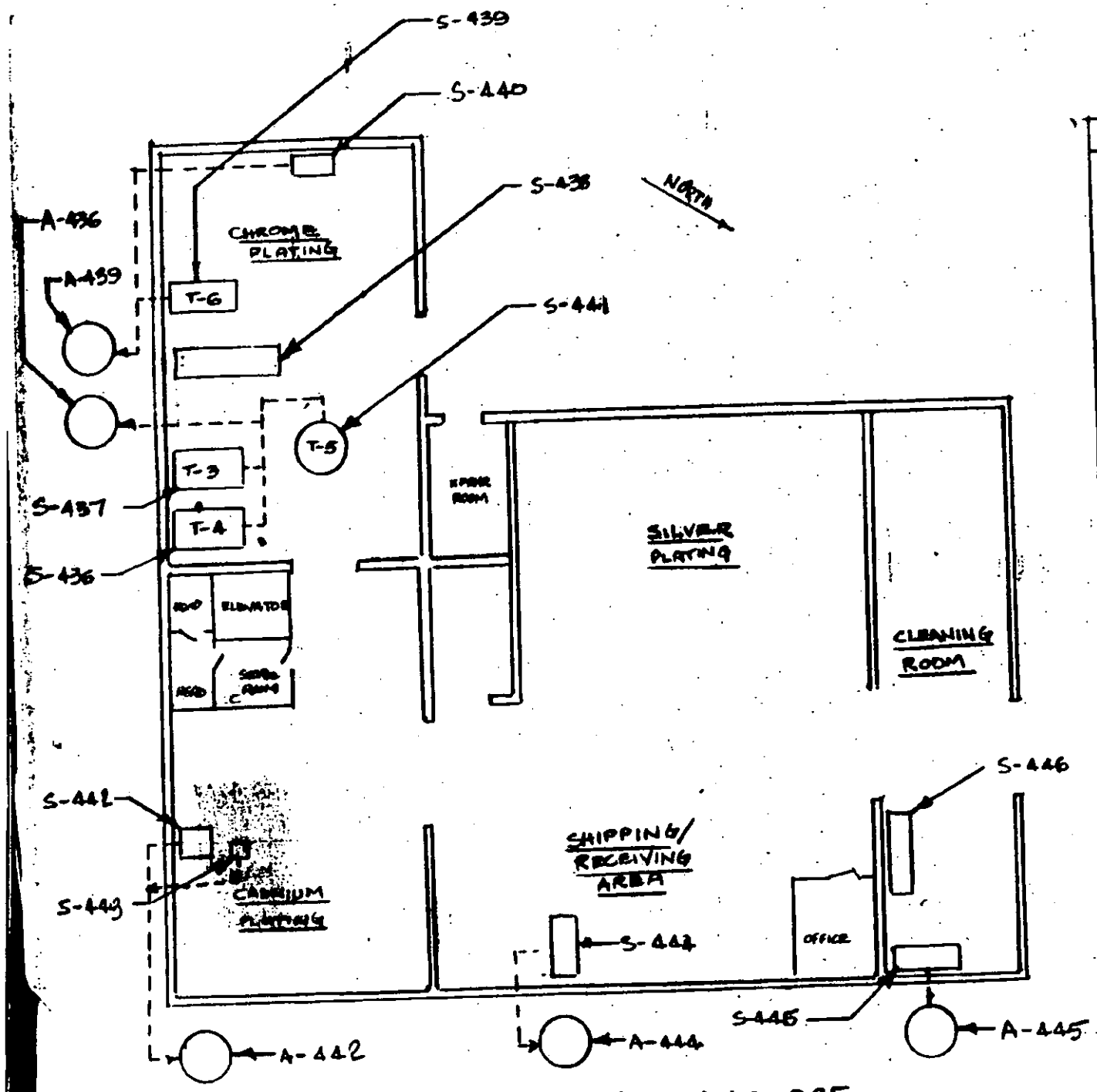
☐ PRIORITY SAMPLE BY:
REASON DATE REQD.

ANALYSIS REQUESTED: Chrome, TOTAL OF 22 Samples
☒ OPERATION UNDER PERMIT CONDITION # BY PROPOSED ST-35 FOR APPLIC. #
☐ OPERATION UNDER "BUBBLE"
☐ FOR INFORMATION ONLY
COMPLIANCE WITH REG. RULE SECTION(S) , SUBSECTIONS ,

Luna Salaver
PERSON SUBMITTING SAMPLE
DATE 4 / 7 / 88

[illegible]
PERSON RECEIVING SAMPLE FOR ANALYSIS
DATE 4 / 7 / 88

B. A. A. Q. M. D. 939 ELLIS ST. SAN FRANCISCO CA 94109



NO	DESCRIPTION
S-436	T-4 Chrome Pl. tank (1R)
S-437	T-3 Chrome Pl tank (2R)
S-438	Degreaser, refrigerated
S-439	T-6 Chrome Pl. tank (5R)
S-440	Chromic Acid Anodize tk. (AT)
S-441	T-5 Chrome Pl. tank (9R)
S-442	Na_2CrO_3 tank
S-443	Paint Strip tank (1K)
S-444	Vapor Degreaser (3B)
S-445	Paint strip tank (4B)
S-446	Degreaser, refrigerated
A-436	Chrome Scrubber (C)
A-439	Chrome Scrubber (D)
A-442	Chrome Scrubber
A-444	Exhaust fan
A-445	Exhaust fan

NOTE:
ONLY EQUIPMENT REQUIRING BAAQMD AIR PERMITS ARE SHOWN ON THIS DRAWING.

