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Office of Air Quality
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Research Triangle Park, NC 27711

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AIR

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Final Report

Hot Mix Asphalt Plants
Truck Loading and Silo Filling
Manual Methods Testing

Asphalt Plant C
Los Angeles, California

Volume 2 of 8

Office of Air Quality
Clean Air
OAQPS
Planning and Standards

FINAL REPORT

HOT MIX ASPHALT PLANTS
TRUCK LOADING AND SILO FILLING
MANUAL METHODS TESTING
ASPHALT PLANT C, LOS ANGELES, CALIFORNIA

VOLUME 2 OF 8
APPENDIX B

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GLOSSARY OF TERMS

ASTM – American Society for Testing and Materials
CEMS – Continuous Emissions Monitoring System
CTS – Calibration Transfer Standard
EMC – Emissions Measurement Center
EMAD – Emission Monitoring and Analysis Division
ESP – Electrostatic Precipitator
FID – Flame Ionization Detector
FTIR – Fourier Transform Infrared Spectroscopy
HAP – Hazardous Air Pollutant
MCEM – Methylene Chloride Extractable Matter
MRI – Midwest Research Institute
PES – Pacific Environmental Services
PM – Particulate Matter
PTE – Permanent Total Enclosure
RAP – Recycled Asphalt
RTFOT – Rolling Thin Film Oven Test
SED – Silo Exhaust Duct

GLOSSARY OF TERMS (CONTINUED)

SMTG – Source Measurement Technology Group
SVOHAP – Semi-Volatile Organic Hazardous Air Pollutant
TED – Tunnel Emissions Duct
TFOT – Thin Film Oven Test
THC – Total Hydrocarbons
VOHAP – Volatile Organic Hazardous Air Pollutant
VOST – Volatile Organic Sampling Train

VOLUME 2

APPENDIX B

PROCESS DATA

B.1 PRODUCTION RECORDS FOR 7/24/98 THROUGH 7/28/98
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APPENDIX B.1

PRODUCTION RECORDS FOR 7/24/98 THROUGH 7/28/98

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Pacific Environmental Services

Client/Source: Asphalt Plant C

Date: 7/24/98

Data Recorded By: JHL

Time	Natural Gas Rate (ACFM)	Aggregate Feed Rate (TPH)	Recycle (RAP) Feed Rate (TPH)	% RAP in mix	Rubber Feed Rate (TPH)	Liquid Asphalt Feed Rate (TPH)	Liquid Asphalt Type	Mix Rate (TPH)	Product Code	Liquid Asphalt Temp. (F)	Burner Pos. (%)	Mix Temp. (F)	Cyclone Entrance Temp. (F)	Dryer Pressure (in Hg)	Baghouse Exit Temp. (F)	Baghouse Pressure Drop (in Hg)	Exhaust Fans Amperage (amps) fan 1 / fan 2
6:34 AM	784	184.6	80.27	28.8	0	14	4000	278.9	2C	329	12.5	340	210	0.29	209	0	75/79
7:00 AM	841	295.1	0	0	0	15.6	4000	310.7	2	329.3	16	329.7	217	0.27	206	0	75/80
7:29 AM	1320	458.2	0	0	0	24.2	4000	482.4	2	331.8	37.3	319.2	332	0.31	280	0	81/88
8:00 AM	941	409.3	0	0	0	21.2	4000	430.5	2	332.2	21	323.7	268	0.33	283	0	75/79
8:30 AM	1040	383.5	0	0	0	21	4000	404.5	4	332	27	323.3	280	0.28	262	0	80/80
9:00 AM	915	328.9	0	0	0	18	4000	346.9	4	331.6	22	314.9	262	0.27	245	0	75/77
9:37 AM	878	322	0	0	0	16.7	4000	338.7	2	330.7	15	316.1	220	0.31	220	0	75/80
10:07 AM	847	322.6	0	0	0	16.7	4000	339.3	2	330.5	17	325.4	227	0.31	219	0	73/80
10:41 AM	974	328.6	0	0	0	18	4000	346.6	4	333.2	19.5	323.5	228	0.31	220	0	80/80
11:07 AM	899	319	0	0	0	16.6	4000	335.5	2	327.6	17.5	325	229	0.3	221	0	76/80
11:37 AM	945	320.2	0	0	0	16.6	4000	336.8	2	326.5	17.5	329.5	230	0.32	222	0	75/80
12:07 PM	913	319.9	0	0	0	16.6	4000	336.5	2	326.3	17.5	331.4	229	0.31	223	0	75/78
12:37 PM	920	320.4	0	0	0	16.6	4000	337	2	328.3	17.5	331	228	0.31	221	0	73/78
1:07 PM	858	320.2	0	0	0	16.6	4000	336.8	2	330.2	17.5	332.7	228	0.27	223	0	73/75
										330.0		326.1	Average				

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Pacific Environmental Services

Client/Source: Asphalt Plant C

Date: 7/25/98

Data Recorded By: JHL

Time	Natural Gas Rate (ACFM)	Aggregate Feed Rate (TPH)	Recycle (RAP) Feed Rate (TPH)	% RAP in mix	Rubber Feed Rate (TPH)	Liquid Asphalt Feed Rate (TPH)	Liquid Asphalt Type	Mix Rate (TPH)	Product Code	Liquid Asphalt Temp. (F)	Burner Pos. (%)	Mix Temp. (F)	Cyclone Entrance Temp. (F)	Dryer Pressure (in Hg)	Baghouse Exit Temp. (F)	Baghouse Pressure Drop (in Hg)	Exhaust Fans Amperage (amps) fan 1 / fan 2
6:12 AM	700	69	18.9	20.4	0	4.4	4000	92.7	4C	319.4	11	326.6	210	0.33	205	0	75/75
6:30 AM	0	178.8	79.8	29.3	0	13.4	4000	272	2	321.1	15.1	315.7	178	1.84	191	0	88/92
7:10 AM	745	181.3	82.7	29.8	0	13.7	4000	277.7	2C	321.7	14	312.1	228	0.28	203	0	75/78
7:40 AM	834	183.2	82.7	29.6	0	13.8	4000	279.7	2C	321.7	17.6	326.1	237	0.27	213	0	75/80
8:11 AM	950	261.2	110.7	28.2	0	20.4	4000	392.3	4C	325.6	21.4	338	281	0.31	255	0	74/79
8:41 AM	927	241.6	88.9	25.5	0	18.1	4000	348.6	4C	326.2	`19	336.9	251	0.31	242	0	73/79
9:11 AM	710	182.4	81.7	29.4	0	13.7	4000	277.8	2C	324.8	12	324.2	221	0.32	219	0	74/75
9:41 AM	710	182.7	80.9	29.2	0	13.7	4000	277.3	2C	325.2	11	317.6	209	0.28	209	0	72/76
10:11 AM	733	177.2	78.6	29.2	0	13.2	4000	269	2C	325.6	11.6	323.8	218	0.29	210	0	73/75
10:41 AM	741	196.4	87.2	29.2	0	14.7	4000	298.3	2C	327.5	13	327.6	228	0.29	219	0	71/74
11:10 AM	854	185.5	82.1	29.2	0	13.8	4000	281.4	2C	328	10.5	307.8	208	0.28	208	0	71/73
11:34 AM	Plant shut down - lack of customers																
12:02 PM	~~789~~	~~0.41~~	~~0.2~~	~~31.7~~	~~0~~	~~0.03~~	~~4000~~	~~0.63~~	~~2C~~	~~329.8~~	~~29.1~~	~~216.2~~	~~206~~	~~0.23~~	~~194~~	~~0~~	~~71/74~~
12:40 PM	812	207.7	82.5	27.1	0	14	4000	304.2	2C	330	15	336.6	232	0.29	219	0	71/72
1:13 PM	880	255.86	112.2	29.0	0	19.1	4000	387.1	2C	331.2	21	329.8	260	0.29	242	0	72/75
1:42 PM	899	292.7	113.2	26.5	0	21	4000	426.9	2C	332	20	324.8	252	0.27	251	0	72/75
										325.7		324.8	Average				

Pacific Environmental Services

Client/Source: Asphalt Plant C

Date: 7/27/98

Data Recorded By: JHL

Time	Natural Gas Rate (ACFM)	Aggregate Feed Rate (TPH)	Recycle (RAP) Feed Rate (TPH)	% RAP in mix	Rubber Feed Rate (TPH)	Liquid Asphalt Feed Rate (TPH)	Liquid Asphalt Type	Mix Rate (TPH)	Product Code	Liquid Asphalt Temp. (F)	Burner Pos. (%)	Mix Temp. (F)	Cyclone Entrance Temp. (F)	Dryer Pressure (in Hg)	Baghouse Exit Temp. (F)	Baghouse Pressure Drop (in Hg)	Exhaust Fans Amperage (amps) fan 1 / fan 2
6:30 AM	1190	0.9	0	0.0	0	3.6	4000	1.36	2C	319.3	24.9	316.1	271	0.33	231	0	78/81
6:59 AM	1190	342.8	140.3	27.6	0	24.6	4000	507.7	2C	321.9	31.3	324.7	341	0.28	306	0	78/81
7:36 AM	978	349.4	145.7	28.0	0	25.6	4000	520.7	2C	327.6	27	325.5	325	0.3	319	0	75/80
7:55 AM	1280	476.9	0	0.0	0	24.6	4000	501.5	2C	332.9	37	307.4	341	0.25	298	0	78/82
8:33 AM	1400	348.4	130.6	25.9	0	24.8	4000	503.8	2C	339.9	35.1	325.4	368	0.33	332	0	75/81
8:57 AM	1330	366.84	150.9	27.7	0	26.8	4000	544.6	2C	342.5	36	329.4	354	0.22	329	0	78/83
9:27 AM	1530	386.3	162	28.1	0	28.4	4000	576.6	2C	346.3	40.1	317.6	365	0.25	336	0	80/90
9:57 AM	1470	367.8	154.9	28.2	0	27.1	4000	549.8	2C	346.5	40	337.2	372	0.22	343	0	80/88
10:27 AM	1330	366.2	152.8	28.0	0	26.9	4000	545.9	2C	346.9	40	338.5	373	0.27	344	0	80/87
10:57 AM	1190	385.6	144.5	25.9	0	27.5	4000	557.5	2C	349	40	331.1	370	0.27	345	0	80/88
11:27 AM	1430	387.1	157.9	27.5	0	28.2	4000	573.2	2C	348.9	40	324.2	373	0.29	347	0	79/85
11:57 AM	1420	556	37.9	6.1	0	30.6	4000	624.4	2C	352.5	39.5	309.6	357	0.34	331	0	80/89
12:27 PM	1360	366.9	152.9	28.0	0	27	4000	546.9	2C	352.5	33	307.5	388	0.4	356	0	80/88
12:57 PM	1210	356.7	161.7	29.7	0	26.9	4000	545.2	2C	360.9	38.4	318.6	370	0.22	343	0	78/80
1:27 PM	1300	356.4	158.5	29.3	0	26.7	4000	541.5	2C	358	26.5	313	318	0.52	305	0	79/83
1:57 PM	1120	457.1	60	11.0	0	26.7	4000	543.3	2C	363.4	33.4	331.6	289	0.3	323	0	80/85
2:27 PM	881	374.7	0	0.0	0	19.5	4000	394.2	2	362.5	17.6	326.5	230	0.25	253	0	72/77
										345.4		322.6	Average				

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Pacific Environmental Services

Client/Source: Asphalt Plant C

Date: 7/28/98

Data Recorded By: JHL

Time	Natural Gas Rate (ACFM)	Aggregate Feed Rate (TPH)	Recycle (RAP) Feed Rate (TPH)	% RAP in mix	Rubber Feed Rate (TPH)	Liquid Asphalt Feed Rate (TPH)	Liquid Asphalt Type	Mix Rate (TPH)	Product Code	Liquid Asphalt Temp. (F)	Burner Pos. (%)	Mix Temp. (F)	Cyclone Entrance Temp. (F)	Dryer Pressure (in Hg)	Baghouse Exit Temp. (F)	Baghouse Pressure Drop (in Hg)	Exhaust Fans Amperage (amps) fan 1 / fan 2
6:46 AM	1160	234.4	58.3	18.8	0	16.22	4000	309.5	2B	339.2	34.3	327.5	306	0.31	281	0	73/80
7:16 AM	1090	258.4	111.6	28.7	0	19.16	4000	389.1	2C	347.5	20	348.1	277	0.28	286	0	73/79
7:46 AM	1090	240.1	101.8	28.3	0	17.7	4000	359.7	2C	347.1	22	320.4	267	0.3	247	0	74/80
8:17 AM	1000	277.9	120.1	28.7	0	20.6	4000	418.6	2C	348.5	28.3	324	319	0.29	286	0	75/80
8:46 AM	1380	317.9	137.1	28.6	0	23.6	4000	478.6	2C	352.5	34	335.2	349	0.32	315	0	75/80
9:16 AM	1180	315.9	135.7	28.6	0	23.4	4000	474.9	2C	354.5	33	335	347	0.25	322	0	73/80
9:34 AM	1160	297.8	124.8	28.0	0	23.11	8000	445.7	4C	356.7	33	336	330	0.29	355	0	73/80
9:46 AM	1130	399.8	65.4	13.2	0	29.4	8000	494.6	10	286.4	33.5	336.2	292	0.27	289	0	75/80
10:15 AM	1130	281.4	114.6	27.4	0	21.8	4000	417.8	4C	296.5	30	341.1	310	0.33	285	0	73/72
10:46 AM	1030	299.8	128.7	28.6	0	22.2	4000	450.7	2C	358.2	29	329.2	316	0.29	294	0	72/78
11:16 AM	1160	299	127	28.3	0	22.1	4000	448.1	2C	356.1	32.2	346.6	344	0.29	318	0	75/78
11:46 AM	1180	307.1	129.9	28.2	0	22.6	4000	460	2C	254.5	32.2	346.9	345	0.31	320	0	75/78
12:24 PM	1170	303.5	128.6	28.2	0	23.7	4000	455.7	2C	354	31	341.1	323	0.29	302	0	72/75
12:46 PM	1160	297.3	121.8	27.6	0	21.7	4000	440.9	2C	355.1	32.3	345.3	349	0.26	317	0	71/75
1:16 PM	1060	267.1	113.3	28.2	0	20.8	4000	401.2	4C	354.3	25.3	364.4	304	0.28	297	0	70/72
1:46 PM	1010	301.8	139.1	29.9	0	25	4000	465.9	2C	355.1	30.3	357.1	327	..29	303	0	72/75
2:16 PM	1009	336.3	126.1	25.9	0	24	4000	486.5	2C	355.7	39.2	343.7	268	0.28	334	0	80/85
6:14 PM	1200	121.5	43.1	24.8	0	8.9	4000	173.5	2C	298.2	34.4	307.4	350	0.32	264	0	72/80
6:44 PM	921	218	95.8	29.0	0	16.3	4000	330.1	2C	299	15.2	321.5	251	0.28	247	0.7	70/71
6:56 PM	807	218.7	95.6	28.9	0	16.3	4000	330.6	2C	298.3	17.3	322.9	259	0.32	246	0.7	70/73
7:14 PM	919	217.9	94.9	28.8	0	16.2	4000	329	2C	298.3	16.8	320.7	248	0.28	237	0.7	70/71
										331.7		335.7	Average				

APPENDIX B.2

PRODUCT STORAGE RECORDS FOR 7/25/98 THROUGH 7/28/98

SILO STORAGE - Data for 7/24/98

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7:41 AM	1/2"	3/4"	1/2"	3/4"	3/4"

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SILO STORAGE - Data for 7/24/98

TIME	PRODUCT AMOUNT [illegible]				
	SILO [illegible]	SILO NO. 2	SILO NO. [illegible]	SILO NO. [illegible]	SILO [illegible]
6:34 AM	191.7	0.3	196.4	184	200
7:00 AM	191.7	0.3	145.9	117.8	203.4
7:24 AM	191.7	53.8	82.4	104.1	203.4
7:36 AM	191.7	123.75	61.6	104.1	203.4
7:42 AM	191.7	177.1	40.3	104.1	203.4
7:54 AM	191.7	174.3	15.5	104.1	203.4
8:05 AM	187.7	211.8	15.5	104.1	203.4
8:18 AM	145.2	214.7	15.7	147.8	203.4
8:30 AM	145.2	193.3	31.4	187	203.4
8:46 AM	145.2	87.1	88.7	187	203.4
9:00 AM	145.2	62.7	112.6	144.7	203.4
9:22 AM	145.2	90	70.8	172.6	203.4
9:33 AM	145.2	86.1	49.7	172.6	203.4
9:49 AM	145.2	97.9	0.1	172.6	203.4
10:07 AM	103	69.8	0.1	172.6	203.4
10:28 AM	68.5	102.3	0.1	172.6	203.4
10:41 AM	39.2	111.8	63.83	172.6	97.88
10:52 AM	18.84	111	126.5	172.6	33.71
11:09 AM	0	111	124.2	173.5	0
11:24 AM	0	147.9	131.8	153.4	0
11:37 AM	0	189.2	89.14	111.2	0
12:11 PM	0	138.8	64.3	111.2	0
12:37 PM	0	108.4	43	111.2	0
12:56 PM	0	29.2	43.2	69.1	0
1:07 PM	0	0	43.2	87.8	0

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SILO STORAGE - Data for 7/25/98

6:17	empty	1/2"	1/2"	3/4"	3/4"
7:10	empty	3/4"	1/2"	3/4"	3/4"
7:40	"	"	"	"	"
9:40	"	"	"	"	"
11:00	empty	3/4"	empty	empty	empty

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SILO STORAGE - Data for 7/25/98

TIME	STOP TIME	[illegible]	[illegible]	[illegible]	[illegible]
6:12 AM	0	138.2	164.5	65.8	217.6
6:30 AM	0	57.6	201	149.1	196.5
6:56 AM	0	57.6	201	149.1	154.2
7:10 AM	0	7	198.8	174.5	111.8
7:21 AM	0	48	198.8	174.5	90.8
7:31 AM	0	56.3	154.3	174.5	90.8
7:40 AM	0	84.2	121.1	174.5	90.8
7:51 AM	0	82.6	75.9	174.5	90.8
8:11 AM	0	132.3	19.8	174.5	90.8
8:24 AM	0	132.3	54.7	153.2	69.7
8:41 AM	0	89.5	92.6	128.7	69.6
8:54 AM	0	117.6	63.7	105.6	48.3
9:11 AM	0	163.5	42.6	63.6	48.3
9:25 AM	0	141.3	0	63.6	48.3
9:41 AM	0	101.6	21	63.6	48.3
10:11 AM	0	59.9	6	63.6	48.3
10:26 AM	0	98	0	63.6	48.3
10:42 AM	0	156.8	0	0	30.5
11:00 AM	0	157	0	0	0
11:10 AM	0	163.1	0	0	0
11:29 AM	0	212.1	0	0	0
11:34 AM	0	full	0	0	0
11:52 AM	0	181.2	0	0	0
12:02 PM	0	111.3	0	0	0
12:40 PM	0	95.8	0	0	0
12:56 PM	0	49	0	0	0
1:13 PM	0	83.3	0	0	0
1:26 PM	0	102.5	0	0	0
1:42 PM	0	120.5	0	0	0

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SILO STORAGE - Data for 7/27/98

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6:30	1/2"	3/4"	EMPTY	EMPTY	3/4"
	SAME SET-UP FOR THE REMAINDER OF THE DAY				

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SILO STORAGE - Data for 7/27/98

TIME	PRODUCT AMOUNT [illegible] SILO [illegible]				
	SILO NO. 1	SILO NO. 2	SILO NO. 3	SILO NO. 4	SILO NO. 5
6:30 AM	198.3	24.2	0.2	210	200
6:59 AM	198.3	155.6	0.2	19	157.5
7:14 AM	198.3	101	0.2	19	157.5
7:31 AM	198.3	233.9	0.5	19	201.3
7:50 AM	198.3	134.5	0.5	132.8	203
8:09 AM	198.3	121.4	0.8	165.1	203
8:33 AM	198.3	81.4	0.8	106.4	203
8:45 AM	198.3	160.9	0.8	0	185
8:57 AM	198.3	140.1	0.8	0	185
9:06 AM	198.3	101.6	0.8	0	185
9:20 AM	198.3	97.1	0.8	0	185
9:36 AM	198.3	117.1	0.8	0	185
9:57 AM	190.2	173.8	0.8	0	185
10:14 AM	190.2	147.5	0.8	0	185
10:27 AM	190.2	135.1	0.8	0	185
10:37 AM	190.2	48	0.8	0	108.6
10:57 AM	190.2	136.4	0.8	0	14.7
11:16 AM	190.2	138.9	0.8	0	14.7
11:33 AM	190.2	141.9	0.8	0	14.7
11:57 AM	144.5	88.6	0.8	0	14.7
12:12 PM	123.4	80	0.8	0	14.7
12:27 PM	102.5	100.3	0.8	0	14.7
12:57 PM	34.6	125.8	0.8	0	14.7
1:12 PM	34.6	128.5	0.8	0	14.7
1:27 PM	34.6	127.2	0.8	0	14.7
2:00 PM	34.6	129	0.8	0	0
2:27 PM	34.7	115.4	0.8	0	0
Production ends for the day					

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SILO STORAGE - Data for 7/28/98

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7:22 AM	1/2" 4000	3/4" 4000	3/8" 8000	3/4" 4000	3/4" 4000
Same for rest of day					

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SILO STORAGE - Data for 7/28/98