PLATING SHOP – BLDG 225
PLOT PLAN

by L. BERLOT C.460
9/16/87.

BAY AREA AIR POLLUTION CONTROL DISTRICT

Source Test Data Sheet

Source Operation: Electroplating
Plant: BLDG 223, MARE ISLAND A436
Sample Type: Chrome
Process Cycle: CONT.
Duct Size: 46x35 Rect.
Duct Pressure: 0

Source Test No.:
Run No.: 1
Date: 4/5/88

5.90 Nozzle Diameter
Glass hole .85 Pitot Tube
Gas Collector No
30.20 Barometric Press
@ 29 Leak Rate @ 15"H

4 min/pt

Sampling Train: A1 & R2 Teflon Filt

Box TEMP
Duct T = 70°F

Traverse Point	Dist. From inches	INITIAL TRAVERSE Duct Temp °F	h H_2O	$\sqrt{h}$	Traverse Point	h H_2O	V_s FPS	Time 1150 ~~1142~~	METER Rate CFH	METER Temp °F	METER Volume Ft^3 968.772	Vac "Hg	Sat'd Gas Temp °F	T_s Duct Temp °F	REMARKS	
					1	.30	31	1154	.53	64	970.9	15	39	79	32	2.1
Rot Tank	"1"	3500 KA, 13 Volt			2	.37	34	1158	.59	64	973.2	22	39	82	36	4.5
	2"	4200 KA, 13 Volt			3	.33	32	1202	.55	64	975.4	17.5	43	81	33	6.7
1237	1	3700, 13			4	.10	18	1206	.30	64	976.6	4	44	80	18	8.0
	2	4350, 13			5	.10	18	1210	.30	64	977.9	4	44	80	18	9.2
					6	.28	30	1214	.57	65	979.9	14	44	80	31	11.2
					7	.08	16	1218	.27	65	981.0	5	44	82	16	12.3
					8	.05	13	1222	.21	65	981.8	5	44	80	13	13.2
1 - Round Plating Tank					9	.20	25	1226	.43	65	983.6	10	42	80	26	14.9
2 - Rectangular					10	.27	29	1230	.50	66	985.6	12	42	78	30	17.0
					11	.25	28	1234	.48	66	987.5	12	42	77	29	18.9
					12	.38	35	1238	.60	67	~~989.871~~ 990.013	22	42	75	36	21.3

$$D_n = 13.7\left[\frac{T_s + 460}{K_p V_s (100 - \%H_2O)}\right]^{1/2}$$

$$Q_m = \left[(2.638 \times 10^{-3}) K_p (100 - \%H_2O) D_{mm}^2\right]\frac{V_s}{T_s}$$

11.5			

Condensate _____ gm.
V_o _____
$\%H_2O$ 2% assumed
$\%CO_2$ _____
$\%CO$ _____
$\%O_2$ _____

Source Test Team
Tim Underwood 5.440
Glen Colwell 5.458

BAY AREA AIR POLLUTION CONTROL DISTRICT

Source Test Data Sheet

Source Operation A436
Plant Mare Island
Sample Type Chrome
Process Cycle Cont
Duct Size 16x35
Duct Pressure

Source Test No.
Run No. Two
Date: 4-5-88

5.90 Nozzle Diameter
.85 Pitot Tube
Gas Collector No
30.20 Barometric Press
29 Leak Rate @ 15"H

Sampling Train: R3 only (R4 leaks) Teflon Filt

Traverse Point	Dist. From inches	INITIAL TRAVERSE Duct Temp°F	h H_2O	$\sqrt{h}$	Traverse Point	SAMPLING h H_2O	V_s FPS	Time 1253	METER Rate CFH	METER Temp °F	METER Volume Ft^3 990.780	Vac "Hg	Sat'd Gas Temp°F	T_s Duct Temp°F	REMARKS	
1332	3900, B	(KA, V)				.40	36	1257	.62	67	993.2	10	40	70	37	2.5
hour	4400, 13	(KA, V)				.33	32	1301	.56	67	995.5	8	40	71	34	4.7
						.38	35	1305	.60	69	997.9	9	40	70	36	7.1
						.12	20	1309	.34	69	999.2	5	43	72	20	8.5
						.13	20	1313	.35	69	000.6	5	44	72	21	9.9
						.30	31	1317	.53	69	2.8	7	44	73	32	12.0
						.30	31	1321	.53	69	4.9	7	44	73	32	14.2
						.05	13	1325	.22	69	5.8	3	44	72	13	15.0
						.24	28	1329	.48	69	7.9	7	44	72	29	17.0
						.20	25	1333	.44	70	9.4	6	44	70	26	18.7
						.18	24	1337	.41	70	11.1	5	44	72	25	20.4
						.33	32	1341	.56	70	1013.334	8	44	72	34	22.6