TIME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6:46 AM	202.48	88.9	204.8	81.3	200
7:16 AM	202.48	213.51	204.8	8.42	174.36
7:31 AM	202.48	172.67	204.8	187.66	174.36
7:48 AM	202.48	114.44	183.74	217.53	201.87
8:03 AM	202.48	79.42	183.74	217.53	201.87
8:18 AM	202.48	76.44	141.33	217.53	201.87
8:31 AM	202.48	119.64	120.15	167.46	201.87
8:49 AM	181.24	126.34	98.84	167.46	201.87
9:00 AM	181.24	131.94	56.28	167.46	201.87
9:19 AM	161.26	166.38	32.14	167.46	201.87
9:33 AM	140.08	148.38	32.14	167.46	201.87
9:46 AM	167.9	104.04	48.16	167.46	201.87
10:15 AM	152.66	0	198.55	167.46	85.96
10:33 AM	171.42	74.58	207.77	105.65	85.96
10:46 AM	147.48	130.81	178.67	105.65	85.96
11:05 AM	122.79	111.24	157.45	105.65	85.96
11:16 AM	98.52	186.54	136.31	105.65	34.88
11:36 AM	73.98	181.81	115	105.65	9.3
11:46 AM	28.52	186.99	94.04	105.65	9.3
12:04 PM	44.75	180.99	73.37	132.21	9.3
12:24 PM	128.75	14.14	73.37	132.21	9.3
12:46 PM	132.03	114.29	31.04	116.7	9.3
1:04 PM	55.22	165.24	31.04	116.7	9.3
1:16 PM	5.39	174.01	31.04	116.7	9.3
1:30 PM	57.68	83.98	22.94	116.7	9.3
1:48 PM	140.1	16.13	22.94	37.15	9.3
2:05 PM	94.8	53.26	22.94	37.15	9.3
2:16 PM	70.88	89.46	22.94	37.15	9.3
6:14 PM	115.46	11.08	9.2	146.84	198.69
6:26 PM	115.46	36.68	9.2	146.84	156.57
6:44 PM	115.46	38.9	9.2	146.84	156.1
6:56 PM	115.46	57.85	9.2	146.84	156.1
7:14 PM	115.46	124.5	9.2	146.84	156.1
7:36 PM	115.46	148.25	9.2	146.84	156.1
Testing ends at 7:43 PM					

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APPENDIX B.3

LOAD-OUT RECORDS USED IN TED EMISSION CALCULATIONS

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. Summary Runs 1-4
Date: NA
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Date	Test Method	Total Tons				
7/24/98	T-V-1-1	169.9				
7/24/98	T-V-1-2	262.3				
7/24/98	T-V-1-3	276.9				
7/24/98	T-V-1-4	297.2				
7/24/98	T-MM5-1	1832.8				
7/24/98	T-M315-1	1875.0				
7/24/98	T-M18-1	1853.8				
7/25/98	T-V-2-1	177.8				
7/25/98	T-V-2-2	182.6				
7/25/98	T-V-2-3	162.9				
7/25/98	T-V-2-4	62.8				
7/25/98	T-MM5-2	1478.7				
7/25/98	T-M315-2	1499.7				
7/25/98	T-M18-2	1499.7				
7/27/98	T-V-3-1	258.4				
7/27/98	T-V-3-2	292.2				
7/27/98	T-V-3-3	273.9				
7/27/98	T-V-3-4		no data sheet			
7/27/98	T-MM5-3	2530.2				
7/27/98	T-M315-3	2529.7				
7/27/98	T-M18-3	2530.2				
~~7/28/98~~	T-V-4-1		background			
~~7/28/98~~	T-V-4-2		background			
~~7/28/98~~	T-V-4-3		background			
~~7/28/98~~	T-V-4-4		background			
~~7/28/98~~	T-MM5-4		background			
~~7/28/98~~	T-M315-4		background			
~~7/28/98~~	T-M18-4		background			

OK * TRP 7/28/98 CMC

* T-V-4 Testing performed on Sunday 7/26/98 TRP

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Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-1 (1-4)	T-MM5-1	T-M315-1	T-M18-1
7:13	20.86	4				
7:15	20.88	3				
7:17	21.34	4				
7:19	20.92	4				
7:28	20.89	3		1	1	1
7:32	21.45	2		1	1	1
7:38	21.20	3		1	1	1
7:41	21.34	2		1	1	1
7:43	20.83	3		1	1	1
7:45	21.39	2		1	1	1
7:46	20.10	2		1	1	1
7:48	21.04	2		1	1	1
7:49	4.03	3		1	1	1
7:52	21.19	2		1	1	1
7:56	21.12	2		1	1	1
7:58	3.99	1				
7:59	21.27	2		1	1	1
8:02	21.12	2				
8:05	21.17	2		1	1	1
8:07	21.25	1				
8:12	21.39	2				
8:15	21.16	1				
8:23	21.40	2				
8:24	20.91	3				
8:27	2.54	3				
8:28	21.22	2		1	1	1
8:30	21.43	3	1	1	1	1
8:33	21.20	2	1	1	1	1
8:38	21.22	2	1	1	1	1
8:39	21.36	2	1	1	1	1
8:41	21.35	3	1	1	1	1
8:43	21.05	2	1	1	1	1
8:46	20.94	3	1	1	1	1
8:49	21.38	2	1	1	1	1
8:50	21.33	2		1	1	1
8:52	21.12	4		1	1	1
8:54	21.04	3		1	1	1
8:55	21.17	4		1	1	1
8:59	21.26	2		1	1	1
9:03	20.88	3		1	1	1
9:05	19.91	2		1	1	1
9:10	21.22	2	2	1	1	1

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-1 (1-4)	T-MM5-1	T-M315-1	T-M18-1
9:12	21.10	3	2	1	1	1
9:16	21.04	4	2	1	1	1
9:21	21.10	3	2	1	1	1
9:22	21.58	2	2	1	1	1
9:24	21.27	2	2	1	1	1
9:28	21.46	2	2	1	1	1
9:33	21.44	2	2	1	1	1
9:37	21.42	3	2	1	1	1
9:38	21.36	2	2	1	1	1
9:39	21.20	2	2	1	1	1
9:42	21.06	2	2	1	1	1
9:44	7.00	3	2			
9:45	21.13	3				
9:49	20.88	2				
9:50	21.34	2				
9:53	21.20	3				
9:55	21.53	2				
9:58	21.52	2				
10:00	21.29	2				
10:02	21.60	2				
10:05	20.94	1				
10:06	21.27	2				
10:07	21.22	2				
10:09	20.96	1				
10:11	21.44	2				
10:14	21.06	2				
10:27	21.50	1				
10:28	20.43	5				
10:30	21.41	5				
10:33	21.29	1				
10:35	21.08	5				
10:36	21.39	5				
10:38	21.33	5				
10:40	21.14	1				
10:41	21.45	5				
10:43	21.25	5				
10:46	21.26	5				
10:52	21.40	1				
10:56	21.40	5				
10:58	21.07	3	3		1	1
11:00	21.51	4	3	1	1	1
11:01	21.33	5	3	1	1	1

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Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-1 (1-4)	T-MM5-1	T-M315-1	T-M18-1
11:09	21.29	4	3	1	1	1
11:10	21.34	3	3	1	1	1
11:12	21.42	4	3	1	1	1
11:17	21.30	4	3	1	1	1
11:18	21.29	3	3	1	1	1
11:22	21.40	4	3	1	1	1
11:23	21.45	4	3	1	1	1
11:24	20.78	4	3	1	1	1
11:26	21.43	3	3	1	1	1
11:28	21.32	2	3	1	1	1
11:33	21.35	2		1	1	1
11:36	21.19	3		1	1	1
11:38	21.12	2		1	1	1
11:39	21.14	2		1	1	1
11:40		3		1	1	1
11:41	24.84	3		1	1	1
11:43	21.17	2		1	1	1
11:45	20.12	2		1	1	1
11:50	21.34	2		1	1	1
11:53	21.06	2		1	1	1
11:55	21.15	2		1	1	1
11:57	21.31	2		1	1	1
12:02	21.35	2		1	1	1
12:04	21.22	2		1	1	1
12:05	21.32	2		1	1	1
12:10	21.22	2		1	1	1
12:15	21.02	2		1	1	1
12:17	23.99	2		1	1	1
12:19	21.29	2	4	1	1	1
12:22	21.00	2	4	1	1	1
12:23	21.52	2	4	1	1	1
12:25	21.47	2	4	1	1	1
12:30	21.46	2	4	1	1	1
12:35	21.33	3	4	1	1	1
12:36	20.40	2	4	1	1	1
12:37	21.73	2	4	1	1	1
12:38	21.28	2	4	1	1	1
12:40	21.16	2	4	1	1	1
12:42	21.39	2	4	1	1	1
12:44	20.33	2	4	1	1	1
12:46		2	4	1	1	1
12:48	21.57	4	4	1	1	1

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-1 (1-4)	T-MM5-1	T-M315-1	T-M18-1
12:49	21.25	4	4	1	1	1
12:51	21.20	4		1	1	1
12:53	21.17	2		1	1	1
12:54	21.31	2		1	1	1
12:56						
13:01		2			1	
13:02	21.19	4			1	
Total	2673.49			1832.8	1875.0	1853.8

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-2 (1-4)	T-MM5-2	T-M315-2	T-M18-2
7:02	21.12	2				
7:04	21.43	5				
7:08		2				
7:09	21.24	3				
7:12	21.02	5		2	2	2
7:20	20.92	3		2	2	2
7:21		2		2	2	2
7:23	23.87	2		2	2	2
7:24		3		2	2	2
7:25	23.65	3		2	2	2
7:29	21.21	2		2	2	2
7:31		3		2	2	2
7:32	23.93	3		2	2	2
7:35	21.09	3		2	2	2
7:38		2		2	2	2
7:40	24.43	2		2	2	2
7:42	20.59	3		2	2	2
7:43		2		2	2	2
7:44	23.24	2		2	2	2
7:45	20.64	2		2	2	2
7:47		3		2	2	2
7:48	24.47	3		2	2	2
7:51	21.26	2		2	2	2
7:53		3		2	2	2
7:55	24.52	3		2	2	2
7:57	21.32	3		2	2	2
7:59	21.26	2		2	2	2
8:05	19.73	3	1	2	2	2
8:07	21.05	2	1	2	2	2
8:10	21.45	3	1	2	2	2
8:14	21.31	4	1	2	2	2
8:17		3	1	2	2	2
8:17	24.65	3	1	2	2	2
8:19		3	1	2	2	2
8:20	24.48	3	1	2	2	2
8:02	21.13	5	1	2	2	2
8:24		3	1	2	2	2
8:25	24.03	3	1	2	2	2
8:28	21.50	2		2	2	2
8:30	21.16	3		2	2	2
8:32	21.27	3		2	2	2
8:34	21.25	2		2	2	2

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-2 (1-4)	T-MM5-2	T-M315-2	T-M18-2
8:37		4		2	2	2
8:38	24.45	4		2	2	2
8:39	21.26	3		2	2	2
8:42	21.30	5		2	2	2
8:45		4		2	2	2
8:46	23.21	4		2	2	2
8:48	21.00	3		2	2	2
8:50		2		2	2	2
8:51	24.47	2		2	2	2
8:52	21.18	2		2	2	2
8:59		2	2	2	2	2
9:00	23.80	2	2	2	2	2
9:02	21.00	3	2	2	2	2
9:03	20.80	4	2	2	2	2
9:06	21.18	4	2	2	2	2
9:10	23.67	2				
9:13	20.89	3	2			
9:15	20.87	2	2			
9:17	21.02	2	2			
9:18	12.00	2	2			
9:21	21.01	2	2			
9:23		2	2			
9:24	24.19	3				
9:28	20.93			2	2	2
9:31	20.94	2		2	2	2
9:33	8.00	2		2	2	2
9:35	21.10	2		2	2	2
9:40		3		2	2	2
9:41	23.87	2		2	2	2
9:45	15.03	2		2	2	2
9:47		2		2	2	2
9:48	24.58	2		2	2	2
9:49	21.17	2		2	2	2
9:54		2	3	2	2	2
9:55	23.58	2	3	2	2	2
9:57	20.86	2	3	2	2	2
9:59		2	3	2	2	2
9:59	22.79	2	3	2	2	2
10:02	20.70	2	3	2	2	2
10:05		2	3	2	2	2
10:06	24.19	2	3	2	2	2
10:09	21.06	2	3	2	2	2

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-2 (1-4)	T-MM5-2	T-M315-2	T-M18-2
10:14		2	3	2	2	2
10:15	23.54	2	3	2	2	2
10:16	6.18	3	3	2	2	2
10:27		2		2	2	2
10:28	24.06	2		2	2	2
10:30	20.91	4		2	2	2
10:32	21.06	4		2	2	2
10:35	20.79	4		2	2	2
10:39	3.14			2	2	2
10:41	17.89	4		2	2	2
10:43	21.00	5		2	2	2
10:46	14.52	5		2	2	2
10:48	6.38	5		2	2	2
10:50	20.80	2		2	2	2
10:52	20.87	2		2	2	2
10:54	20.91	2		2	2	2
11:00	20.91	2		2	2	2
11:04	21.07	2	4	2	2	2
11:10	21.13	2	4	2	2	2
11:19	20.64	2	4	2	2	2
11:24	21.01	2			2	2
Total	1707.13			1478.7	1499.7	1499.7

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-3 (1-4)	T-MM5-3	T-M315-3	T-M18-3
7:02	12.70	2				
7:04	10.28	2				
7:09	21.13	2				
7:11	11.74	2		3	3	3
7:13	11.32	2		3	3	3
7:18	21.28	2		3	3	3
7:36	12.21	2				
7:37	12.12	2				
7:38	12.75	2				
7:39	12.90	2				
7:43	12.42	2		3	3	3
7:44	12.38	2		3	3	3
7:46	12.36	2		3	3	3
7:47	12.30	2		3	3	3
7:53	12.66	2		3	3	3
7:54	12.62	2		3	3	3
7:55	12.34	2		3	3	3
7:56	12.87	2		3	3	3
8:00	12.00	2		3	3	3
8:01	12.38	2		3	3	3
8:02	20.95	2		3	3	3
8:03	13.00	2		3	3	3
8:04	12.70	2		3	3	3
8:09	13.84	2		3	3	3
8:10	14.00	2		3	3	3
8:12	21.40	2		3	3	3
8:13	12.00	2		3	3	3
8:14	12.25	2		3	3	3
8:16	12.76	2		3	3	3
8:16	13.00	2		3	3	3
8:18	13.00	2		3	3	3
8:19	12.56	2		3	3	3
8:20	11.56	2		3	3	3
8:21	12.48	2		3	3	3
8:22	21.38	2		3	3	3
8:24	12.00	2		3	3	3
8:24	12.23	2		3	3	3
8:26	13.00	2		3	3	3
8:26	12.71	2		3	3	3
8:27	13.03	2		3	3	3
8:28	13.13	2		3	3	3
8:29	12.05	4		3	3	3

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-3 (1-4)	T-MM5-3	T-M315-3	T-M18-3
8:30	12.67	4		3	3	3
8:32	21.37	4		3	3	3
8:33	12.78	4		3	3	3
8:34	12.88	4		3	3	3
8:35	21.18	4		3	3	3
8:37	13.00	4		3	3	3
8:38	13.16	4		3	3	3
8:39	12.93	4		3	3	3
8:40	12.47	4		3	3	3
8:41	21.36	4		3	3	3
8:42	3.36	4		3	3	3
8:43	17.94	5		3	3	3
8:44	12.80	2		3	3	3
8:45	13.04	2		3	3	3
8:47	13.00	2		3	3	3
8:48	12.96	2		3	3	3
8:49	21.12	2		3	3	3
8:51	21.33	2		3	3	3
8:52	13.00	2		3	3	3
8:53	13.13	2		3	3	3
8:54	11.59	2		3	3	3
8:55	12.86	2		3	3	3
8:56	21.31	2		3	3	3
8:58	20.44	2		3	3	3
8:59	13.14	2		3	3	3
9:00	11.47	2		3	3	3
9:01	13.00	2		3	3	3
9:02	13.01	2		3	3	3
9:02	13.05	2		3	3	3
9:03	11.05	2		3	3	3
9:04	21.28	2		3	3	3
9:06	12.00	2		3	3	3
9:07	11.19	2		3	3	3
9:08	12.94	2		3	3	3
9:08	12.61	2		3	3	3
9:10	12.20	2		3	3	3
9:10	12.26	2		3	3	3
9:12	21.28	2		3	3	3
9:14	21.37	2		3	3	3
9:15	12.12	2		3	3	3
9:16	13.52	2		3	3	3
9:17	12.50	2	1	3	3	3

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-3 (1-4)	T-MM5-3	T-M315-3	T-M18-3
9:19	12.63	2	1	3	3	3
9:21	12.35	2	1	3	3	3
9:23	12.09	2	1	3	3	3
9:26	12.77	2	1	3	3	3
9:27	12.77	2	1	3	3	3
9:29	21.36	2	1	3	3	3
9:31	13.00	2	1	3	3	3
9:32	12.71	2	1		3	
9:33	13.00	2	1			
9:34	14.74	2	1			
9:35	21.49	2	1			
9:37	12.74	2	1			
9:38	12.05	2	1			
9:39	12	2	1			
9:43	12.51	2	1			
9:44	13.00	2	1			
9:45	12.72	2	1			
9:46	12.00	2	1			
9:47	13.18	2				
9:51	12.65	2				3
9:52	13.23	2		3		3
9:53	13.12	2		3	3	3
9:54	13.27	2		3	3	3
9:57	8.02	1		3	3	3
9:58	21.26	2		3	3	3
10:00	21.07	2		3	3	3
10:03	13.00	2		3	3	3
10:04	13.08	2		3	3	3
10:05	12.86	2		3	3	3
10:06	12.92	2		3	3	3
10:07	12.00	2		3	3	3
10:07	12.42	2		3	3	3
10:09	11.69	2	2	3	3	3
10:09	12.64	2	2	3	3	3
10:11	13.00	2	2	3	3	3
10:11	12.93	2	2	3	3	3
10:12	13.00	2	2	3	3	3
10:14	12.22	2	2	3	3	3
10:15	12.61	2	2	3	3	3
10:16	12.17	2	2	3	3	3
10:17	13.00	2	2	3	3	3
10:20	12.86	2	2	3	3	3

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-3 (1-4)	T-MM5-3	T-M315-3	T-M18-3
10:21	12.79	2	2	3	3	3
10:22	11.73	2	2	3	3	3
10:23	21.25	2	2	3	3	3
10:25	12.82	2	2	3	3	3
10:25	12.90	2	2	3	3	3
10:26	13.00	2	2	3	3	3
10:27	13.14	2	2	3	3	3
10:08	20.98	2	2	3	3	3
10:29	8.95	2	2	3	3	3
10:30	12.40	5	2	3	3	3
10:31	13.00	2	2	3	3	3
10:32	13.10	2	2	3	3	3
10:34	21.25	5		3	3	3
10:35	21.29	5		3	3	3
10:37	21.40	5		3	3	3
10:39	13.01	5		3	3	3
10:39	12.69	5		3	3	3
10:43	12.80	5		3	3	3
10:43	12.48	5		3	3	3
10:45	21.39	5		3	3	3
10:47	21.38	5		3	3	3
10:49	13.00	2		3	3	3
10:50	12.76	2		3	3	3
10:51	21.21	2		3	3	3
10:52	21.44	2		3	3	3
10:54	12.79	2	3	3	3	3
10:56	12.73	2	3	3	3	3
10:57	21.61	2	3	3	3	3
10:59	12.86	2	3	3	3	3
11:00	12.72	2	3	3	3	3
11:01	20.87	2	3	3	3	3
11:03	21.30	2	3	3	3	3
11:07	12.91	2	3	3	3	3
11:08	12.83	2	3	3	3	3
11:09	21.45	2	3	3	3	3
11:10	11.50	2	3	3	3	3
11:11	10.97	2	3	3	3	3
11:13	12.68	2	3	3	3	3
11:13	15.23	2	3	3	3	3
11:18	12.00	2	3	3	3	3
11:18	11.26	2	3	3	3	3
11:21	12.00	2	3	3	3	3

Hot Mix Asphalt Plant C Load-Out Data
Data used in TED Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Data Collected By: P.S. Murowchick
Spreadsheet work: Derek Hawkes

Time Of Loading	Actual Tons Loaded	Silo No.	T-V-3 (1-4)	T-MM5-3	T-M315-3	T-M18-3
11:21	13.22	2	3	3	3	3
11:22	13.00	2	3	3	3	3
11:23	12.78	2		3	3	3
11:25	24.53	2		3	3	3
11:28	13.00	2		3	3	3
11:29	12.92	2		3	3	3
11:31	13.00	2		3	3	3
11:33	12.73	2		3	3	3
11:33	12.00	2		3	3	3
11:34	12.91	2		3	3	3
11:35	12.00	1		3	3	3
11:36	12.56	1		3	3	3
11:36	13.00	2		3	3	3
11:37	13.60	2		3	3	3
11:38	13.00	2		3	3	3
11:39	13.14	2		3	3	3
11:41	13.00	2		3	3	3
11:41	12.67	2		3	3	3
11:42	13.00	2		3	3	3
11:43	13.10	2		3	3	3
11:44	12.00	2		3	3	3
11:45	12.49	2		3	3	3
11:47	13.00	2		3	3	3
11:48	12.96	2		3	3	3
11:49	13.00	2		3	3	3
11:50	12.46	2		3	3	3
11:51	12.50	2		3	3	3
11:51	12.31	2		3	3	3
11:52	21.08	1		3	3	3
11:54	12.00	2		3	3	3
11:55	12.64	2		3	3	
Total	2799.06			2530.2	2529.7	2530.2

APPENDIX B.4

LOAD-OUT RECORDS FOR 6/18/98 THROUGH 7/26/98

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ASPHALT PLANT C
HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
6/18/98	ONYX Paving co, Inc.	1513	19	250	75	1/2"	1004 III C3 AR-4000	6:35
6/18/98	Griffith Co.	707	20	345	75	3/4"	1004 III C3 AR-4000	7:40
6/18/98	Hillcrest Contracting	837	25	300	125	1/2"	1004 III C3 AR-4000	6:35
6/18/98	Hillcrest Contracting	837	26	500	*	3/4"	1002 III B3 AR-4000	*
6/18/98	City Of Dana Point	317	30	70	*	3/4"	1024 Type B AR-4000	6:45
6/18/98	Calfon Construction, Inc.	497	33	42	*	3/4"	1002 III B3 AR-4000	*
6/18/98	Sequel Contractors Inc.	2068	35	15	*	3/4"	1002 III B3 AR-4000	6:20
6/18/98	Silverado Constructors	2064	47	2,500	350	3/4"	1024 Type B AR-4000	7:10
6/18/98	Meyer E.J. Company	1323	52	50	50	3/4"	1004 III C3 AR-4000	13:20
6/18/98	Copp Contracting Inc.	478	58	50	25	3/4"	1001 III B2 AR-4000	8:30
6/18/98	Damon Construction Inc.	402	59	150	25	3/4"	1002 III B3 AR-4000	6:45
6/18/98	Copp Contracting Inc.	478	60	25	*	3/4"	1001 III B2 AR-4000	11:00
6/18/98	Copp Contracting Inc.	478	62	50	*	3/4"	1001 III B2 AR-4000	13:30
6/19/98	DBL Contruction	433	9	400	150	3/4"	1002 III B3 AR-4000	7:15
6/19/98	Copp Contracting Inc.	478	10	100	*	1/2"	1004 III C3 AR-4000	6:55
6/19/98	DBL Contruction	433	31	350	175	3/4"	1002 III B3 AR-4000	*
6/19/98	City Service Contracting	341	35	37	*	3/4"	1002 III B3 AR-4000	8:00
6/19/98	City Service Contracting	341	35	12	*	3/8"	1010 III D AR-4000	8:00
6/19/98	Silverado Constructors	2064	39	1,800	300	3/4"	1024 Type B AR-4000	7:30
6/19/98	Silverado Constructors	2064	40	2,200	350	3/4"	1024 Type B AR-4000	17:35
6/19/98	Meyer E.J. Company	1323	43	50	50	1/2"	1004 III C3 AR-4000	13:20
6/19/98	Calfon Construction, Inc.	497	44	42	*	3/4"	1002 III B3 AR-4000	13:20
6/19/98	Damon Construction Inc.	402	47	100	*	3/4"	1002 III B3 AR-4000	6:45
6/19/98	City Of Dana Point	317	48	70	*	3/4"	1024 Type B AR-4000	6:45
6/20/98	Hillcrest Contracting	837	9	50	*	3/8"	1010 III D AR-4000	7:20
6/20/98	Far West Paving and Sealing	617	10	350	100	3/4"	1011 Class B AR-4000	6:00
6/20/98	South Western Paving Co.	2057	11	400	75	3/8"	1010 III D AR-4000	7:20
6/20/98	Cash Account	1320	12	42	*	3/8"	1010 III D AR-4000	8:00
6/20/98	Seal Black	1968	13	100	50	1/2"	1018 fine AR-4000	7:30
6/20/98	Parker Engineering	1697	14	25	*	3/8"	1010 III D AR-4000	7:00
6/20/98	Parker Engineering	1697	15	25	*	3/8"	1010 III D AR-4000	9:30
6/20/98	Asphalt Management Inc.	642	21	200	75	3/4"	1042 III B3 AR-8000	7:00
6/20/98	Asphalt Management Inc.	642	21	100	50	1/2"	1018 fine AR-4000	11:00
6/20/98	City Service Contracting	341	24	15	15	1/2"	1018 fine AR-4000	7:00
6/20/98	Silverado Constructors	2064	28	2,800	400	3/4"	1024 Type B AR-4000	15:40
				13,615				

*** Data Unavailable**

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ASPHALT PLANT C
Historical Load-in Data

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
6/20/98	Snyder Langston Inc.	1964	29	25	*	3/8"	1010 III D AR-4000	5:30 AM
6/20/98	Snyder Langston Inc.	1964	29	200	125	1/2"	1044 III C3 AR-8000	7:30 AM
6/20/98	Western Paving Contract	2332	30	30	15	1/2"	1004 III C3 AR-4000	3:00 PM
6/20/98	Griffith Co.	707	31	345	75	3/4"	1002 III B3 AR-4000	8:40 AM
6/20/98	Copp Contracting Inc.	478	32	75	*	1/2"	1004 III C3 AR-4000	6:40 AM
6/22/98	Seal Black	1968	9	50	50	1/2"	1018 fine AR-4000	6:45 AM
6/22/98	Damon Construction Co.	402	16	1,400	175	rubber	1032 ARHM-GG-C	6:15 AM
6/22/98	Hillcrest Contracting	837	17	1,300	175	3/4"	1002 III B3 AR-4000	6:55 AM
6/22/98	Griffith Co.	707	18	1,500	250	3/4"	1002 III B3 AR-4000	6:35 AM
6/22/98	Silverado Constructors	2064	20	2,500	400	3/4"	Type B AR-4000	5:35 PM
6/22/98	Gansek Construction	721	27	30	30	3/4"	Type B AR-4000	9:20 AM
6/22/98	Copp Contracting Inc.	478	28	75	*	1/2"	1004 III C3 AR-4000	6:40 AM
6/22/98	Meyer E.J. Company	1323	29	50	50	1/2"	1004 III C3 AR-4000	1:25 PM
6/22/98	Silverado Constructors	2064	30	40	40	3/4"	Type B AR-4000	10:45 AM
6/22/98	City Of Dana Point	317	36	70	*	3/4"	Type B AR-4000	6:45 AM
6/22/98	Calfon Construction, Inc.	497	37	42	*	3/4"	1002 III B3 AR-4000	9:20 AM
6/22/98	Silverado Constructors	2064	38	600	100	3/4"	Type B AR-4000	9:40 AM
6/22/98	Damon Construction Co.	402	45	150	25	3/4"	1002 III B3 AR-4000	6:45 AM
6/23/98	Hillcrest Contracting	837	9	1,875	175	3/4"	1002 III B3 AR-4000	6:25 AM
6/23/98	Griffith Co.	707	10	1,600	250	1/2"	1002 III B3 AR-4000	6:35 AM
6/23/98	Damon Construction Co.	402	17	500	150	rubber	1032 ARHM-GG-C	6:15 AM
6/23/98	Damon Construction Co.	402	17	600	150	1/2"	1004 III C3 AR-4000	6:15 AM
6/23/98	Silverado Constructors	2064	19	1,300	200	perm	1039 A.T.P.B. AR-8000	5:35 PM
6/23/98	Calfon Construction, Inc.	497	21	42	*	3/4"	1002 III B3 AR-4000	10:20 AM
6/23/98	Peterson-Chase Gen'l En.	2719	23	150	50	3/4"	1524 Type B AR-4000	7:40 PM
6/23/98	Seal Black	1968	25	300	75	1/2"	1018 fine AR-4000	7:15 AM
6/23/98	City Of Dana Point	317	33	70	*	3/4"	1024 Type B AR-4000	6:45 AM
6/23/98	Copp Contracting Inc.	478	35	50	*	1/2"	1004 III C3 AR-4000	6:40 AM
6/23/98	Meyer E.J. Company	1323	36	50	50	1/2"	1004 III C3 AR-4000	1:25 PM
6/24/98	Griffith Co.	707	10	750	150	1/2"	1004 III C3 AR-4000	6:40 AM
6/24/98	Hillcrest Contracting	837	11	550	*	3/4"	1001 III B2 AR-4000	6:25 AM
6/24/98	DBL Construction	433	26	1,000	125	3/4"	1002 III B3 AR-4000	7:30 AM
6/24/98	Silverado Constructors	2064	27	2,100	300	3/4"	1024 Type B AR-4000	5:35 PM
6/24/98	Calfon Construction, Inc.	497	32	42	*	3/4"	1002 III B3 AR-4000	10:20 AM
6/24/98	Ben's Asphalt	202	36	150	25	1/2"	1004 III C3 AR-4000	7:50 AM
				19,611				

*** Data Unavailable**

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ASPHALT PLANT C

Historical Load-in Data

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
6/24/98	Damon Construction Co.	402	41	1,000	150	1/2"	1004 III C3 AR-4000	6:15 AM
6/24/98	Copp Contracting Inc.	478	43	50	25	3/4"	1001 III B2 AR-4000	8:20 AM
6/24/98	Copp Contracting Inc.	478	46	50	25	3/4"	1001 III B2 AR-4000	10:50 AM
6/24/98	Brutoco Engineering	214	54	175	50	3/4"	1051 Class B AR-8000	5:30 AM
6/24/98	Brutoco Engineering	214	54	50	*	1/2"	1053 Class C2 AR-8000	5:30 AM
6/24/98	Anchor Paving	136	55	725	*	1/2"	1004 III C3 AR-4000	*
6/25/98	DBL Construction	433	14	1,000	125	3/4"	1002 III B3 AR-4000	6:30 AM
6/25/98	Copp Contracting Inc.	478	26	50	25	3/4"	1001 III B2 AR-4000	10:30 AM
6/25/98	City Of Dana Point	317	32	70	*	3/4"	1024 Type B AR-4000	*
6/25/98	Calfon Construction Inc.	497	33	42	*	3/4"	1002 III B3 AR-4000	*
6/25/98	Brutoco Engineering	214	34	2,800	350	3/4"	1051 Class B AR-8000	5:45 AM
6/25/98	Palomar Grading/Paving	1657	35	15	*	1/2"	1004 III C3 AR-4000	9:00 AM
6/25/98	Silverado Constructors	2064	46	400	50	3/4"	1024 Type B AR-4000	7:35 AM
6/25/98	Griffith Co.	707	50	150	50	1/2"	1004 III C3 AR-4000	8:45 AM
6/25/98	Ben's Asphalt	202	52	100	50	1/2"	1004 III C3 AR-4000	6:30 AM
6/25/98	Copp Contracting Inc.	478	56	50	25	3/4"	1001 III B2 AR-4000	8:15 AM
6/25/98	Copp Contracting Inc.	478	57	25	25	3/4"	1001 III B2 AR-4000	1:00 PM
6/25/98	Silverado Constructors	2064	58	16	16	1/2"	1004 III C3 AR-4000	12:45 PM
6/26/98	Noble R.J.	1437	29	450	150	3/4"	1002 III B3 AR-4000	11:00 AM
6/26/98	Silverado Constructors	2064	41	700	150	3/4"	1024 Type B AR-4000	7:40 AM
6/26/98	Silverado Constructors	2064	42	700	*	3/4"	1024 Type B AR-4000	5:35 PM
6/26/98	Silverado Constructors	2064	42	1,400	300	perm	1039 A.T.P.B. AR-8000	5:35 PM
6/26/98	Silverado Constructors	2064	44	400	50	3/4"	1024 Type B AR-4000	7:35 AM
6/26/98	Peterson Chase Gen'L En.	2719	30	90	50	3/4"	524Type B 19MM AR400	*
6/26/98	Brutoco Engineering	214	38	1,700	*	1/2"	1053 Class C2 AR-8000	5:45 AM
6/26/98	Brutoco Engineering	214	38	225	350	*	1051 Class B AR-8000	5:45 AM
6/26/98	Hillcrest Contracting	837	28	375	125	1/2"	1003 III C2 AR-4000	7:00 AM
6/26/98	Griffith Co.	707	35	15	*	1/2"	1004 III C3 AR-4000	8:40 AM
6/26/98	Ben's Asphalt	202	52	15	*	1/2"	1018 Fine AR-4000	6:50 AM
6/26/98	Meyer E.J. Co.	1323	59	25	*	1/2"	1004 III C3 AR-4000	1:20 PM
6/26/98	Copp Contracting Inc.	478	53	50	25	3/4"	1001 III B2 AR-4000	8:30 AM
6/26/98	Copp Contracting Inc.	478	54	100	25	3/4"	1001 III B2 AR-4000	11:00 AM
6/29/98	Ben's Asphalt	202	20	900	100	1/2"	1018 Fine AR-4000	7:20 AM
6/29/98	Meyer E.J. Co.	1323	21	50	50	1/2"	1004 III C3 AR-4000	1:20 PM
6/29/98	City Of Dana Point	317	26	1,000	150	rubber	1032 A.R.H.M.-GG-C	6:45 AM
				1,950				

*** Data Unavailable**

ASPHALT PLANT C
HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
6/29/98	Silverado Constructors	2064	27	1,400	350	3/4"	1024 Type B AR-4000	5:35 PM
6/29/98	Kajima Eng. & Const., Inc.	1129	28	25	*	1/2"	1004 III C3 AR-4000	*
6/29/98	Copp Contracting Inc.	478	33	75	*	3/4"	1001 III B2 AR-4000	8:30 AM
6/29/98	Copp Contracting Inc.	478	34	50	*	3/4"	1001 III B2 AR-4000	12:00 PM
6/29/98	Silverado Constructors	2064	46	300	*	3/4"	1024 Type B AR-4000	7:30 AM
6/30/98	Silverado Constructors	2064	14	1,400	300	3/4"	1024 Type B AR-4000	8:15 PM
6/30/98	Silverado Constructors	2064	14	800	300	perm	1039 A.T.P.B. AR-8000	5:35 PM
6/30/98	Silverado Constructors	2064	35	300	*	3/4"	1024 Type B AR-4000	7:35 AM
6/30/98	Excel Paving Co.	257	46	300	75	3/4"	1064 Type B AR-8000	6:40 PM
6/30/98	DBL Construction	433	23	200	75	1/2"	1004 III C3 AR-4000	7:15 AM
6/30/98	Meyer E.J. Co.	1323	15	50	50	1/2"	1004 III C3 AR-4000	1:20 PM
6/30/98	City Of Dana Point	317	19	1,100	150	rubber	1032 A.R.H.M.-GG-C	6:45 AM
6/30/98	Copp Contracting Inc.	478	44	50	25	3/4"	1001 III B2 AR-4000	10:50 AM
6/30/98	Copp Contracting Inc.	478	45	50	25	3/4"	1001 III B2 AR-4000	8:15 AM
7/1/98	Silverado Constructors	2064	14	1,000	250	3/4"	1024 Type B AR-4000	7:40 AM
7/1/98	City Of Dana Point	317	20	1,100	150	rubber	1032 A.R.H.M.-GG-C	6:45 AM
7/1/98	Meyer E.J. Co.	1323	21	50	50	1/2"	1004 III C3 AR-4000	1:20 PM
7/1/98	Charles C. Regan Inc.	1817	25	90	50	1/2"	1018 Fine AR-4000	7:30 AM
7/1/98	Calfon Construction, Inc.	497	34	42	*	3/4"	1002 III B3 AR-4000	8:50 AM
7/1/98	Universal Asphalt Co. Inc.	2105	46	100	*	3/8"	1010 III D AR-4000	*
7/1/98	Seal Black	1968	47	550	*	1/2"	1018 Fine AR-4000	*
7/1/98	Copp Contracting Inc.	478	48	50	25	3/4"	1001 III B2 AR-4000	8:30 AM
7/1/98	Copp Contracting Inc.	478	49	75	25	3/4"	1001 III B2 AR-4000	11:00 AM
7/2/98	Hillcrest Contracting	837	15	100	*	3/4"	1002 III B3 AR-4000	*
7/2/98	Silverado Constructors	2064	33	500	350	3/4"	1024 Type B AR-4000	5:35 PM
7/2/98	Silverado Constructors	2064	33	1,800	350	perm	1039 A.T.P.B. AR-8000	*
7/2/98	Noble R.J.	1437	36	900	125	1/2"	1004 III C3 AR-4000	7:15 AM
7/2/98	Moore Electrical Contractor	1329	40	5	*	1/2"	1025 Type B AR-4000	*
7/2/98	City Of Dana Point	317	41	1,150	150	rubber	1032 A.R.H.M.-GG-C	6:50 AM
7/2/98	Collins General Contractor	384	42	1,800	225	1/2"	1004 III C3 AR-4000	6:40 AM
7/2/98	Silverado Constructors	2064	43	200	*	3/4"	1024 Type B AR-4000	7:40 AM
7/2/98	Copp Contracting Inc.	478	44	150	25	3/4"	1001 III B2 AR-4000	8:20 AM
7/2/98	City Service Contracting	341	47	25	*	3/4"	1002 III B3 AR-4000	8:20 AM
7/2/98	Parker Engineering	1697	54	40	40	3/4"	1002 III B3 AR-4000	10:20 AM
7/2/98	Meyer E.J. Co.	1323	57	25	*	1/2"	1004 III C3 AR-4000	1:20 PM
				15,852				

*** Data Unavailable**

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ASPHALT PLANT C
HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
7/3/98	Hillcrest Contracting	837	9	300	50	3/4"	1002 III B3 AR-4000	7:00 AM
7/3/98	Silverado Constructors	2064	13	2,450	350	3/4"	1024 Type B AR-4000	5:35 PM
7/3/98	Palomar Grading/Paving	1657	26	25	*	3/4"	1002 III B3 AR-4000	10:10 AM
7/3/98	Silverado Constructors	2064	28	1,500	225	3/4"	1024 Type B AR-4000	7:40 AM
7/3/98	Cal-State Paving Co., Inc.	286	29	75	50	3/8"	1010 III D AR-4000	7:00 AM
7/3/98	COPP Contracting Inc.	478	31	75	25	3/4"	1001 III B2 AR-4000	8:30 AM
7/3/98	Noble R.J.	1437	32	600	150	3/4"	1002 III B3 AR-4000	6:45 AM
7/3/98	Bostic Co. J B	218	33	75	50	1/2"	1004 III C3 AR-4000	6:45 AM
7/3/98	Snyder Langston Inc.	1964	34	17	*	1/2"	1044 III C3 AR-8000	6:40 AM
7/3/98	Collins General Contracting	384	38	500	150	1/2"	1004 III C3 AR-4000	6:40 AM
7/6/98	Palomar Grading/Paving	1657	10	150	75	1/2"	1004 III C3 AR-4000	7:10 AM
7/6/98	Meyer E.J. Company	1323	15	25	*	1/2"	1004 III C3 AR-4000	1:20 PM
7/6/98	Russell's Site Contract	2071	16	600	100	1/2"	1004 III C3 AR-4000	*
7/6/98	Russell's Site Contract	2071	16	260	100	1/2"	1004 III C3 AR-4000	7:40 AM
7/6/98	Russell's Site Contract	2071	16	600	100	3/4"	1001 III B2 AR-4000	10:15 AM
7/6/98	City Of Dana Point	317	17	1,375	150	rubber	1032 A.R.H.M.-GG-C	6:45 AM
7/6/98	Silverado Constructors	2064	21	2,450	350	3/4"	1024 Type B AR-4000	*
7/6/98	COPP Contracting Inc.	478	38	125	25	1/2"	1004 III C3 AR-4000	7:30 AM
7/6/98	Hillcrest Contracting	837	41	1,300	175	3/4"	1002 III B3 AR-4000	7:35 AM
7/6/98	Palomar Grading/Paving	1657	42	1,600	200	1/2"	1002 III B3 AR-4000	6:50 AM
7/6/98	Hillcrest Contracting	837	43	300	*	1/2"	1004 III C3 AR-4000	*
7/7/98	City Of Dana Point	317	17	1,500	200	rubber	1032 A.R.H.M.-GG-C	6:45 AM
7/7/98	COPP Contracting Inc.	478	18	125	25	1/2"	1004 III C3 AR-4000	*
7/7/98	Silverado Constructors	2064	19	2,450	350	3/4"	1024 Type B AR-4000	5:40 PM
7/7/98	Far West Paving and Sealing	617	23	100	25	1/2"	1018 Fine AR-4000	6:10 AM
7/7/98	City of Irvine	347	24	750	125	rubber	1032 A.R.H.M.-GG-C	7:30 AM
7/7/98	Hillcrest Contracting	837	26	100	*	1/2"	1004 III C3 AR-4000	*
7/7/98	Sequel Contractors Inc.	2068	29	100	25	3/4"	1002 III B3 AR-4000	7:00 AM
7/7/98	Sequel Contractors Inc.	2068	30	100	50	3/4"	1002 III B3 AR-4000	10:30 AM
7/7/98	Western Paving Contractors	2332	31	35	*	1/2"	1004 III C3 AR-4000	*
7/7/98	City Of Westminster	2305	33	750	*	rubber	1032 A.R.H.M.-GG-C	*
7/7/98	City Of Westminster	2305	33	525	200	1/2"	1004 III C3 AR-4000	6:15 AM
7/7/98	Atkinson Grading and Equip.	166	38	25	25	3/4"	1002 III B3 AR-4000	10:30 AM
7/7/98	Gillespie Construction	733	43	25	25	3/4"	1042 III B3 AR-8000	*
7/7/98	Clayton Engineering Inc.	367	46	100	25	1/2"	1004 III C3 AR-4000	9:10 AM
				21,087				