$$D_n = 13.7\left[\frac{T_s + 460}{K_p V_s (100 - \%H_2O)}\right]^{1/2}$$

$$Q_m = \left[(2.638 \times 10^{-3}) K_p (100 - \%H_2O) D_{nm}^2\right] \frac{V_s}{T_s}$$

Condensate _____ gm.

V_o _____
$\%H_2O$ _____
$\%CO_2$ _____
$\%CO$ _____
$\%O_2$ _____

Source Test Team
440
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BAY AREA AIR POLLUTION CONTROL DISTRICT

Source Test Data Sheet

Source Operation A436
Plant Mare Island
Sample Type Chrome
Process Cycle Cont
Duct Size 46x35
Duct Pressure

Source Test No.
Run No. THCC
Date: 4-5-88

5.90 Nozzle Diameter
.85 Pitot Tube
Gas Collector No
30.20 Barometric Press
29 Leak Rate @ 15"H

Sampling Train: R5 & R6 Teflon L.H

Traverse Point	Dist. From inches	INITIAL TRAVERSE Duct Temp°F	h H_2O	√h	Traverse Point	h H_2O	V_s FPS	Time 1348	METER Rate CFH	METER Temp °F	METER Volume Ft^3 13.424	Vac "Hg	Sat'd Gas Temp°F	T_s Duct Temp°F	REMARKS	
					1	.48	37	1352	.64	70	16.0	19	43	72	38	2.6
(1)	4150	KA			2	.36	34	1356	.59	71	18.3	14	43	72	35	4.9
(2)	4500	KA			3	.37	35	1400	.61	71	20.8	15	43	72	37	7.3
					4	.11	19	1404	.32	71	22.1	6	43	72	19	8.6
					5	.12	20	1408	.34	71	23.4	6	43	73	20	10.0
	(1) JEC				6	.28	30	1412	.52	71	25.5	12	43	72	31	12.1
	(2) JQP				7	.08	16	1416	.28	71	26.6	5	43	72	17	13.2
					8	.06	14	1420	.23	71	27.6	3	43	72	14	14.1
					9	.25	28	1424	.49	72	29.5	10	45	73	29	16.1
					10	.23	27	1428	.47	73	31.4	10	45	73	28	17.9
					11	.20	25	1432	.44	74	33.2	11	45	73	26	19.7
					12	.35	32	1436	.58	75	35.1	14	45	73	35	22.5

$$D_n = 13.7\left[\frac{T_s + 460}{K_p V_s (100 - \%H_2O)}\right]^{1/2}$$

$$Q_m = \left[(2.638 \times 10^{-3}) K_p (100 - \%H_2O) D_{nm}^2\right]\frac{V_s}{T_s}$$

Condensate _____ gm.
V_o _____
$\%H_2O$ _____
$\%CO_2$ _____
$\%CO$ _____
$\%O_2$ _____

Source Test Team
440
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S# 88-329 LAB METHOD LAB-29 DRAFT

SAMPLE LOCATION MARE ISLAND NAVAL SHIPYARD VALLEJO

DATE REC'D 4-7-88 DATE OF REPORT 4-15-88

ANALYST W. Oyung LAB REFERENCE 0888-8C

Sample #	TOTAL VOL	TOTAL µgm Cr (Chromium)		
R1	104.0	<10.4		
R2	97.7	<9.7		
R3	107.3	<10.7		
R5	104.9	<10.5		
R6	101.5	<10.2		
R7	105.3	<10.5		
R8	100.4	<10.0		
R9	105.4	<10.5		
R10	97.2	<9.7		
R11	106.2	<10.6		
R12	99.1	<9.9		
R #1-6 BLANK	118	<11.8		
R #7-12 BLANK	116	<11.6		
A 436 LINE RINSE + ACETONE RINSE COMBINED	50	10.5		
A 439 RINSE	50	50.5		
2 BLANK FILTERS, COMBINED	–	<5		
A 436 FILTER R1	–	26.5		
A 436 FILTER R2	–	20.5		
A 436 FILTER R3	–	20.5		
A 439 FILTER R1	–	17.0		
A 439 FILTER R2	–	15.5		
A 439 FILTER R3	–	23.5		
LOD Cr BY AAS = 0.1 PPM				