*** Data Unavailable**

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ASPHALT PLANT C
HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
7/7/98	Meyer E J Co.	1323	50	50	100	1/2"	1004 III C3 AR-4000	1:20 PM
7/7/98	Copp Contracting Inc.	478	53	25	*	1/2"	1004 III C3 AR-4000	7:20 AM
7/7/98	Copp Contracting Inc.	478	54	100	*	1/2"	1004 III C3 AR-4000	9:00 AM
7/7/98	Allied Paving Co.	161	62	25	25	3/4"	1002 III B3 AR-4000	*
7/8/98	City Of Irvine	347	13	800	125	rubber	1032 ARHM-GG-C	7:35 AM
7/8/98	Copp Contracting Inc.	478	15	50	25	1/2"	1004 III C3 AR-4000	8:45 AM
7/8/98	Tyner Paving	2017	18	300	75	1/2"	1053 C2 AR-8000	9:30 AM
7/8/98	Integrated Waste Management	1537	21	1,000	200	3/4"	1002 III B3 AR-4000	7:15 AM
7/8/98	City Of Dana Point	317	35	1,400	150	rubber	1032 ARHM-GG-C	6:45 AM
7/8/98	Silverado Constructors	2064	36	2,400	350	3/4"	1024 Type B AR-4000	5:40 PM
7/8/98	City Of Westminster	2305	41	600	*	rubber	1032 ARHM-GG-C	*
7/8/98	City Of Westminster	2305	41	875	150	1/2"	1004 III C3 AR-4000	7:10 AM
7/8/98	Catellus Residential Co.	153	42	25	*	1/2"	1025 Type B AR-4000	*
7/8/98	Catellus Residential Co.	153	42	25	*	3/4"	1024 Type B AR-4000	6:45 AM
7/8/98	Meyer E J Co.	1323	51	50	100	1/2"	1004 III C3 AR-4000	1:20 PM
7/8/98	Copp Contracting Inc.	478	52	25	*	1/2"	1004 III C3 AR-4000	7:15 AM
7/9/98	Beach Paving Inc.	354	23	300	50	3/8"	1010 III D AR-4000	9:50 AM
7/9/98	Hillcrest Contracting	837	25	900	150	3/4"	1001 III B2 AR-4000	7:10 AM
7/9/98	Hillcrest Contracting	837	26	300	100	1/2"	1004 III C3 AR-4000	7:15 AM
7/9/98	Hillcrest Contracting	837	27	300	100	1/2"	1004 III C3 AR-4000	12:00 AM
7/9/98	City Of Dana Point	317	36	1,400	175	rubber	1032 ARHM-GG-C	6:45 AM
7/9/98	Excel Paving Co.	357	42	225	75	3/4"	1024 Type B AR-4000	7:00 AM
7/9/98	JES Engineering Contractors	1006	45	115	*	3/4"	1024 Type B AR-4000	7:30 AM
7/9/98	Shamrock Asphalt	1991	46	1,200	150	1/2"	1004 III C3 AR-4000	6:20 AM
7/9/98	Meyer E J Co.	1323	51	60	60	1/2"	1004 III C3 AR-4000	11:20 AM
7/9/98	Meyer E J Co.	1323	52	60	60	1/2"	1004 III C3 AR-4000	1:20 PM
7/9/98	Clayton Engineering Inc.	367	53	15	*	3/4"	1002 III B3 AR-4000	6:20 AM
7/9/98	Silverado Constructors	2064	55	600	150	perm	1039 A.T.P.B. AR-8000	5:35 PM
7/10/98	Silverado Constructors	2064	27	2,000	300	*	1039 A.T.P.B. AR-8000	5:40 PM
7/10/98	Shamrock Asphalt	1991	20	800	150	1/2"	1004 III C3 AR-4000	6:15 AM
7/10/98	Hillcrest Contracting	837	21	1,600	225	3/4"	1001 III B2 AR-4000	6:35 AM
7/10/98	Hillcrest Contracting	837	21	500	*	1/2"	1003 III C2 AR-4000	*
7/10/98	Meyer E J Co.	1323	47	65	60	1/2"	1004 III C3 AR-4000	1:20 PM
7/10/98	City Of Dana Point	317	23	1,300	150	rubber	1032 ARHM-GG-C	5:15 AM
7/10/98	Fieldstone Communities	640	24	850	175	3/4"	1024 Type B AR-4000	7:20 AM
				20,340				

*** Data Unavailable**

ASPHALT PLANT C

HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
7/13/98	Silverado Constructors	2064	24	2,400	325	3/4"	1024 Type B AR-4000	5:40 PM
7/13/98	Silverado Constructors	2064	27	120	50	3/4"	1024 Type B AR-4000	8:40 AM
7/13/98	Silverado Constructors	2064	27	300	*	3/8"	1066 Type B AR-8000	*
7/13/98	Sequel Contractors Inc.	2068	35	75	50	3/4"	1002 III B3 AR-4000	10:15 AM
7/13/98	Excel Paving Co.	357	15	1,600	250	3/4"	1024 Type B AR-4000	7:00 AM
7/13/98	Meyer E.J. Company	1323	36	65	75	1/2"	1004 III C3 AR-4000	1:20 PM
7/13/98	City Of Dana Point	317	22	1,175	175	rubber	1032 ARHM-GG-C	6:45 AM
7/13/98	Brutoco Engineering	214	21	500	*	1/2"	1053 C2 AR-8000	*
7/13/98	Brutoco Engineering	214	21	75	125	3/4"	1051 B AR-8000	5:30 AM
7/14/98	John Laing Hones	1029	18	500	150	1/2"	1004 III C3 AR-4000	7:40 AM
7/14/98	Silverado Constructors	2064	21	3,200	450	3/4"	1024 Type B AR-4000	5:48 PM
7/14/98	Silverado Constructors	2064	23	75	*	perm	1066 Type B AR-8000	*
7/14/98	Silverado Constructors	2064	25	1,100	175	3/4"	1024 Type B AR-4000	8:40 AM
7/14/98	Silverado Constructors	2064	25	150	175	perm	1039 A.T.P.B. AR-8000	7:40 AM
7/14/98	Excel Paving Co.	357	30	650	150	3/4"	1024 Type B AR-4000	7:00 AM
7/14/98	Sequel Contractors Inc.	2068	32	200	50	3/4"	1002 III B3 AR-4000	*
7/14/98	Meyer E.J. Company	1323	34	75	75	1/2"	1004 III C3 AR-4000	1:20 PM
7/14/98	Sequel Contractors Inc.	2068	37	200	50	3/4"	1002 III B3 AR-4000	*
7/15/98	John Laing Homes	1029	15	475	150	1/2"	1004 III C3 AR-4000	7:36 AM
7/15/98	City Of Irvine	347	18	800	125	rubber	1032 ARHM-GG-C	*
7/15/98	Silverado Constructors	2064	19	3,200	450	3/4"	1024 Type B AR-4000	5:40 PM
7/15/98	Silverado Constructors	2064	20	1,000	*	3/4"	1024 Type B AR-4000	1:40 PM
7/15/98	Bully Miller Contracting	1943	21	15	*	3/8"	1026 Type B AR-4000	12:15 AM
7/15/98	C A Rassmussen	483	22	1,100	250	3/4"	1001 III B2 AR-4000	6:45 AM
7/15/98	Silverado Constructors	2064	23	300	50	perm	1066 Type B AR-8000	7:40 AM
7/15/98	Kajima Eng. And Constr.	1129	24	12	*	3/4"	1002 III B3 AR-4000	*
7/15/98	Asphalt Care	2703	37	25	*	1/2"	1018 Fine AR-4000	9:30 AM
7/15/98	City Of Dana Point	317	40	50	*	1/2"	1004 III C3 AR-4000	*
7/15/98	Hillcrest Contracting	837	43	100	175	3/4"	1002 III B3 AR-4000	*
7/15/98	Meyer E.J. Company	1323	44	86	*	1/2"	1004 III C3 AR-4000	1:20 PM
7/16/98	Clayton Engineering Inc.	367	19	10	*	3/4"	1002 III B3 AR-4000	7:30 AM
7/16/98	Hillcrest Contracting	837	22	900	150	3/4"	1002 III B3 AR-4000	7:05 AM
7/16/98	Bayley Construction	247	25	75	200	3/4"	1024 Type B AR-4000	6:30 AM
7/16/98	Bayley Construction	247	25	1,600	200	1/2"	1025 Type B AR-4000	6:50 AM
7/16/98	Silverado Constructors	2064	26	300	50	berm	1066 Type B AR-8000	7:40 AM
				22,508				

*** Data Unavailable**

ASPHALT PLANT C
HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
7/16/98	City of Dana Point	317	33	50	50	1/2"	1004 III C3 AR-4000	7:15 AM
7/16/98	Silverado Constructors	2064	34	500	250	perm	1039 A.T.P.B. AR-8000	5:40 PM
7/16/98	Silverado Constructors	2064	34	1,200	250	3/4"	1024 Type B AR-4000	7:40 PM
7/16/98	Silverado Constructors	2064	35	3,200	450	3/4"	1024 Type B AR-4000	*
7/16/98	C. A. Rassmussen	483	39	125	50	1/2"	1004 III C3 AR-4000	7:15 AM
7/16/98	Ahmadi M. Const. And Eng.	850	49	6	*	3/4"	1524 Type B AR-4000	7:10 AM
7/20/98	Silverado Constructors	2064	38	2,400	350	3/4"	1024 Type B AR-4000	5:35 PM
7/20/98	Brutoco Engineering	214	24	125	*	1/2"	1053 C2 AR-8000	*
7/20/98	Brutoco Engineering	214	24	250	175	3/4"	1051 B AR-8000	5:45 AM
7/20/98	Pave West Inc.	1679	17	1,500	175	1/2"	1044 III C3 AR-8000	5:00 AM
7/20/98	Sequel Contractors Inc.	2068	44	2,000	200	1/2"	1004 III C3 AR-4000	6:40 AM
7/20/98	Copp Contracting Inc.	478	20	291	*	1/2"	1004 III C3 AR-4000	*
7/20/98	Copp Contracting Inc.	478	21	650	125	1/2"	1004 III C3 AR-4000	7:25 AM
7/21/98	GMC Enterprises	711	9	275	50	3/4"	1002 III B3 AR-4000	7:00 AM
7/21/98	Hillcrest Contracting	837	10	75	*	3/4"	1002 III B3 AR-4000	6:25 AM
7/21/98	Copp Contracting Inc.	478	11	280	125	1/2"	1004 III C3 AR-4000	7:25 AM
7/21/98	Hillcrest Contracting	837	14	25	*	1/2"	1004 III C3 AR-4000	*
7/21/98	Allied Paving Co.	161	15	400	100	1/2"	1010 Fine AR-4000	6:50 AM
7/21/98	Pave West Inc.	1679	16	1,500	175	1/2"	1044 III C3 AR-8000	5:00 AM
7/21/98	Avala and Sons, Inc.	128	17	200	100	1/2"	1004 III C3 AR-4000	8:30 PM
7/21/98	Avala and Sons, Inc.	128	17	850	175	rubber	1032 ARHM-GG-C	10:30 PM
7/21/98	Irvine Company, The	909	21	1,225	225	3/4"	1002 III B3 AR-4000	6:20 AM
7/21/98	Irvine Company, The	909	21	400	*	1/2"	1004 III C3 AR-4000	*
7/21/98	Meyer E. J. Company	1323	40	50	50	1/2"	1004 III C3 AR-4000	1:50 PM
7/21/98	Silverado Constructors	2064	41	2,400	400	3/4"	1024 Type B AR-4000	5:35 PM
7/21/98	Silverado Constructors	2064	44	90	90	1/2"	1025 Type B AR-4000	6:05 AM
7/22/98	Silverado Constructors	2064	26	800	150	3/4"	1024 Type B AR-4000	7:35 AM
7/22/98	Pave West Inc.	1679	27	1,500	175	1/2"	1044 III C3 AR-8000	5:00 AM
7/22/98	Western Paving Contract	2332	25	900	150	1/2"	1044 III C3 AR-8000	6:50 AM
7/22/98	Allied Paving Co.	161	46	25	*	3/4"	1002 III B3 AR-4000	9:50 AM
7/22/98	Western Paving Contract	2332	44	4	*	1/2"	1044 III C3 AR-8000	1:00 AM
7/22/98	Preferred Paving	1618	28	700	50	3/8"	1010 III D AR-4000	6:40 AM
7/22/98	Myles Construction	1305	82	475	*	1/2"	1003 III C2 AR-4000	*
7/22/98	Meyer E. J. Company	1323	17	80	80	1/2"	1044 III C3 AR-8000	12:55 PM
7/22/98	Hillcrest Contracting	837	49	75	*	3/4"	1002 III B3 AR-4000	7:50 AM
				24,626				

*** Data Unavailable**

ASPHALT PLANT C
HISTORICAL LOAD-IN DATA

Date	Customer Name	Customer Number	Order #	Order Amount (Tons)	Production Rate(TPH)	Mix Type	Product Type	Starting Time
7/22/98	Hillcrest Contracting	837	20	500	125	1/2"	1004 III C3 AR-4000	6:50 AM
7/23/98	Ayala & Sons, Inc.	128	10	850	175	*	1032 ARHM-GG-C	*
7/23/98	Ayala & Sons, Inc.	128	10	200	100	*	1004 III C3 AR-4000	*
7/23/98	Hillcrest Contracting	837	12	75	*	*	1002 III B3 AR-4000	7:50 AM
7/23/98	Meyer E. J. Company	1323	14	80	80	*	1004 III C3 AR-4000	9:20 AM
7/23/98	Hillcrest Contracting	837	17	1,300	175	*	1002 III B3 AR-4000	7:05 AM
7/23/98	Haitbrink Asphalt Paving	852	18	250	75	*	1004 III C3 AR-4000	8:50 AM
7/23/98	Anchor Paving	136	20	40	25	*	1018 Fine AR-4000	10:50 AM
7/23/98	Hillcrest Contracting	837	23	50	*	*	1004 III C3 AR-4000	7:15 AM
7/23/98	Mission Paving	1315	26	800	100	*	1018 Fine AR-4000	6:15 AM
7/23/98	Silverado Constructors	2064	29	2,400	400	*	1024 Type B AR-4000	5:35 PM
7/24/98	Hillcrest Contracting	837	10	75	*	3/4"	1002 III B3 AR-4000	7:50 AM
7/24/98	Hillcrest Contracting	837	15	800	175	1/2"	1004 III C3 AR-4000	6:45 AM
7/24/98	Ben's Asphalt	202	16	200	*	1/2"	1018 Fine AR-4000	*
7/24/98	Ayala & Sons, Inc.	128	27	850	175	rubber	1032 ARHM-GG-C	10:20 PM
7/24/98	Ayala & Sons, Inc.	128	27	200	100	1/2"	1004 III C3 AR-4000	8:20 PM
7/24/98	Silverado Constructors	2064	30	2,800	400	3/4"	1024 Type B AR-4000	5:35 PM
7/24/98	Silverado Constructors	2064	31	2,400	250	3/4"	1024 Type B AR-4000	6:35 AM
7/24/98	Presley Company	1605	33	1,275	125	3/4"	1002 III B3 AR-4000	6:40 AM
7/24/98	Excel Paving Co.	357	47	15	*	1/2"	1004 III C3 AR-4000	6:45 AM
7/24/98	Clayton Engineering Inc.	367	48	25	21	1/2"	1004 III C3 AR-4000	6:15 AM
7/24/98	Silverado Constructors	2064	49	84	*	3/4:"	1024 Type B AR-4000	6:35 AM
7/24/98	Snyder Langston Inc.	1964	50	82	25	1/2"	1043 III C2 AR-8000	11:35 AM
7/24/98	Snyder Langston Inc.	1964	62	175	85	*	1025 Type B AR-4000	*
7/25/98	Silverado Constructors	2064	18	2,400	300	3/4"	1024 Type B AR-4000	6:40 AM
7/25/98	Silverado Constructors	2064	19	250	300	3/4"	1024 Type B AR-4000	7:40 AM
7/25/98	Silverado Constructors	2064	20	2,800	400	3/4"	1024 Type B AR-4000	5:40 PM
7/25/98	Ben's Asphalt	202	12	190	100	1/2"	1018 Fine AR-4000	6:15 AM
	Total for 6/29/98 - 6/29/98, used in sum 6/29/98 to 7/25/98 below			1,950				
	Total for 6/29/98 - 7/2/98, used in sum 6/29/98 to 7/25/98 below			15,852				
	Total for 7/3/98 - 7/7/98, used in sum 6/29/98 to 7/25/98 below			21,087				
	Total for 7/7/98 - 7/10/98, used in sum 6/29/98 to 7/25/98 below			20,340				
	Total for 7/13/98 - 7/16/98, used in sum 6/29/98 to 7/25/98 below			22,508				
	Total for 7/16/98 - 7/22/98, used in sum 6/29/98 to 7/25/98 below			24,626				
	Total for 7/23/98 - 7/25/98, used in sum 6/29/98 to 7/25/98 below, also see Note			20,666				
	Total for 6/29/98 - 7/25/98, used below, see Notes 2 & 3			125,079				
	Total for 7/19/98 - 7/22/98, used to calculate 7/19/99 to 7/25/98			19,545				
	Total for 7/19/98 - 7/25/98, used below, see Note 4			40,211				
	Used in the TED Deposition Calcualtion			75,047	See note 1 below			
	Used in the Ceiling Deposition Calculation			20,666	See note 2 below			
	Used in the Exhaust Plenum Calculation (Box pipe)			4,133	See note 3 below			
	Used in the New SED Deposition Calculation			8,042	See note 4 below			

NOTES:

1 TED Test plates were installed from 6/29/98 thru 7/25/98. Total production during that time was 125,079. Test plates were exposed to load-out from 3 of 5 silos. Three fifths of 125,079 equals 75,347

2 Ceiling plates were installed from 7/23/98 thru 7/25/98; Total production during that time was 20,666

3 Box pipe were installed from 7/23/98 thru 7/25/98; Total production during that time was 20,666. Box pipe were exposed in only one silo. One fifth of 20,666 equals 4,133

4 New SED was installed from 7/19/98 thru 7/25/98; Total production during that time was 40,711. SED was exposed in only one silo. One fifth of 40,711 equals 8,142

*** Data Unavailable**

APPENDIX B.5

LOAD-OUT RECORDS FOR 7/24/98 THROUGH 7/28/98

Load-Out Log Spreadsheet

Sheet 1 of 5

Mri Project No. 4701-08-03-04

Client/Source: EPA - Plant C
Hot Mix Asphalt

Run No. 1 - Load Out

Date: 7/24/98

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1002	III B3 AR-4000	33	0713	20.86	32	4		2 min difference between
1004	III C3 AR-4000	15	0715	20.88	94	3		production + load out
1024	Type B 3/4	31	0717	21.34	95	4		0717 Began Loading Silo 2
1002	III B3 AR-4000	33	0719	20.92	89	4		
1004	III C3 AR-4000	15	0728	20.89	99	3		Computers Time record.
1002	III B3 AR-4000	33	0732	21.45	82	X2		here are from load
1004	III C3 AR-4000	15	0738	21.20	04	3		out computer.
1024	Type B 3/4	31	0741	21.34	15	2		Testing is using
1004	III C3 AR-400	15	0743	20.83	96	3		production computer
1024	Type B 3/4	31	0745	21.39	13	2		time. Production
1002	III B3 AR-4000	33	0746	20.10	05	2		Computer is ahead
1002	III B3 AR-4000	~~32~~ 10	0748	21.04	93	2		& load out Computer
1004	III C3 AR-4000	47	0749	4.03	91	3		
1024	Type B 3/4	31	0752	21.19	21	2		
1024	Type B 3/4	31	0754	21.12	26	2		
1004	III C3 AR-4000	71	0758	3.99	25	1		
1024	Type B 3/4	49	0759	21.27	86	2		
					~~95~~			
1024	Type B 3/4	31	0802	21.12	29	2		0805 Gas Release Starter
1024	Type B 3/4	31	0805	21.17	16	2		
1004	III C3 AR-4000	15	0807	21.25	08	1		
1002	III B3 AR-4000	33	0812	21.39	27	2		
1004	III C3 AR-4000	15	0815	21.16	07	1		
1024	Type B 3/4	31	0823	21.40	20	2		
1004	III C3 AR-400	15	0824	20.91	92	X3		
1004	III C3 AR-400	75	0827	2.54	25	3		
PSM ~~1024~~	~~Type B 3/4"~~	~~31~~ 33	~~0828~~		~~21~~	~~2~~		
1002	III B3 AR-4000	33	0828	21.32	21	2		
1004	III C3 AR-	15	0830	21.43	89	3		
1024	Type B 3/4"	31	0833	21.20	10	2		

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Load-Out Log Spreadsheet

Sheet 2 of 5

Mri Project No. 4701-08-03-04

Client/Source: EPA - Plant C
Hot Mix Asphalt

Run No. 1 - Load Out

Date: 7/24/98

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024	Type B 3/4	31	0838	21.22	12	2		
1002	III B3 AR-4000	33	0839	21.36	13	2		
1004	III C3 AR-4000	15	0841	21.35	30	3		
1024	Type B 3/4	31	0843	21.05	15	2		
1004	III C3 AR-4000	15	0846	20.94	26	3		
1024	Type B 3/4	31	0849	21.38	92	2		
1002	III B3 AR-4000	33	0850	21.33	29	2		
1002	III B3 AR-4000	10	0852	21.12	93	4		
1004	III C3 AR-4000	15	0854	21.04	16	3		
1024	Type B 3/4	31	0855	21.17	11	4		0858 Began filling Silo ~~3~~ 2 PSM
1002	III B3 AR-4000	33	0859	21.26	09	~~1~~ 2 PSM		
1004	III C3 AR-4000	15	0903	20.88	94	3		
1024	Type B 3/4"	31	0905	19.91	05	2		
1024	Type B 3/4"	31	0910	21.22	86	2		(Gate open on truck
1004	III C3 AR-4000	15	0912	21.10	95	~~2~~ 3		Spilling in tunnel
1002	III B3 AR-4000	33	0916	21.04	99	4		2 Ton in tunnel)
1004	III C3 AR-4000	15	0921	21.10	88	3		(0920 cleaning up in
1024	Type B 3/4"	31	0922	21.58	27	2		tunnel)
1024	Type B 3/4"	31	0924	21.27	12	2		
1002	III B3 AR-4000	33	0928	21.46	10	2		
1024	Type B 3/4"	31	0933	21.04	20	2		0921 Sampling began at
1004	III C3 AR-4000	15	0937	21.42	15	3		Location 1
1024	Type B 3/4"	31	0938	21.36	18	2		0935 Stopped Gas Release
1002	III B3 AR-4000	33	0939	21.20	21	2		
1024	Type B 3/4"	31	0942	21.06	11	2		
1004	III C3 AR-4000	15	0944	7.0	95	3		
1004	III C3 AR-4000	15	0945	21.13	13	2		
PSM ~~1024~~	~~Type B 3/4~~	~~31~~ 33			~~91~~	~~2~~		
1002	III B3 AR-4000	33	0949	20.88	91	2		

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Load-Out Log Spreadsheet

Sheet 3 of 5

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 1 - Load Out

Date: July 24, 1998

Date Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. In Truck	Comments
1024	Type B 3/4"	31	0950	21.34	08	2		
1004	III C3 AR-4000	15	0953	21.20	07	3+1		
1024	Type B 3/4"	31	0955	21.53	29	2		
1002	III B3 AR-4000	33	0958	21.52	27	2		
1024	Type B 3/4"	49	1000	21.29	89	2		
1024	Type B 3/4"	31	1002	21.60	09	2		
1004	III C3 AR-4000	15	1005	20.94	02	1		
1002	III B3 AR-4000	33	1006	21.27	12	2		
1024	Type B 3/4"	31	1007	21.22	04	2		
PSM 1004	III C3 AR-4000	15	1009	20.96	96	1		
1024	~~1002 III B3 AR-4000~~	~~33~~ 31	1011	21.44	20	2		
1002	III B3 AR-4000	33	1014	21.06	99	2		
1004	III C3 AR-4000	15	1027	21.50	92	1		
1002	III B3 AR-4000	33	1028	20.43	05	5		
1024	Type B 3/4"	31	1030	21.41	11	5		
1004	III C3 AR-4000	15	1033	21.29	18	~~3~~ 1		
1024	Type B 3/4"	31	1035	21.08	16	5		
1024	Type B 3/4"	31	1036	21.39	10	5		
1002	III B3 AR-4000	33	1038	21.33	86	5		
1004	III C3 AR-4000	15	1040	21.14	93	1		
1024	Type B 3/4"	31	1041	21.45	26	5		
1024	Type B 3/4"	31	1043	21.25	21	5		
1002	III B3 AR-4000	33	1046	21.26	08	5		
1004	III C3 AR-4000	15	1052	21.40	91	1+3		
1024	Type B 3/4"	31	1054	21.40	09	5		
1004	III C3 AR-4000	15	1058	21.07	94	3		
1002	III B3 AR-4000	33	1100	21.51	29	4		
1024	Type B 3/4"	31	1101	21.33	27	6		
1002	III B3 AR-4000	33	1107	21.29	88	5+4		

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Load-Out Log Spreadsheet

Sheet 4 of 5

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 1- Load Out

Date: July 24, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1004	III C3 AR4000	15	11:10	21.34	09	3		
1024	Type B 3/4"	31	1112	21.42	12	4		
1002	III B3 AR4000	33	1117	21.30	04	4		
1004	III C3 AR4000	15	1118	21.29	11	3		
1024	Type B 3/4"	31	1122	21.40	20	4		
1024	Type B 3/4"	31	1123	21.45	16	4		
1002	III B3 AR4000	33	1124	20.78	02	4		
1004	III C3 AR4000	15	1126	21.43	13	3		
1024	Type B 3/4"	31	1128	21.32	10	2		
1024	Type B 3/4"	31	1133	21.35	15	2		
1004	III C3 AR4000	15	1136	21.19	95	3		
1002	III B3 AR4000	33	1138	21.12	26	2		
1024	Type B 3/4"	31	1139	21.14	21	2		
1004	III C3 AR4000	15	1140	↓	3058	3		Front of Truck
1004	III C3 AR4000	15	1141	24.84	3058	3		Back of Truck
1024	Type B 3/4"	31	1143	21.17	96	2		
1024	Type B 3/4"	31	1145	20.12	05	2		
1024	Type B 3/4"	31	1150	21.34	07	2		
1002	III B3 AR4000	33	1153	21.06	08	2		
1024	Type B 3/4"	31	1155	21.15	99	2		
1024	Type B 3/4"	31	1157	21.31	86	2		
1002	III B3 AR4000	33	1202	21.35	27	2		
1024	Type B 3/4"	31	1204	21.22	09	2		
1024	"	31	1205	21.32	29	2		
1002	III B3 AR4000	33	1210	21.22	16	2		
1024	Type B 3/4"	31	1215	21.02	88	2		
1002	III B3 AR4000	38	1217	23.99	3310	2		
1002	III B3 AR4000	33	1219	21.29	12	2		
1002	III B3 AR4000	33	1222	21.00	15	2		

Load-Out Log Spreadsheet

Sheet 5 of 5

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 1 Load Out

Date: July 24, 1998

Data Recorded By: PS Murawchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. In Truck	Comments
1002	III B3 AR4000	38	1223	21.52	20	2		
1024	Type B 3/4"	31	1225	21.47	~~8~~10	2		
1002	III B3 AR4000	33	1230	21.46	18	2		
1004	III C3 AR4000	15	1235	21.33	21	3		
1024	Type B 3/4"	31	1236	20.40	~~8~~91	2		
1002	III B3 AR4000	38	1237	21.73	92	2		
1002	III B3 AR-4000	33	1238	21.28	02	2		
1024	Type B 3/4"	31	1240	21.16	04	2		
1002	III B3 AR4000	38	1242	21.39	26	2		
1024	Type B 3/4"	31	1244	20.23	05	2		
1002	III B3 AR-4000	33	1246	↓	96	2		
↓	↓	↓	1248	21.57	~~07~~	4		
1024	Type B 3/4"	31	1249	21.25	07	4		
1002	III B3 AR4000	38	1251	21.20	93	4		
1024	Type B 3/4"	31	1253	21.17	99	2		
1002	III B3 AR4000	38	1254	21.31	11	2		
1024	Type B 3/4"	31	1301	↓	89	2		
↓	↓	↓	1302	21.19	~~39~~	4		

Orange County Name (State Name)

1002 III B3 AR-4000 (Same as 1024 Type B 3/4")
30% RAP
5.2% Liquid Asphalt (AR-4000)
36% Rock Dust ~~(Sand)~~
24% 3/8" Rock
22% Crushed 1/2" Rock
18% 3/4" Rock

1004 III C3 AR-4000 (1/2") (Same as 1018 1/2" Fine)
30% RAP
5.5% Liquid Asphalt
43% Rock Dust
42% 3/8" Rock
15% 1/2" Rock

1010 III D~~3~~ AR-4000 (3/8")
6.4% Asphalt
20% Sand
54% Rock Dust
26% 3/8" Rock

Load-Out Log Spreadsheet

Sheet 1 of 4

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 2 - Load Out

Date: July 25, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1004	III C3 AR-4000	11	0702	21.12	20	2		
1024	Type B 3/4"	18	0704	21.43	29	5		
1004	III C3 AR-4000	11	0708	↓	16	2		Same truck
1004	III C3 AR-4000	11	0709	21.24	16	3		
1024	Type B 3/4"	18	0712	21.02	18	5		0715 Sampling
1004	III C3 AR-4000	11	0720	20.92	09	3		
1024	Type B 3/4"	18	0721	↓	312502	2		Front of truck
"	"	18	0723	23.87	312502	2		Back of truck
1018	1/2" Fine	12	0724	↓	3405	3		Front
1018	1/2" Fine	12	0725	23.65	"	3		Back
1024	Type B 3/4"	18	0729	21.21	27	2		~~Front~~
1004	III C3 AR-4000	11	0731	↓	312503	3		~~Back~~ Front
"	"		0732	23.93	↓	3		Back
1018	1/2" Fine	PSM ~~8~~ 12	0735	21.09	23	3		
1024	Type B 3/4"	18	0738	↓	312501	2		Front
"	"	"	0740	24.43	"	"		Back
1004	III C3 AR-4000	11	0742	20.59	25	3		
1024	Type B 3/4"	18	0743	↓	3106	2		Front
"	"	"	0744	23.24	"	"		Back
1024	Type B 3/4"	19	0745	20.64	22	2		
1018	1/2" Fine	12	0747	↓	3425	3		
"	"	"	0748	24.47	"	"		
1024	Type B 3/4"	18	0751	21.26	21	2		
1004	III C3 AR-4000	11	0753	↓	312504	3		Front
"	"	"	0755	24.52	"	"		Back
1018	1/2" Fine	12	0757	21.32	15	3		
1024	Type B 3/4"	18	0759	21.26	11	2		
1004	III C3 AR-4000	11	0805	19.73	08	3		
1024	Type B 3/4"	18	0807	21.05	07	2		

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Load-Out Log Spreadsheet

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 2 Load Out

Date: July 25, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1018	1/2" Fine	12	~~0809~~ 0810 psn	21.45	29	3		
1024	Type B 3/4"	18	0814	21.31	18	4		
1004	III C3 AR-4000	11	0817	↓	3597	3		Front
"	"	"	0817	24.65	"	"		Back
1018	1/2" Fine	12	0819	↓	3084	3		Front
"	"	"	0820	24.48	"	"		Back
1024	Type B 3/4"	18	0822	21.13	30	5		
1004	III C3 AR-4000	11	0824	↓	312505	3		Front
"	"	"	0825	24.03	"	"		Back
1024	Type B 3/4"	18	0828	21.50	09	2		
1018	1/2" Fine	12	0830	21.16	16	3		
1004	III C3 AR-4000	11	0832	21.27	10	3		
1024	Type B 3/4"	18	0834	21.25	27	2		
1024	Type B 3/4"	18	0837	↓	312501	4		Front
"	"	"	0838	24.45	"	"		Back
1004 psn ~~1024~~	~~III C3 Type B 3/4"~~	11	0839	21.26	20	3		
1024	Type B 3/4"	18	0842	21.30	21 ~~18~~	5		844 Sampling Silo 2
1024	Type B 3/4"	18	0845	↓	3106	4		Front
"	"	"	0846	23.21	"	4		Back
1004 psn ~~1024~~	~~III C3 Type B 3/4"~~	11	0848	21.00		3		
1024	Type B 3/4"	18	0850	↓	312508	2		Front
"	"	"	0851	24.47	~~X~~ "	2		Back
1024	Type B 3/4"	19	0852	21.18	11	2		
1024	Type B 3/4"	18	0859	↓	312503	2		Front
"	"	"	0900	23.80	"	"		Back
1004	III C3 AR-4000	11	0902	21.00	07	3		
1024	Type B 3/4"	18	0903	20.80	25	4		
1024	Type B 3/4"	18	0906	21.18	18	4		

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Load-Out Log Spreadsheet

Sheet 3 of 4

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 2 Load Out

Date: July 25, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024	Type B 3/4"	18	0910	↓	3405	2		Front
"	"	"	0910	23.67	3405	"		Back
1004	III C3 AR4000	11	0913	20.89	30	~~3~~ 3	3 PSM	
1024	Type B 3/4"	18	0915	20.87	23	~~2~~ 2		
1024	Type B 3/4"	19	0917	21.02	11	2		
1018	1/2" Fine	~~12~~ 18	0918	12.0	09	3		
1024	Type B 3/4"	18	0921	21.01	27	2		
1024	Type B 3/4"	18	0923	↓	3/2505	2		Front
"	"	"	0924	24.19	"	2		Back
1024	Type B 3/4"	18	0928	20.93	21	2		
1024	Type B 3/4"	18	0931	20.94	08	2		
1018	1/2" Fine	12	0933	8.0	09	3		
1024	Type B 3/4"	18	0935	21.10	15	2		
1024	Type B 3/4"	18	0940	↓	3597	2		Front
"	"	"	0941	23.87	"	"		Back
~~1024~~	~~Type B 3/4"~~	~~18~~	~~994~~		10			Cancelled
1004	III C3 AR4000	11	0945	1503	10	3		
1024	Type B 3/4"	18	0947	↓	3/25	2		Front
"	"	"	0948	24.58	"	"		Back
1024	Type B 3/4"	18	0949	21.17	29	2		
1024	Type B 3/4"	18	0954	↓	3/2505	2		Front
"	"	"	0955	23.58	"	"		Back
1024	Type B 3/4"	19	0957	20.86	11	2		
1024	Type B 3/4"	18	0959	↓	3106	2		Front
"	"	"	0959	22.79	"	"		Back
1024	Type B 3/4"	18	1002	20.70	25	2		
1024	Type B 3/4"	18	1005	↓	3/2508	2		Front
"	"	"	1006	24.19	"	"		Back
1024	Type B 3/4"	18	1009	21.06	20	2		

Load-Out Log Spreadsheet

Sheet 4 of 4

Mri Project No. 4701-08-03-04

Client/Source: EPA / Plant C
Hot Mix Asphalt

Run No. 2 Load Out

Date: July 25, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024	Type B 3/4"	18	1014	↓	312503	2	>	Front
"	"	"	1015	23.54	"	"	/	Back
1018	1/2" Fine	12	1016	6.18	22	3X		
1024	Type B 3/4"	18	1027	↓	3084	2	>	Front
"	"	"	1028	24.06	"	"	/	Back
1024	Type B 3/4"	18	1030	20.91	18	4		
1024	Type B 3/4"	18	1032	21.06	27	4		
1024	Type B 3/4"	18	1035	20.79	16	4		
1024	Type B 3/4"	18	1039	3.14	21	4		21.03 - 3.14
"	"	"	1041	17.89	"	5		17.89
1024	Type B 3/4"	18	1043	21.00	22	5		
1024	Type B 3/4"	18	1046	14.52	11	5		20.90 - 14.52
1024	"	18	1048	6.38	X11	2		6.38
1024	Type B 3/4"	18	1050	20.80	07	2		
1024	Type B 3/4"	18	1052	20.87	08	2		
1024	Type B 3/4"	18	1054	20.91	30	2		
1024	Type B 3/4"	18	1100	20.91	15	2		
1024	Type B 3/4"	18	1104	21.07	29	2		
1024	Type B 3/4"	18	1110	21.13	09	2		
1024	Type B 3/4"	18	1119	20.64	25	2		
1024	Type B 3/4"	18	1124	21.01	20	2		

Load-Out Log Spreadsheet

Mri Project No. 4701-08-03-04

Client/Source: EPA / Source C
Hot Mix Asphalt

Run No. 3 Load Out

Date: July 27, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024 ~~1001~~	Type B 3/4"	22	0702	12.70	1554/103	2		Front 22.98
1024 ~~1001~~	"	22	0704	10.28	"	2		Back 12.70
1024	Type B 3/4"	18	0709	21.13	21	2		
1002	III B3 AR-4000	20	0711	11.74	3106	2		Front 23.00 11.74
"	"	20	0713	11.32	"	2		Back 11.32
1002	III B3 AR-4000	20	0718	21.28	09	2		
		~~22~~			1717	2		Drop Aborted
1002	III B3 AR-4000	20	0736	12.21	~~3052~~	2		Front 24.33
"	"		0737	12.12	X "	"		Back 12.21
1024	Type B 3/4"	22	0738	12.75	1717	2		Front 25.65
"	"	"	0739	12.90	"	"		Back 12.75 12.90
1024	Type B 3/4"	28	0743	12.42	3597	2		Front 24.80
"	"	"	0744	12.38	"	"		Back 12.42
1002	III B3 AR-4000	20	0746	12.36	3542	2		Front 24.66
"	"	"	0747	12.30	"	"		Back 12.36
1024	Type B 3/4"	22	0753	12.66	~~2305~~	2		Front 25.28
"	"	"	0754	12.62	"	2		Back 12.66 12.62
1024	Type B 3/4"	22	0755	12.34	2305	2		Front 25.21
"	"	"	0756	12.87	"	"		Back ~~12.34~~ 12.87
1002	III B3 AR-4000	20	0800	12.00	3125/1	2		Front
"	"	"	0801	12.38	"	"		Back
1024	Type B 3/4"	18	0802	20.95	16	2		
1024	Type B 3/4"	22	0803	13.00	3475	2		Front
"	"	"	0804	12.70	"	"		Back
1024	Type B 3/4"	22	0809	13.84	1001	2		Front 27.84 13.84
"	"	"	0810	14.00	"	"		Back
1002	III B3 AR-4000	20	0812	21.40	27	2		
1002	III B3 AR-4000	20	0813	12.00	3084	2		Front
"	"	20	0814	12.25	"	"		Back

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Load-Out Log Spreadsheet

Mri Project No. 4701-08-03-04

Client/Source: EPA / Source C
Hot Mix Asphalt

Run No. 3 Load Out

Date: July 27, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024	Type B 3/4"	22	0816	12.76	8280	2		Front 25.16
"	"	"	0816	13.00	"	"		Back 12.76
1024	Type B 3/4"	22	0818	13.00	201640	2		Front
"	"	"	0819	12.56	"	"		Back
1024	Type B 3/4"	28	0820	11.56	312524	2		Front 24.04
"	"	"	0821	12.48	"	"		Back 11.56
1002	III B3 AC-4000	38	0822	21.38	12	2		
1002	III B3 AC-4000	20	0824	12.00	3094	2		Front
"	"	"	0824	12.23	"	"		Back
1024	Type B 3/4"	22	0826	13.00	230501	2		Front
"	"	"	0826	12.71	"	"		Back
1024	Type B 3/4"	22	0827	13.03	103201	2		Front
"	"	"	0828	13.13	"	"		Back
1002	III B3 AC-4000	~~18~~ 20	0829	12.05	3200	4		Front
"	"	"	0830	12.67	"	"		Back
1024	Type B 3/4"	18	0832	21.37	29	4		
1024	Type B 3/4"	22	0833	12.78	231505	4		Front
"	"	"	0834	12.88	"	"		Back
1002	III B-3 AC-4000	20	0835	21.18	10	4		
1024	Type B 3/4"	22	0837	13.00	102801	4		Front
"	"	"	0838	13.16	"	"		Back
1024	Type B 3/4"	22	0839	12.93	230506	4		Front
"	"	"	0840	12.47	"	"		Back
1024	Type B 3/4"	18	0841	21.36	20	4		
1002	III B-3 AC-4000	20	0842	3.36	13	4		Loaded from
"	"	"	0843	17.44	"	5		~~Front~~ 2 silos
1024	Type B 3/4"	22	0844	12.80	201 061	2		
"	"	"	0845	13.04	"	"		

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Load-Out Log Spreadsheet

Sheet 3 of 7

Mri Project No. 4701-08-03-04

Client/Source: EPA / Source C
Hot Mix Asphalt

Run No. 3 - Load Out

Date: July 27, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024	Type B3 3/4"	22	0847	13.00	199508	2		
"	"	"	0848	12.96	"	"		
1002	III B3 AR-4000	20	0849	21.12	07	2		
1024	Type B3 3/4"	22	0851	21.33	15	2		
1024	Type B3 3/4"	22	0852	13.00	200420	2		Front
"	"	"	0853	13.13	"	"		Back
1024	Type B 3/4"		0854	11.59	102806	2		Front
"	"	"	0855	12.86	"	"		Back
1024	Type B 3/4"	18	0856	21.31	18	2		
1002	III B3 AR-4000	20	0858	20.44	44	2		
1024	Type B 3/4"	22	0859	13.14	121415	2		Front
"	"	"	0900	11.47	"	"		Back
1024	Type B 3/4"	22	0901	13.00	1298	2		Front
"	"	"	0902	13.01	"	"		Back
1002	III B3 AR-4000	20	0902	13.05	3744	2		Front
"	"	"	0903	11.05	"	"		Back
1024	Type B 3/4"	18	0904	21.28	09	2		
1002	III B3 AR-4000	20	0906	12.00	3106	2		Front
"	"	"	0907	11.19	"	"		Back
1024	Type B 3/4"	22	0908	12.94	230524	2		Front
"	"	"	0908	12.61	"	"		Back
1024	Type B 3/4"	22	0910	12.20	154409	2		Front
"	"	"	0910	12.24	"	"		Back
1002	III B3 AR-4000	20	0912	21.28	08	2		
1024	Type B 3/4"	18	0914	21.37	21	2		
1024	Type B 3/4"	22	915	12.12	1717	2		Front
"	"	"	0916	13.52	"	"		Back
1024	Type B 3/4"	22	0917	12.50	2205	2		Front
"	"	"	0919	12.63	"	"		Back

Load-Out Log Spreadsheet

Mri Project No. 4701-08-03-04

Client/Source: EPA / Source C
Hot Mix Asphalt

Run No. 3 - Load Out

Date: July 27, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1002	III B-3 AR-4000	20	0921	12.35	303502	2		Front
"	"	"	0923	12.09	"	"		Back
1024	Type B 3/4"	22	0926	12.77	22515	2		Front
"	"	"	0927	12.77		"		Back
1002	III B-3 AR-4000	38	0929	21.34	12	2		
1024	Type B 3/4"	22	0931	13.00	2475	2		Front
"	"	"	0932	12.71	"	"		Back
1024	Type B 3/4"	22	0933	13.00	1001	2		Front
"	"	"	0934	14.74	"	"		Back
1024	Type B 3/4"	18	0935	21.49	27	2		
1002	III A-3 AR-4000	20	0937	12.74	3425	2		Front
"	"	"	0938	12.05	"	"		Back
1002	III B-3 AR-4000	20	0939	12.00	312501	2		Front
"	"	"	0943	12.51	"	"		Back
1024	Type B 3/4"	22	0944	13.00	201069	2		Front
"	"	"	0945	12.72	"	"		Back
1024	Type B 3/4"	22	0946	12.00	22501	2		Front
"	"	"	0947	13.18	"	"		Back
1024	Type B 3/4"	22	0951	12.65	22059	2		Front
"	"	"	0952	13.23	"	"		Back
1024	Type B 3/4"	22	0953	13.12	103202	2		Front
"	"	"	0954	13.27	"	"		Back
1004	III C3 AR 4000	—	0957	8.02	—	1		
1024	Type B 3/4"	18	0958	21.26	10	2		
1002	III B-3 AR-4000	20	1000	21.07	16	2		
1024	Type B 3/4"	22	1003	13.00	10801	2		Front
"	"	"	1004	13.08	3094	"		Back
1004	Type B 3/4"	22	1005	12.86	221509	2		
"	"	"	1006	12.92	"	"		

Load-Out Log Spreadsheet

Sheet 5 of 7

Mri Project No. 4701-08-03-04

Client/Source: EPA/Source C Hot Mix Asphalt

Run No. 3 - Load Out

Date: July 27, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1002	III B-3 AR-4000	20	1007	12.00	3094	2		Front
"	"	"	"	12.42	"	"		Back
1002	III B-3 AR-4000	20	1009	11.69	3004	2		Front
"	"	"	1009	12.64	"	"		Back
1024	Type B 3/4"	22	1011	13.00	195[illegible]	2		Front
"	"	"	1011	12.93	"	"		Back
1024	Type B 3/4"	22	1012	13.00	30506	2		Front
"	"	"	1014	12.88	"	"		Back
1002	III B-3 AR-4000	20	1015	12.61	3200	2		Front
"	"	"	1016	12.17	"	"		Back
1024	Type B 3/4"	22	1017	13.00	22106	2		Front
"	"	"	10:20	12.86	"	"		Back
1024	Type B 3/4"	22	1021	12.79	102806	2		Front
"	"	"	1022	11.73	"	"		Back
1024	Type B 3/4"	22	1023	21.25	07	2		
1024	Type B 3/4"	22	1025	12.82	121415	2		Front
"	"	"	1025	12.90	"	"		Back
1024	Type B 3/4"	22	1026	13.00	2004/20	2		Front
"	"	"	1027	13.14	"	"		Back
1002	III B-3 AR-4000	20	1028	20.98	26	2		
1024	Type B 3/4"	18	1029	8.95	18	2		Filled from
"	"	"	1030	12.40	"	5		2 Silos
1024	Type B 3/4"	22	1032	13.00	1298	2		Front
"	"	"	1032	13.10	"	"		Back
1002	III B-3 AR-4000	38	1034	21.25	112	5		
1002	III B-3 AR-4000	20	1035	21.29	20	5		
1002	III B-3 AR-4000	18 20	1037	21.40	29	5		
1024	Type B 3/4"	22	1039	13.01	230506	5		
"	"	"		12.69	"	"		

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Load-Out Log Spreadsheet

Mri Project No. 4701-08-03-04

Client/Source: EPA / Source C
Hot Mix Asphalt

Run No. 3 - Load Out

Date: July 27, 1998

Data Recorded By: PS Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024	Type B 3/4"	22	1043	12.80	2305	5		F 25.28 12.80
"	"	"	1043	12.48	"	"		B
1024	Type B 3/4"	18	1045	21.39	15	5		
1002	III B-3 AR-4000	20	1047	21.38	21	5		
1024	Type B 3/4"	22	1049	13.00	1717	~~5~~ 2	PSM	Front
"	"	"	1050	12.76	"	"		Back
1002	III B-3 AR-4000	20	1051	21.21	09	2		
1024	Type B 3/4"	18	1052	21.44	13	2		
1024	Type B 3/4"	22	1054	12.79	1554	2		Front
"	"	"	1056	12.73	"	"		Back
1002	III B-3 AR-4000	20	1057	21.61	30	2		
1024	Type B 3/4"	22	1059	12.86	2251	2		Front
"	"	"	1100	12.72	"	"		Back
1002	III B-3 AR-4000	20	1101	20.87	44	2		
1024	Type B 3/4"	18	1103	21.30	08	2		
1024	Type B 3/4"	24	1107	12.91	2475	2		Front
"	"	"	1108	12.83	"	2		Back
1002	III B-3 AR-4000	20	1109	21.45	27	2		
1024	Type B 3/4"	18	1110	11.50	3246	2		Front
"	"	"	1111	10.97	"	"		Back
1024	Type B 3/4"	22	1113	12.68	1001	2		Front
"	"	"	1113	15.23	"	"		Back
1002	III B-3 AR-4000	20	1118	12.00	3106	2		Front
"	"	"	1118	11.26	"	"		Back
1024	Type B 3/4"	22	1121	12.00	2251	2		Front
"	"	"	1121	13.22	"	"		Back
1024	Type B 3/4"	22	1122	13.00		2		
"	"	"	1123	12.78	"	"		

Load-Out Log Spreadsheet

Mri Project No. 4701-08-03-04

Client/Source: EPA / Source C Hot Mix Asphalt

Run No. 3 - Load Out

Date: July 27, 1998

Data Recorded By: P.S. Murowchick

Product ID	Product Description	Job Name	Time Of Loading	Actual Tons Loaded	Truck No	Silo No.	Mix Temp. in Truck	Comments
1024 ~~1004~~	Type B 3/4"	~~19~~	1125	21.53	303502	2		
1024	Type B 3/4"	22	1128	13.00	123054	2		Front
"	"	"	1129	12.92	"	"		Back
					~~103900~~			
1024	Type B 3/4"	22	1131	13.00	195812	2		Front
"	"	"	1133	12.73	"	"		Back
1024	Type B 3/4"	28	1133	12.00	3597	2		Front
"	"	"	1134	12.91	"	"		Back
1004	III C3 AR4000	17	1135	12.00	312501	1		Front
"	"	"	1136	12.56	"	"		Back
1024	Type B 3/4"	~~20~~ 22	1136	13.00	103202	2		Front
"	"	"	1137	12.60	"	"		Back
1024	Type B 3/4"	22	1138	13.00	102801	2		Front
"	"	"	1139	13.14	"	"		Back
1024	Type B 3/4"	22	1141	13.00	221105	2		Front
"	"	"	1141	12.67	"	2		Back
1024	Type B 3/4"	22	1142	13.00	195508	2		Front
"	"	"	1143	13.10	"	"		Back
1002	III B3 AR4000	20	1144	12.00	3094	2		Front
"	"	"	1145	12.49	"	"		Back
1024	Type B 3/4"	22	1147	13.00	201061	2		Front
"	"	"	1148	12.96	"	"		Back
1024	Type B 3/4"	22	1149	13.00	223054	2		Front
"	"	"	1150	12.46	"	"		Back
1002	III B3 AR4000	20	1151	12.50	3200	2		Front
"	"	"	1151	12.31	"	"		Back
1004	III C3 AR4000	17	1152	21.08	26	1		
1024	Type B 3/4"	22	1154	12.00	102806	2		Front
"	"	"	1155	12.64	"	"		Back

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LOAD-OUT DATA
FOR 7/28/98

TIME	CUSTOMER	TRUCK #	TONS LOADED	PRODUCT DESCRIPTION
6:21 AM	Griffith Company	2475	25.49	1024 Type B 3/4" M.M. AR-4000
6:27 AM	Griffith Company	1001	27.67	1024 Type B 3/4" M.M. AR-4000
6:30 AM	Griffith Company	221505	25.66	1024 Type B 3/4" M.M. AR-4000
6:34 AM	Griffith Company	102801	25.97	1024 Type B 3/4" M.M. AR-4000
6:42 AM	Griffith Company	102806	24.39	1024 Type B 3/4" M.M. AR-4000
6:46 AM	Griffith Company	195512	25.79	1024 Type B 3/4" M.M. AR-4000
6:50 AM	Griffith Company	195508	25.96	1024 Type B 3/4" M.M. AR-4000
6:53 AM	Griffith Company	121415	25.69	1024 Type B 3/4" M.M. AR-4000
6:56 AM	Griffith Company	1298	26.24	1024 Type B 3/4" M.M. AR-4000
7.22 AM	Ivy Inc.	29	15.22	1002 III B3 AR-4000
7:30 AM	Griffith Company	2475	25.68	1024 Type B 3/4" M.M. AR-4000
7:36 AM	Griffith Company	1001	27.84	1024 Type B 3/4" M.M. AR-4000
7:39 AM	Silverado Constructors	16	21.22	1066 Type B 3/8" AR-8000
7:42 AM	Standard-Pacific Corp.	3246	24.23	1002 III B3 AR-4000
7:44 AM	Griffith Company	2305	25.31	1024 Type B 3/4" M.M. AR-4000
7:46 AM	Griffith Company	221505	25.52	1024 Type B 3/4" M.M. AR-4000
7:48 AM	Hillcrest Contracting	13	21.16	1002 III B3 AR-4000
7:50 AM	Griffith Company	102801	25.99	1024 Type B 3/4" M.M. AR-4000
7:55 AM	Griffith Company	2305	25.88	1024 Type B 3/4" M.M. AR-4000
7:57 AM	Standard-Pacific Corp.	3419	23.15	1002 III B3 AR-4000
8:00 AM	Griffith Company	103202	26.07	1024 Type B 3/4" M.M. AR-4000
8:02 AM	Silverado Constructors	27	21.22	1066 Type B 3/8" AR-8000
8:05 AM	Griffith Company	155403	25.49	1024 Type B 3/4" M.M. AR-4000
8:07 AM	Griffith Company	201064	25.75	1024 Type B 3/4" M.M. AR-4000
8:10 AM	Griffith Company	201002	25.43	1024 Type B 3/4" M.M. AR-4000
8:11 AM	Standard-Pacific Corp.	303502	24.44	1002 III B3 AR-4000
8:16 AM	Bostick Co., J B	12	21.19	1010 III D AR-4000
8:18 AM	Griffith Company	102806	24.37	1024 Type B 3/4" M.M. AR-4000
8:20 AM	Griffith Company	195512	25.75	1024 Type B 3/4" M.M. AR-4000
8:23 AM	Bostick Co., J B	10	21.2	1010 III D AR-4000
8:25 AM	Griffith Company	195508	25.88	1024 Type B 3/4" M.M. AR-4000
8:27 AM	Griffith Company	121415	25.76	1024 Type B 3/4" M.M. AR-4000
8:30 AM	Interstate Asphalt	7	19.95	1004 III C3 AR-4000
8:31 AM	Griffith Company	1298	26.02	1024 Type B 3/4" M.M. AR-4000
8:33 AM	Griffith Company	230506	25.15	1024 Type B 3/4" M.M. AR-4000
8:35 AM	Bostick Co., J B	11	21.32	1010 III D AR-4000
8:39 AM	Standard-Pacific Corp.	312505	23.88	1002 III B3 AR-4000
8:41 AM	Griffith Company	230506	25.59	1024 Type B 3/4" M.M. AR-4000
8:43 AM	Interstate Asphalt	15	21.21	1004 III C3 AR-4000
8:45 AM	Standard-Pacific Corp.	3061	24.17	1002 III B3 AR-4000
8:49 AM	Bostick Co., J B	9	21.65	1010 III D AR-4000
8:51 AM	Griffith Company	2475	25.9	1024 Type B 3/4" M.M. AR-4000
8:53 AM	Griffith Company	1001	27.89	1024 Type B 3/4" M.M. AR-4000
8:57 AM	Bostick Co., J B	8	21.13	1010 III D AR-4000
8:58 AM	Standard-Pacific Corp.	3246	24.12	1002 III B3 AR-4000
9:00 AM	Griffith Company	2305	25.29	1024 Type B 3/4" M.M. AR-4000
9:01 AM	Interstate Asphalt	44	21.33	1004 III C3 AR-4000
9:05 AM	Standard-Pacific Corp.	3419	24.17	1002 III B3 AR-4000
9:07 AM	Bostick Co., J B	29	24.04	1010 III D AR-4000

LOAD-OUT DATA
FOR 7/28/98

TIME	CUSTOMER	TRUCK #	TONS LOADED	PRODUCT DESCRIPTION
9:10 AM	Hillcrest Contracting	13	21.18	1002 III B3 AR-4000
9:14 AM	Griffith Company	221515	25.47	1024 Type B 3/4" M.M. AR-4000
9:17 AM	Griffith Company	2305	26.01	1024 Type B 3/4" M.M. AR-4000
9:19 AM	Standard-Pacific Corp.	303502	24.43	1002 III B3 AR-4000
9:20 AM	Standard-Pacific Corp.	3597	24.62	1002 III B3 AR-4000
9:24 AM	Griffith Company	102801	26.13	1024 Type B 3/4" M.M. AR-4000
9:27 AM	Interstate Asphalt	18	21.18	1004 III C3 AR-4000
9:29 AM	Griffith Company	221505	25.63	1024 Type B 3/4" M.M. AR-4000
9:31 AM	Standard-Pacific Corp.	312503	23.93	1002 III B3 AR-4000
9:33 AM	Bostick Co., J B	7	21.11	1010 III D AR-4000
9:35 AM	Griffith Company	103202	26.24	1024 Type B 3/4" M.M. AR-4000
9:37 AM	Griffith Company	155403	25.43	1024 Type B 3/4" M.M. AR-4000
9:39 AM	Standard-Pacific Corp.	312501	24.43	1002 III B3 AR-4000
9:41 AM	Interstate Asphalt	10	21.2	1004 III C3 AR-4000
9:49 AM	Griffith Company	201064	25.67	1024 Type B 3/4" M.M. AR-4000
9:51 AM	Griffith Company	201002	25.43	1024 Type B 3/4" M.M. AR-4000
9:53 AM	Standard-Pacific Corp.	3188	24.27	1002 III B3 AR-4000
9:55 AM	Bostick Co., J B	15	21.3	1010 III D AR-4000
9:57 AM	Griffith Company	102806	24.57	1024 Type B 3/4" M.M. AR-4000
9:59 AM	Griffith Company	195512	25.82	1024 Type B 3/4" M.M. AR-4000
10:01 AM	Interstate Asphalt	312505	23.82	1004 III C3 AR-4000
10:03 AM	Standard-Pacific Corp.	3419	24.02	1002 III B3 AR-4000
10:07 AM	Griffith Company	1717	25.84	1024 Type B 3/4" M.M. AR-4000
10:09 AM	Griffith Company	195508	25.97	1024 Type B 3/4" M.M. AR-4000
10:11 AM	Standard-Pacific Corp.	3106	23.27	1002 III B3 AR-4000
10:13 AM	Bostick Co., J B	12	21.13	1010 III D AR-4000
10:16 AM	Interstate Asphalt	3246	24.12	1004 III C3 AR-4000
10:18 AM	Griffith Company	121415	25.66	1024 Type B 3/4" M.M. AR-4000
10:26 AM	Standard-Pacific Corp.	3419	24.37	1002 III B3 AR-4000
10:28 AM	Griffith Company	1298	26.1	1024 Type B 3/4" M.M. AR-4000
10:36 AM	Interstate Asphalt	312503	23.93	1004 III C3 AR-4000
10:40 AM	Griffith Company	230506	25.62	1024 Type B 3/4" M.M. AR-4000
10:43 AM	Griffith Company	230506	25.09	1024 Type B 3/4" M.M. AR-4000
10:44 AM	Silverado Constructors	16	21.23	1066 Type B 3/8" AR-8000
10:48 AM	Griffith Company	2475	25.73	1024 Type B 3/4" M.M. AR-4000
10:49 AM	Silverado Constructors	27	21.21	1066 Type B 3/8" AR-8000
10:52 AM	Griffith Company	1001	27.74	1024 Type B 3/4" M.M. AR-4000
10:54 AM	Griffith Company	2305	25.51	1024 Type B 3/4" M.M. AR-4000
10:57 AM	Interstate Asphalt	312501	24.73	1004 III C3 AR-4000
10:59 AM	Griffith Company	2305	25.91	1024 Type B 3/4" M.M. AR-4000
11:01 AM	Griffith Company	221515	25.47	1024 Type B 3/4" M.M. AR-4000
11:03 AM	Griffith Company	102801	26.19	1024 Type B 3/4" M.M. AR-4000
11:06 AM	Bostick Co., J B	9	21.52	1010 III D AR-4000
11:08 AM	Griffith Company	201002	25.46	1024 Type B 3/4" M.M. AR-4000
11:11 AM	Griffith Company	221505	25.62	1024 Type B 3/4" M.M. AR-4000
11:13 AM	Interstate Asphalt	3188	24.23	1004 III C3 AR-4000
11:18 AM	Griffith Company	201064	25.82	1024 Type B 3/4" M.M. AR-4000
11:19 AM	Griffith Company	155403	25.6	1024 Type B 3/4" M.M. AR-4000
11:20 AM	Griffith Company	102806	24.51	1024 Type B 3/4" M.M. AR-4000

LOAD-OUT DATA
FOR 7/28/98

TIME	CUSTOMER	TRUCK#	TONS LOADED	PRODUCT DESCRIPTION
11:23 AM	Griffith Company	195512	25.9	1024 Type B 3/4" M.M. AR-4000
11:25 AM	Bostick Co., J B	10	21.24	1010 III D AR-4000
11:27 AM	Griffith Company	195508	26.01	1024 Type B 3/4" M.M. AR-4000
11:29 AM	Griffith Company	1717	25.75	1024 Type B 3/4" M.M. AR-4000
11:31 AM	Interstate Asphalt	29	24.59	1004 III C3 AR-4000
11:33 AM	Griffith Company	121415	25.72	1024 Type B 3/4" M.M. AR-4000
11:35 AM	Hillcrest Contracting	13	21.22	1002 III B3 AR-4000
11:38 AM	Griffith Company	2740	25.58	1024 Type B 3/4" M.M. AR-4000
11:39 AM	Bostick Co., J B	15	21.22	1010 III D AR-4000
11:41 AM	Griffith Company	1298	26.13	1024 Type B 3/4" M.M. AR-4000
11:44 AM	Standard-Pacific Corp.	3061	24.1	1002 III B3 AR-4000
11:50 AM	Griffith Company	230506	25.68	1024 Type B 3/4" M.M. AR-4000
11:54 AM	Interstate Asphalt	312505	24.08	1004 III C3 AR-4000
11:56 AM	Bostick Co., J B	12	21.45	1010 III D AR-4000
11:58 AM	Standard-Pacific Corp.	3419	24.48	1002 III B3 AR-4000
12:00 PM	Griffith Company	230506	25.16	1024 Type B 3/4" M.M. AR-4000
12:04 PM	Griffith Company	1001	27.72	1024 Type B 3/4" M.M. AR-4000
12:06 PM	Standard-Pacific Corp.	3246	24.16	1002 III B3 AR-4000
12:08 PM	Standard-Pacific Corp.	312503	24.04	1002 III B3 AR-4000
12:09 PM	Southwest Contractors	9	20.14	1011 Class B 3/4" AR-4000
12:11 PM	Griffith Company	2305	25.47	1024 Type B 3/4" M.M. AR-4000
12:13 PM	Griffith Company	2475	25.7	1024 Type B 3/4" M.M. AR-4000
12:15 PM	Interstate Asphalt	312501	24.56	1004 III C3 AR-4000
12:17 PM	Griffith Company	2305	25.91	1024 Type B 3/4" M.M. AR-4000
12:20 PM	Griffith Company	102801	26.23	1024 Type B 3/4" M.M. AR-4000
12:23 PM	Griffith Company	221515	25.78	1024 Type B 3/4" M.M. AR-4000
12:28 PM	Griffith Company	201002	25.6	1024 Type B 3/4" M.M. AR-4000
12:30 PM	Silverado Constructors	16	21:09	1066 Type B 3/8" AR-8000
12:37 PM	Bostick Co., J B	15	21.23	1010 III D AR-4000
12:41 PM	Standard-Pacific Corp.	3188	24.36	1002 III B3 AR-4000
12:42 PM	Interstate Asphalt	29	24.53	1004 III C3 AR-4000
12:45 PM	Standard-Pacific Corp.	3061	24.1	1002 III B3 AR-4000
12:52 PM	Southwest Contractors	10	20.02	1011 Class B 3/4" AR-4000
12:54 PM	Griffith Company	221505	25.65	1024 Type B 3/4" M.M. AR-4000
12:56 PM	Griffith Company	155403	25.57	1024 Type B 3/4" M.M. AR-4000
12:59 PM	Standard-Pacific Corp.	213501	24.32	1002 III B3 AR-4000
1:01 PM	Bostick Co., J B	13	21.33	1010 III D AR-4000
1:02 PM	Interstate Asphalt	44	21.12	1004 III C3 AR-4000
1:05 PM	Griffith Company	195512	25.81	1024 Type B 3/4" M.M. AR-4000
1:08 PM	Standard-Pacific Corp.	3419	24.71	1002 III B3 AR-4000
1:12 PM	Griffith Company	201064	25.79	1024 Type B 3/4" M.M. AR-4000
1:15 PM	Griffith Company	102806	24.59	1024 Type B 3/4" M.M. AR-4000
1:16 PM	Bostick Co., J B	18	21.63	1010 III D AR-4000
1:20 PM	Interstate Asphalt	312503	23.79	1004 III C3 AR-4000
1:21 PM	Griffith Company	195508	26.16	1024 Type B 3/4" M.M. AR-4000
1:23 PM	Griffith Company	121415	25.91	1024 Type B 3/4" M.M. AR-4000
1:25 PM	Bostick Co., J B	12	21.28	1010 III D AR-4000
1:29 PM	Griffith Company	1717	25.57	1024 Type B 3/4" M.M. AR-4000
1:31 PM	Griffith Company	2740	25.64	1024 Type B 3/4" M.M. AR-4000

LOAD-OUT DATA
FOR 7/28/98

TIME	CUSTOMER	TRUCK #	TONS LOADED	PRODUCT DESCRIPTION
1:33 PM	Griffith Company	1298	26.15	1024 Type B 3/4" M.M. AR-4000
1:35 PM	Bostick Co., J B	312501	24.65	1010 III D AR-4000
1:37 PM	Interstate Asphalt	15	21.42	1004 III C3 AR-4000
1:39 PM	Griffith Company	230506	25.62	1024 Type B 3/4" M.M. AR-4000
1:41 PM	Griffith Company	1001	27.76	1024 Type B 3/4" M.M. AR-4000
1:44 PM	Griffith Company	2305	25.51	1024 Type B 3/4" M.M. AR-4000
1:46 PM	Griffith Company	2305	26	1024 Type B 3/4" M.M. AR-4000
1:49 PM	Bostick Co., J B	11	21.1	1010 III D AR-4000
1:51 PM	Interstate Asphalt	3188	24.23	1004 III C3 AR-4000
1:53 PM	Griffith Company	2475	25.92	1024 Type B 3/4" M.M. AR-4000
1:55 PM	Griffith Company	102801	26.15	1024 Type B 3/4" M.M. AR-4000
2:07 PM	Griffith Company	103202	26.14	1024 Type B 3/4" M.M. AR-4000
2:09 PM	Griffith Company	201002	25.61	1024 Type B 3/4" M.M. AR-4000
2:11 PM	Bostick Co., J B	312505	23.94	1010 III D AR-4000
2:14 PM	Silverado Constructors	221505	25.63	1066 Type B 3/8" AR-8000
2:17 PM	Griffith Company	155404	25.52	1024 Type B 3/4" M.M. AR-4000
2:18 PM	Griffith Company	201064	25.89	1024 Type B 3/4" M.M. AR-4000
2:20 PM	Bostick Co., J B	3419	24.48	1010 III D AR-4000
2:24 PM	Bostick Co., J B	29	23.68	1010 III D AR-4000
2:38 PM	Interstate Asphalt	21	21.64	1004 III C3 AR-4000
2:42 PM	Bostick Co., J B	44	21.63	1010 III D AR-4000
2:44 PM	Interstate Asphalt	18	21.47	1004 III C3 AR-4000
2:48 PM	Bostick Co., J B	9	21.3	1010 III D AR-4000
2:58 PM	Bostick Co., J B	12	21.32	1010 III D AR-4000
3:00 PM	T. B. S. Contractors	25	8	1010 III D AR-4000
3:17 PM	Bostick Co., J B	312501	24.56	1010 III D AR-4000
3:21 PM	Bostick Co., J B	11	21.22	1010 III D AR-4000
3:24 PM	Silverado Constructors	27	21.18	1066 Type B 3/8" AR-8000
3:26 PM	Silverado Constructors	16	21.19	1066 Type B 3/8" AR-8000
3:32 PM	Bostick Co., J B	21	22.35	1010 III D AR-4000
5:26 PM	Silverado Constructors	18	21.26	1024 Type B 3/4" M.M. AR-4000
5:28 PM	Silverado Constructors	21	21.43	1024 Type B 3/4" M.M. AR-4000
5:34 PM	Silverado Constructors	29	21.67	1024 Type B 3/4" M.M. AR-4000
5:36 PM	Silverado Constructors	26	20.95	1024 Type B 3/4" M.M. AR-4000
5:42 PM	Silverado Constructors	30	21.34	1024 Type B 3/4" M.M. AR-4000
5:46 PM	Silverado Constructors	12	21.02	1024 Type B 3/4" M.M. AR-4000
5:49 PM	Silverado Constructors	44	21.45	1024 Type B 3/4" M.M. AR-4000
5:51 PM	Silverado Constructors	9	21.26	1024 Type B 3/4" M.M. AR-4000
5:57 PM	Silverado Constructors	10	21.27	1024 Type B 3/4" M.M. AR-4000
6:01 PM	Silverado Constructors	16	21.3	1024 Type B 3/4" M.M. AR-4000
6:05 PM	Silverado Constructors	8	21.2	1024 Type B 3/4" M.M. AR-4000
6:10 PM	Silverado Constructors	13	21.3	1024 Type B 3/4" M.M. AR-4000
6:14 PM	Silverado Constructors	9	21.59	1024 Type B 3/4" M.M. AR-4000
6:17 PM	Silverado Constructors	20	21.32	1024 Type B 3/4" M.M. AR-4000
6:20 PM	Silverado Constructors	82	21.32	1024 Type B 3/4" M.M. AR-4000
5:02 AM	Silverado Constructors	33	21.3	1024 Type B 3/4" M.M. AR-4000
6:25 PM	Silverado Constructors	22	21.5	1024 Type B 3/4" M.M. AR-4000
6:31 PM	Silverado Constructors	23	20.8	1024 Type B 3/4" M.M. AR-4000
6:35 PM	Silverado Constructors	3	21.32	1024 Type B 3/4" M.M. AR-4000

LOAD-OUT DATA
FOR 7/28/98

TIME	CUSTOMER	TRUCK #	TONS LOADED	PRODUCT DESCRIPTION
6:37 PM	Silverado Constructors	86	21.07	1024 Type B 3/4" M.M. AR-4000
6:40 PM	Silverado Constructors	18	21.14	1024 Type B 3/4" M.M. AR-4000
6:43 PM	Silverado Constructors	2	21.29	1024 Type B 3/4" M.M. AR-4000
6:47 PM	Silverado Constructors	89	21.3	1024 Type B 3/4" M.M. AR-4000
6:50 PM	Silverado Constructors	99	20.75	1024 Type B 3/4" M.M. AR-4000
7:09 PM	Silverado Constructors	21	21.24	1024 Type B 3/4" M.M. AR-4000
7:12 PM	Silverado Constructors	30	21.44	1024 Type B 3/4" M.M. AR-4000
7:15 PM	Silverado Constructors	82	21.22	1024 Type B 3/4" M.M. AR-4000
7:16 PM	Silverado Constructors	29	21.33	1024 Type B 3/4" M.M. AR-4000
7:19 PM	Silverado Constructors	26	21.01	1024 Type B 3/4" M.M. AR-4000
7:26 PM	Silverado Constructors	12	21.06	1024 Type B 3/4" M.M. AR-4000
7:35 PM	Silverado Constructors	9	21.31	1024 Type B 3/4" M.M. AR-4000
7:37 PM	Silverado Constructors	15	21.57	1024 Type B 3/4" M.M. AR-4000
7:39 PM	Silverado Constructors	44	21.46	1024 Type B 3/4" M.M. AR-4000

APPENDIX B.6

SILO NO. 2 LOAD-IN RECORDS USED IN SED EMISSION CALCULATIONS

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. Summary Runs 1-5
Date: NA
Spreadsheet work: Derek Hawkes

Date	Test Method	Total Tons *				
7/24/98	S-V-1-1	79.2				
7/24/98	S-V-1-2	57.7				
7/24/98	S-V-1-3	56.5				
7/24/98	S-V-1-4	56.6				
7/24/98	S-MM5-1	802.2				
7/24/98	S-M315-1	336.7				
7/24/98	S-M18-1	745.4				
7/25/98	S-V-2-1	46.3				
7/25/98	S-V-2-2	53.0				
7/25/98	S-V-2-3	53.2				
7/25/98	S-V-2-4	46.3				
7/25/98	S-MM5-2	602.5				
7/25/98	S-M315-2	282.7				
7/25/98	S-M18-2	595.5				
7/27/98	S-V-3-1	41.9				
7/27/98	S-V-3-2	42.1				
7/27/98	S-V-3-3	47.1				
7/27/98	S-V-3-4	64.2				
7/27/98	S-V-3-5	63.7				
7/27/98	S-V-3-6	64.2				
7/27/98	S-MM5-3	1079.5				
7/27/98	S-M18-3	472.4				
7/28/98	S-MM5-4	881.0				
7/28/98	S-MM5-5	709.4				
7/28/98	S-M315-4	402.4				

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-1 (1-4)	S-MM5-1	S-M315-1	S-M18-1	Load-In Tons*
7:20			1		1	7.15
7:21			1		1	7.25
7:22			1		1	7.35
7:23			1		1	7.45
7:24			1		1	7.55
7:25			1		1	7.65
7:26		1	1		1	7.74
7:27		1	1		1	7.84
7:28		1	1		1	7.94
7:29		1	1		1	8.04
7:30		1	1		1	8.01
7:31		1	1		1	7.98
7:32	21.45	1	1		1	7.96
7:33		1	1		1	7.93
7:34		1	1		1	7.90
7:35		1	1		1	7.87
7:36			1		1	7.84
7:37			1		1	7.82
7:38			1		1	7.79
7:39			1		1	7.76
7:40			1		1	7.73
7:41	21.34		1		1	7.71
7:42			1		1	7.68
7:43			1		1	7.65
7:44			1		1	7.62
7:45	21.39		1		1	7.59
7:46	20.10		1		1	7.57
7:47			1		1	7.54
7:48	21.04		1		1	7.51
7:49			1		1	7.48
7:50			1		1	7.45
7:51			1		1	7.43
7:52	21.19		1		1	7.40
7:53			1		1	7.37
7:54			1		1	7.34
7:55			1		1	7.31
7:56	21.12		1		1	7.29
7:57			1		1	7.26
7:58			1		1	7.23
7:59	21.27		1		1	7.20
8:00			1		1	7.18
8:01			1		1	7.16
8:02	21.12		1		1	7.15
8:03			1		1	7.13
8:04			1		1	7.12
8:05	21.17		1		1	7.10
8:06			1		1	7.09

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-1 (1-4)	S-MM5-1	S-M315-1	S-M18-1	Load-In Tons*
8:07			1		1	7.07
8:08			1		1	7.06
8:09			1		1	7.05
8:55			1		1	5.94
8:56			1		1	5.91
8:57			1		1	5.88
8:58			1		1	5.85
8:59	21.26	2	1		1	5.81
9:00		2	1		1	5.78
9:01		2	1		1	5.78
9:02		2	1		1	5.77
9:03		2	1		1	5.77
9:04		2	1		1	5.77
9:05	19.91	2	1		1	5.76
9:06		2	1		1	5.76
9:07		2	1		1	5.76
9:08		2	1		1	5.75
9:09			1		1	5.75
9:18			1		1	5.72
9:19			1		1	5.71
9:20			1		1	5.71
9:21			1		1	5.70
9:22	21.58		1		1	5.70
9:23			1		1	5.70
9:24	21.27		1		1	5.69
9:25			1		1	5.69
9:26			1		1	5.69
9:27			1		1	5.68
9:28	21.46		1		1	5.68
9:29			1		1	5.67
9:30			1		1	5.67
9:31			1		1	5.67
9:32			1		1	5.66
9:33	21.44		1		1	5.66
9:34		3	1		1	5.66
9:35		3	1		1	5.65
9:36		3	1		1	5.65
9:37		3	1		1	5.65
9:38	21.36	3	1		1	5.65
9:39	21.20	3	1		1	5.65
9:40		3	1		1	5.65
9:41		3	1		1	5.65
9:42	21.06	3	1		1	5.65
9:43		3	1		1	5.65
9:44			1		1	5.65
9:45			1		1	5.65
9:46			1		1	5.65

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-1 (1-4)	S-MM5-1	S-M315-1	S-M18-1	Load-In Tons*
9:47			1		1	5.65
9:48			1		1	5.65
9:49	20.88		1		1	5.65
9:50	21.34		1		1	5.65
9:51			1		1	5.65
9:52			1		1	5.65
9:53			1		1	5.65
9:54			1		1	5.65
9:55	21.53		1		1	5.65
9:56			1		1	5.65
9:57			1		1	5.65
9:58	21.52		1		1	5.65
9:59			1		1	5.65
10:00	21.29		1		1	5.65
10:01			1		1	5.65
10:02	21.60		1		1	5.65
10:03			1		1	5.65
10:04		4	1		1	5.65
10:05		4	1		1	5.65
10:06	21.27	4	1		1	5.65
10:07	21.22	4	1		1	5.66
10:08		4	1			5.66
10:09		4	1			5.66
10:10		4	1			5.67
10:11	21.44	4	1			5.67
10:12		4	1			5.67
10:13		4	1			5.68
10:14	21.06		1			5.68
10:15			1			5.68
10:16			1			5.69
10:17			1			5.69
11:41				1		5.61
11:42				1		5.61
11:43	21.17			1		5.61
11:44				1		5.61
11:45	20.12			1		5.61
11:46				1		5.61
11:47				1		5.61
11:48				1		5.61
11:49				1		5.61
11:50	21.34			1		5.61
11:51				1		5.61
11:52				1		5.61
11:53	21.06			1		5.61
11:54				1		5.61
11:55	21.15			1		5.61
11:56				1		5.61

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 1-Load Out
Date: 7/24/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-1 (1-4)	S-MM5-1	S-M315-1	S-M18-1	Load-In Tons*
11:57	21.31			1		5.61
11:58				1		5.61
11:59				1		5.61
12:00				1		5.61
12:01				1		5.61
12:02	21.35			1		5.61
12:03				1		5.61
12:04	21.22			1		5.61
12:05	21.32			1		5.61
12:06				1		5.61
12:07				1		5.61
12:08				1		5.61
12:09				1		5.61
12:10	21.22			1		5.61
12:13				1		5.61
12:14				1		5.61
12:15	21.02			1		5.61
12:16				1		5.61
12:17	23.99			1		5.61
12:18				1		5.61
12:19	21.29			1		5.61
12:20				1		5.61
12:21				1		5.61
12:22	21.00			1		5.61
12:23	21.52			1		5.61
12:24				1		5.61
12:25	21.47			1		5.61
12:26				1		5.61
12:27				1		5.61
12:28				1		5.61
12:29				1		5.61
12:30	21.46			1		5.61
12:31				1		5.61
12:32				1		5.62
12:33				1		5.62
12:34				1		5.62
12:35				1		5.62
12:36	20.40			1		5.62
12:37	21.73			1		5.62
12:38	21.28			1		5.62
12:39				1		5.62
12:40	21.16			1		5.62
12:41				1		5.62
12:42	21.39			1		5.62
Total	**1495.56**		**802.2**	**336.7**	**745.4**	

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-2 (1-4)	S-MM5-2	S-M315-2	S-M18-2	Load-In Tons *
7:10		1	2		2	4.63
7:11		1	2		2	4.63
7:12		1	2		2	4.63
7:13		1	2		2	4.63
7:14		1	2		2	4.63
7:15		1	2		2	4.63
7:16		1	2		2	4.64
7:17		1	2		2	4.64
7:18		1	2		2	4.64
7:19		1	2		2	4.64
7:20			2		2	4.64
7:21	22.00		2		2	4.64
7:22			2		2	4.64
7:23	23.87		2		2	4.64
7:24			2		2	4.64
7:25			2		2	4.65
7:26			2		2	4.65
7:27			2		2	4.65
7:28			2		2	4.65
7:29	21.21		2		2	4.65
7:30			2		2	4.65
7:31			2		2	4.65
7:32			2		2	4.65
7:33			2		2	4.65
7:34			2		2	4.66
7:35			2		2	4.66
7:36			2		2	4.66
7:37			2		2	4.66
7:38	22.00		2		2	4.66
7:39			2		2	4.66
7:40	24.43		2		2	4.66
7:41			2		2	4.72
7:42			2		2	4.78
7:43	22.00		2		2	4.84
7:44	23.24		2		2	4.90
7:45	20.64		2		2	4.96
7:46		2	2		2	5.02
7:47		2	2		2	5.09
7:48		2	2		2	5.15
7:49		2	2		2	5.21
7:50		2	2		2	5.27
7:51	21.26	2	2		2	5.33
7:52		2	2		2	5.39
7:53		2	2		2	5.45
7:54		2	2		2	5.51
7:55		2	2		2	5.57
7:56			2		2	5.63

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-2 (1-4)	S-MM5-2	S-M315-2	S-M18-2	Load-In Tons *
7:57			2		2	5.69
7:58			2		2	5.75
7:59	21.26		2		2	5.81
8:00			2		2	5.87
8:01			2		2	5.93
8:02			2		2	5.99
8:03			2		2	6.05
8:04			2		2	6.11
8:05			2		2	6.18
8:06			2			6.24
8:07	21.05		2			6.30
8:08			2			6.36
8:09			2			6.42
8:40			2		2	5.83
8:41			2		2	5.81
8:42			2		2	5.77
8:43			2		2	5.73
8:44			2		2	5.69
8:45			2		2	5.65
8:46			2		2	5.61
8:47			2		2	5.57
8:48			2		2	5.53
8:49		3	2		2	5.50
8:50	22.00	3	2		2	5.46
8:51	24.47	3	2		2	5.42
8:52	21.18	3	2		2	5.38
8:53		3	2		2	5.34
8:54		3	2		2	5.30
8:55		3	2		2	5.26
8:56		3	2		2	5.22
8:57		3	2		2	5.18
8:58		3	2		2	5.14
8:59	22.00		2		2	5.10
9:00	23.80		2		2	5.06
9:01			2		2	5.02
9:02			2		2	4.98
9:03			2		2	4.94
9:04			2		2	4.91
9:05			2		2	4.87
9:06			2		2	4.83
9:07			2		2	4.79
9:08			2		2	4.75
9:09			2		2	4.71
9:10	45.67	4	2		2	4.67
9:11		4	2		2	4.63
9:12		4	2		2	4.63
9:13		4	2		2	4.63

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-2 (1-4)	S-MM5-2	S-M315-2	S-M18-2	Load-In Tons *
9:14		4	2		2	4.63
9:15	20.87	4	2		2	4.63
9:16		4	2		2	4.63
9:17	21.02	4	2		2	4.63
9:18	12.00	4	2		2	4.63
9:19		4	2		2	4.63
9:30			2		2	4.62
9:31	20.94		2		2	4.62
9:32			2		2	4.62
9:33	8.00		2		2	4.62
9:34			2		2	4.62
9:35	21.10		2		2	4.62
9:36			2		2	4.62
9:37			2		2	4.62
9:38			2		2	4.62
9:39			2		2	4.62
9:40			2		2	4.62
9:41	23.87		2		2	4.62
9:42			2		2	4.62
9:43			2		2	4.61
9:44			2		2	4.61
9:45	15.03		2		2	4.60
9:46			2		2	4.60
9:47			2		2	4.59
9:48	24.58		2		2	4.59
9:49	21.17		2		2	4.58
9:50					2	4.58
9:51					2	4.58
9:52					2	4.57
9:53					2	4.57
10:15	23.54			2		4.55
10:16				2		4.56
10:17				2		4.58
10:18				2		4.60
10:19				2		4.61
10:20				2		4.63
10:21				2		4.65
10:22				2		4.66
10:23				2		4.68
10:24				2		4.69
10:25				2		4.71
10:26				2		4.73
10:27	22.00			2		4.74
10:28	24.06			2		4.76
10:29				2		4.78
10:30				2		4.79
10:31				2		4.81

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 2-Load Out
Date: 7/25/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-2 (1-4)	S-MM5-2	S-M315-2	S-M18-2	Load-In Tons *
10:32				2		4.83
10:33				2		4.84
10:34				2		4.86
10:35				2		4.87
10:36				2		4.89
10:37				2		4.91
10:38				2		4.92
10:39				2		4.94
10:40				2		4.96
10:41				2		4.97
10:42				2		4.96
10:43				2		4.95
10:44				2		4.94
10:47				2		4.91
10:48				2		4.90
10:49				2		4.89
10:50	20.80			2		4.88
10:51				2		4.87
10:52	20.87			2		4.86
10:53				2		4.86
10:54	20.91			2		4.85
10:55				2		4.84
10:56				2		4.83
10:57				2		4.82
10:58				2		4.81
10:59				2		4.80
11:00	20.91			2		4.79
11:01				2		4.78
11:02				2		4.77
11:03				2		4.76
11:04	21.07			2		4.75
11:05				2		4.74
11:06				2		4.73
11:07				2		4.72
11:08				2		4.71
11:09				2		4.70
11:10	21.13			2		4.69
11:11				2		4.49
11:12				2		4.30
11:13				2		4.10
11:14				2		3.91
11:15				2		3.71
11:16				2		3.52
Total	1154.48		602.5	282.7	595.5	

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-3 (1-4)	S-MM5-3	S-M315-3	S-M18-3	Load-In Tons *
8:04	12.70		3			8.37
8:05			3			8.37
8:06			3			8.37
8:07			3			8.37
8:08			3			8.37
8:09	13.84		3			8.37
8:10	14.00		3			8.37
8:11			3			8.37
8:12	21.40		3			8.38
8:13	12.00		3			8.38
8:14	12.25		3			8.38
8:15			3			8.38
8:16	25.76	1	3			8.38
8:17		1	3			8.38
8:18	13.00	1	3			8.38
8:19	12.56	1	3			8.38
8:20	11.56	1	3			8.38
8:21	12.48		3			8.38
8:22	21.38		3			8.38
8:23			3			8.39
8:24	24.23		3			8.39
8:25			3			8.39
8:26	25.71		3			8.39
8:27	13.03		3			8.39
8:28	13.13		3			8.39
8:29			3			8.39
8:30			3			8.39
8:31		2	3			8.39
8:32		2	3			8.40
8:33		2	3			8.40
8:34		2	3			8.43
8:35		2	3			8.45
8:36			3			8.48
8:37			3			8.51
8:38			3			8.54
8:39			3			8.57
8:40			3			8.60
8:41			3			8.62
8:42			3			8.65
8:43			3			8.68
8:44	12.80		3			8.71
8:45	13.04		3			8.74
8:46			3			8.77
8:47	13.00		3			8.79
8:48	12.96		3			8.82
8:49	21.12		3			8.85
8:50			3			8.88

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-3 (1-4)	S-MM5-3	S-M315-3	S-M18-3	Load-In Tons *
8:51	21.33		3			8.91
8:52	13.00		3			8.94
8:53	13.13		3			8.96
8:54	11.59		3			8.99
8:55	12.86		3			9.02
8:56	21.31		3			9.05
8:57			3			9.08
8:58	20.44		3			9.09
8:59	13.14		3			9.11
9:00	11.47		3			9.13
9:01	13.00		3			9.15
9:02	26.06		3			9.17
9:03	11.05		3			9.18
9:25			3			9.57
9:26	12.77		3			9.59
9:27	12.77		3			9.61
9:28			3			9.60
9:29	21.36		3			9.58
9:30			3			9.57
9:31	13.00		3			9.55
9:32	12.71		3			9.54
9:33	13.00		3			9.52
9:34	14.74		3			9.51
9:35	21.49		3			9.49
9:38	12.05	3				9.45
9:39	12	3				9.43
9:40		3				9.42
9:41		3				9.40
9:42		3				9.39
9:48			3			9.30
9:49			3			9.28
9:50			3			9.27
9:51	12.65		3			9.25
9:52	13.23		3			9.24
9:53	13.12		3			9.22
9:54	13.27		3			9.21
9:55		4				9.19
9:56		4				9.18
9:57		4				9.16
9:58	21.26	4				9.16
9:59		4				9.16
10:00	21.07	4				9.16
10:01		4				9.15
10:02						9.15
10:03	13.00					9.15
10:04	13.08					9.15
10:05	12.86					9.15

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-3 (1-4)	S-MM5-3	S-M315-3	S-M18-3	Load-In Tons *
10:06	12.92					9.14
10:07	24.42		3			9.14
10:08			3			9.14
10:09	34.33		3			9.14
10:10			3			9.14
10:11	25.93		3			9.13
10:12	13.00		3			9.13
10:13			3			9.13
10:14	12.22		3			9.13
10:15	12.61		3			9.12
10:16	12.17		3			9.12
10:17	13.00		3			9.12
10:18			3			9.12
10:19			3			9.12
10:20	12.86		3			9.11
10:21	12.79		3			9.11
10:22	11.73	5	3			9.11
10:23	21.25	5	3		3	9.11
10:24	12.82	5	3		3	9.10
10:25	12.90	5	3		3	9.10
10:26	13.00	5	3		3	9.10
10:27	13.14	5	3		3	9.10
10:28	20.98	5	3		3	9.10
10:29	8.95		3		3	9.11
10:30			3		3	9.12
10:31	13.00		3		3	9.12
10:32	13.10		3		3	9.13
10:33			3		3	9.14
10:34			3		3	9.14
10:35		6	3		3	9.15
10:36		6	3		3	9.16
10:37		6	3		3	9.16
10:38		6	3		3	9.17
10:39		6	3		3	9.18
10:40		6	3		3	9.18
10:41		6	3		3	9.19
10:42			3		3	9.20
10:43			3		3	9.20
10:44			3		3	9.21
10:45			3		3	9.21
10:46			3		3	9.22
10:47			3		3	9.23
10:48			3		3	9.23
10:49	13.00		3		3	9.24
10:50	12.76				3	9.25
10:51	21.21				3	9.25
10:52	21.44				3	9.26

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 3-Load Out
Date: 7/27/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-V-3 (1-4)	S-MM5-3	S-M315-3	S-M18-3	Load-In Tons *
11:40					3	9.92
11:41	15.67				3	9.95
11:42	13.00				3	9.98
11:43	13.10				3	10.01
11:44	12.00				3	10.04
11:45	12.49				3	10.07
11:46					3	10.09
11:47	13.00				3	10.12
11:48	12.96				3	10.15
11:49	13.00				3	10.18
11:50	12.46				3	10.21
11:51	24.81				3	10.24
11:52					3	10.26
11:53					3	10.29
11:54	12.00				3	10.32
12:43					3	9.10
12:44					3	9.10
12:45					3	9.10
12:46					3	9.10
12:47					3	9.10
Total	2378.16		1079.5	0.0	472.4	

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
6:49				4		5.29
6:49				4		5.34
6:50				4		5.38
6:51				4		5.42
6:52				4		5.47
6:53				4		5.51
6:54				4		5.56
6:55				4		5.60
6:56				4		5.64
6:57				4		5.69
6:58				4		5.73
6:59				4		5.78
7:00				4		5.82
7:01				4		5.87
7:02				4		5.91
7:03				4		5.95
7:04				4		6.00
7:05				4		6.04
7:06				4		6.09
7:07				4		6.13
7:08				4		6.18
7:09				4		6.22
7:10				4		6.26
7:11				4		6.31
7:12				4		6.35
7:13				4		6.40
7:14				4		6.44
7:15				4		6.49
7:16				4		6.47
7:17				4		6.45
7:18				4		6.44
8:10				4		6.79
8:11				4		6.82
8:12				4		6.85
8:13				4		6.88
8:14				4		6.91
8:15				4		6.94
8:16				4		6.98
8:17				4		7.01
8:18				4		7.05
8:19				4		7.08
8:20				4		7.11
8:21				4		7.15
8:22				4		7.18
8:23				4		7.22
8:24				4		7.25
8:25				4		7.29

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
8:26				4		7.32
8:27				4		7.36
8:28				4		7.39
8:29				4		7.42
8:30				4		7.46
8:31				4		7.49
8:32				4		7.53
8:33				4		7.56
8:34				4		7.60
8:35				4		7.63
8:36				4		7.67
8:37				4		7.70
8:38				4		7.74
8:39				4		7.77
9:13		4				7.92
9:14		4				7.92
9:15		4				7.92
9:16		4				7.89
9:17		4				7.86
9:18		4				7.83
9:19		4				7.81
9:20		4				7.78
9:21		4				7.75
9:22		4				7.73
9:23		4				7.70
9:24		4				7.67
9:25		4				7.64
9:26		4				7.62
9:27		4				7.59
9:28		4				7.56
9:29		4				7.54
9:30		4				7.51
9:31		4				7.48
9:32		4				7.46
9:33		4				7.43
9:34		4				7.50
9:35		4				7.56
9:36		4				7.63
9:37		4				7.70
10:26		4				7.18
10:27		4				7.19
10:28		4				7.21
10:29		4				7.23
10:30		4				7.25
10:31		4				7.26
10:32		4				7.28
10:33		4				7.30

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
10:34		4				7.32
10:35		4				7.33
10:36		4				7.35
10:37		4				7.37
10:38		4				7.39
10:39		4				7.41
10:40		4				7.42
10:41		4				7.44
10:42		4				7.46
10:43		4				7.48
10:44		4				7.49
10:45		4				7.51
10:46		4				7.51
10:47		4				7.51
10:48		4				7.51
10:49		4				7.51
10:50		4				7.50
10:51		4				7.50
10:52		4				7.50
10:53		4				7.50
10:54		4				7.50
10:55		4				7.50
10:56		4				7.50
10:57		4				7.49
10:58		4				7.49
10:59		4				7.49
11:00		4				7.49
11:39		4				7.63
11:40		4				7.63
11:41		4				7.64
11:42		4				7.65
11:43		4				7.65
11:44		4				7.66
11:45		4				7.67
11:46		4				7.66
11:47		4				7.66
11:48		4				7.66
12:33		4				7.48
12:34		4				7.47
12:35		4				7.46
12:36		4				7.45
12:37		4				7.44
12:38		4				7.43
12:39		4				7.42
12:40		4				7.40
12:41		4				7.39
12:42		4				7.38

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
12:43		4				7.37
12:44		4				7.36
12:45		4				7.35
12:46		4				7.33
12:47		4				7.30
12:48		4				7.28
12:49		4				7.26
12:50		4				7.24
12:51		4				7.22
12:52		4				7.19
12:53		4				7.17
12:54		4				7.15
12:55		4				7.13
12:56		4				7.11
12:57		4				7.08
12:58		4				7.06
12:59		4				7.04
13:00		4				7.02
13:01		4				7.00
13:02		4				5.61
13:03		4				6.97
13:04		4				6.95
13:05		4				6.93
13:06		4				6.91
13:07		4				6.89
13:08		4				6.86
13:09		4				6.84
13:10		4				6.82
13:11		4				6.80
13:12		4				6.77
13:13		4				6.75
13:14		4				6.73
13:15		4				6.71
13:16		4				6.69
13:17		4				6.72
13:18		4				6.76
13:19		4				6.79
13:20		4				6.83
13:21		4				6.87
13:22		4				6.90
13:58			5			7.90
13:59			5			7.91
14:00			5			7.93
14:01			5			7.94
14:02			5			7.95
14:03			5			7.96
14:04			5			7.97

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
14:05			5			7.98
14:06			5			7.99
14:07			5			8.01
14:08			5			8.02
14:09			5			8.03
14:10			5			8.04
14:11			5			8.05
14:12			5			8.06
14:13			5			8.07
14:14			5			8.09
14:15			5			8.10
14:16			5			8.11
14:17			5			8.09
14:18			5			8.06
14:19			5			8.04
14:20			5			8.02
14:21			5			8.00
14:22			5			7.98
14:23			5			7.95
14:24			5			7.93
14:25			5			7.91
14:26			5			7.89
14:27			5			7.87
14:28			5			7.85
14:29			5			7.82
14:30			5			7.80
14:31			5			7.78
14:32			5			7.76
18:13			5			2.91
18:14			5			2.89
18:15			5			2.98
18:16			5			3.07
18:17			5			3.15
18:18			5			3.24
18:19			5			3.33
18:20			5			3.41
18:21			5			3.50
18:22			5			3.59
18:23			5			3.67
18:24			5			3.76
18:25			5			3.85
18:26			5			3.94
18:27			5			4.02
18:28			5			4.11
18:29			5			4.20
18:30			5			4.28
18:31			5			4.37

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
18:32			5			4.46
18:33			5			4.54
18:34			5			4.63
18:35			5			4.72
18:36			5			4.81
18:37			5			4.89
18:40			5			5.15
18:41			5			5.24
18:42			5			5.33
18:43			5			5.41
18:44			5			5.50
18:45			5			5.50
18:46			5			5.50
18:47			5			5.50
18:48			5			5.50
18:49			5			5.51
18:50			5			5.51
18:51			5			5.51
18:52			5			5.51
18:53			5			5.51
18:54			5			5.51
18:55			5			5.51
18:56			5			5.51
18:57			5			5.51
18:58			5			5.51
18:59			5			5.51
19:00			5			5.50
19:01			5			5.50
19:02			5			5.50
19:03			5			5.50
19:04			5			5.50
19:05			5			5.50
19:06			5			5.50
19:07			5			5.49
19:08			5			5.49
19:09			5			5.49
19:10			5			5.49
19:11			5			5.49
19:12			5			5.49
19:13			5			5.48
19:14			5			5.48
19:15			5			5.48
19:16			5			5.48
19:17			5			5.48
19:18			5			5.48
19:19			5			5.48
19:20			5			5.48

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* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

Silofinb

Asphalt Plant C Load-In Data for Silo #2 Used in Silo Exhaust Duct Emission Calculations

Client/Source: EPA Plant C
Hot Mix Asphalt

Run No. 4&5-Load Out
Date: 7/28/1998
Spreadsheet work: Derek Hawkes

Time	Load-out Tons	S-MM5-4	S-MM5-5	S-M315-4		Load-In Tons *
19:21			5			5.48
19:22			5			5.48
19:23			5			5.48
19:24			5			5.48
19:25			5			5.48
19:26			5			5.48
19:27			5			5.48
19:28			5			5.48
19:29			5			5.48
19:30			5			5.48
19:31			5			5.48
19:32			5			5.48
19:33			5			5.48
19:34			5			5.48
19:35			5			5.48
19:36			5			5.48
19:37			5			5.48
19:38			5			5.48
19:39			5			5.48
19:40			5			5.48
Total		881.0	709.4	402.4		

* Calculated from TPH Mix Rate Data taken from Production Records. Numbers in middle columns indicate sampling periods, Load in tons are the calculated values used to estimate the total tons loaded per test period.

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APPENDIX B.7

ASPHALT TEMPERATURES AT LOAD-OUT, 7/24/98 THROUGH 7/28/98

ASPHALT PLANT C IN LOS ANGELES, CA - ASPHALT TEMPERATURES AT LOAD-OUT

Measurements recorded by Jessica Swift

Day 1			Temperature, F			Day 1
Date	Time	Truck #	Temp. T	Temp. B	Temp. B adj.	Comments
7/24/98	7:25	89	308	320	327	
7/24/98	7:31	99	310	315	322	
7/24/98	7:36	92	311	309	316	
7/24/98	11:12	88	264	310	317	
7/24/98	11:15	89	312	318	325	
7/24/98	11:20	12	311	312	319	
7/24/98	13:16	9	314	320	327	
7/24/98	13:20	13	308	310	317	
7/24/98	13:26	16	312	315	322	
Average			305.6	314.3	321.3	Temp. B adj. used in report

Day 2			Temperature, F			Day 2
Date	Time	Truck #	Temp. T	Temp. B	Temp. B adj.	Comments
7/25/98	7:25	T-5	319			
7/25/98	7:33	27	313	310	317	
7/25/98	7;36	T-3	332	325	332	
7/25/98	7:39	23	333	322	329	
7/25/98	9:32	21	285	282	289	
7/25/98	9:35	8	306	305	312	
7/25/98	9:37	9	314	313	320	
7/25/98	11:48	16	320	320	327	
7/25/98	11:56	18	307	310	317	
7/25/98	12:00	27	292	292	299	
Average			312.1	308.8	315.8	Temp. B adj. used in report

Day 3			Temperature, F			Day 3
Date	Time	Truck #	Temp. T	Temp. B	Temp. B adj.	Comments
7/27/98	8:04	T-1	270	269	276	
7/27/98	8:09	16	268	265	272	
7/27/98	8:11	CA1138	278	290	297	
7/27/98	9:41	27	285	270	277	
7/27/98	9:45	T-1	284	285	292	
7/27/98	9:55	2305-2	294	300	307	
7/27/98	12:45	CA20119	283	285	292	
7/27/98	12:47	O-8	301	302	309	
7/27/98	12:51	CA21784	300	292	299	
Average			284.8	284.2	291.2	Temp. B adj. used in report

Day 4			Temperature, F			Day 4
Date	Time	Truck #	Temp. T	Temp. B	Temp B adj.	Comments
7/28/98	7:00	na	212	204	8	Instruments Calibrated in boiling water
7/28/98	7:15	na	212	205	7	Instruments Calibrated in boiling water
7/28/98	7:30	na	212	205	7	Instruments Calibrated in boiling water
Average			212.0	204.7	7.3	

Notes:

1. Temp T was taken with a PES thermocouple (TC).
2. Temp B was taken with a CAAP dial thermometer (dial).
3. Both instruments were inserted into the hot asphalt in the bed of the truck just after load-out.
4. The dial was usually inserted first. In some cases the dial reads higher than the TC. In these cases the TC was probably pulled out before reaching temperature.
5. Both instruments were calibrated on 7/28/98 in boiling water. Temp B adj. Represents adjusted values for Temp B.

APPENDIX B.8

MASS CHANGE RESULTS FROM ASTM TESTS PERFORMED ON ASPHALT CEMENT SAMPLES

ASPHALT PLANT C - RESULTS FROM ADVANCED ASPHALT TECHNOLOGIES

Asphalt Binder Samples - ASTM Analysis Results for Asphalt Plant C in Los Angeles, CA
Two analyses were performed at three temperatures (300, 325,and 350 Degrees F)

1. ASTM D1754-94 - Effects of Heat and Air on Asphalt Materials (TFOT)
2. ASTM D2872-88 - Effects of Heat and Air on a Moving Film of Asphalt (RTFOT)

* RESULTS ARE % MASS CHANGE

				Oven Temp. 325 F		Oven Temp. 300 F		Oven Temp. 350 F	
Sample Date	Sample Time	Day Number	Sample ID	TFOT*	RTFOT*	TFOT*	RTFOT*	TFOT*	RTFOT*
9/17/97	nav	Pretest	A1	-0.030	-0.094	na	na	-0.097	-0.185
5/14/98	nav	Pretest	A2	-0.222	-0.417	na	na	-0.477	-0.684
6/5/98	nav	Pretest	A3	-0.178	-0.366	na	na	na	na
6/21/98	nav	Pretest	A4	-0.214	-0.398	na	na	na	na
7/14/98	nav	Pretest	A5	-0.216	-0.383	na	na	na	na

				Oven Temp. 325 F		Oven Temp. 300 F		Oven Temp. 350 F	
Sample Date	Sample Time	Day Number	Sample ID	TFOT	RTFOT	TFOT	RTFOT	TFOT	RTFOT
7/24/98	7:21 AM	Day 1	AC1B	-0.175	-0.347	na	na	na	na
7/24/98	11:05 AM	Day 1	AC1M	-0.178	-0.369	-0.100	-0.216	na	-0.686
7/24/98	12:54 PM	Day 1	AC1E	-0.196	-0.370	na	na	na	na
Average				-0.183	-0.362	-0.100	-0.216	na	-0.686

				Oven Temp. 325 F		Oven Temp. 300 F		Oven Temp. 350 F	
Sample Date	Sample Time	Day Number	Sample ID	TFOT	RTFOT	TFOT	RTFOT	TFOT	RTFOT
7/25/98	7:16 AM	Day 2	AC2B	-0.182	-0.313	na	na	na	na
7/25/98	9:18 AM	day 2	AC2M	-0.173	-0.311	0.090	-0.200	na	-0.611
7/25/98	11:18 AM	Day 2	AC2E	-0.186	-0.341	na	na	na	na
Average				-0.180	-0.322	-0.090	-0.200	na	-0.611

				Oven Temp. 325 F		Oven Temp. 300 F		Oven Temp. 350 F	
Sample Date	Sample Time	Day Number	Sample ID	TFOT	RTFOT	TFOT	RTFOT	TFOT	RTFOT
7/27/98	7:28 AM	Day 3	AC3B	-0.146	-0.301	na	na	na	na
7/27/98	9:29 AM	Day 3	AC3M	-0.166	-0.286	na	-0.142	na	-0.498
7/27/98	12:24 PM	Day 3	AC3E	-0.150	-0.264	na	na	na	na
Average				-0.154	-0.284	na	-0.142	na	-0.498

				Oven Temp. 325 F		Oven Temp. 300 F		Oven Temp. 350 F	
Sample Date	Sample Time	Day Number	Sample ID	TFOT	RTFOT	TFOT	RTFOT	TFOT	RTFOT
7/28/98	7:41 AM	Day 4	AC4B	-0.141	-0.361	na	na	na	na
7/28/98	9:17 AM	Day 4	AC5B	-0.157	-0.292	na	-0.171	na	-0.510
7/28/98	1:51 PM	Day 4	AC6B	-0.095	-0.322	na	na	na	na
7/28/98	7:43 PM	Day 4	AC6E	-0.237	-0.408	na	na	na	na
Average				-0.158	-0.346	na	-0.171	na	-0.510

	Oven Temp. 325 F		Oven Temp. 300 F		Oven Temp. 350 F	
	TFOT	RTFOT	TFOT	RTFOT	TFOT	RTFOT
Overall Average	-0.169	-0.328	-0.095	-0.182	-0.477	-0.576

nav = not available
na = not applicable, i.e., analysis was not performed

* MASS CHANGE, %

ADVANCED ASPHALT TECHNOLOGIES

LABORATORY AND TECHNICAL SERVICES

TEST REPORT

Test Report No.: 03840001.DOC
Report Date: 05/27/98

[X] Original [ ] Amended

Client: Pacific Environmental Services, Inc. 560 herndon Parkway, Suite 200 Herndon Virginia 20170-5240	**Project No.:** WO#384 **Description:** Mass Loss Study for Pacific Environmental
Report Distribution: Mr. Frank Phoenix	
Sample No.: AC496 & AC497	**Date Received:** 5/20/98
Sample Description: [redacted]" - AAT# AC496 [redacted], Sept. 17 1997" - AAT# AC497	

Technical Responsibility		Technical Contact	
Name	William Pennington	**Name:**	Kevin J. Knechtel
Title:	Binder Team Leader	**Title:**	Laboratory Manager
Signature:	William Pennington	**Signature:**	Kevin J. Knechtel
Date:	5/27/98	**Date:**	5/27/98

Comments: - This a true record of test results obtained by Advanced Asphalt Technologies, L.P. in accordance with the test methods and procedures stipulated by AASHTO/ASTM.

Test Results

Test	Method	Test Result: AC496 / AAA (5/14/98)	Test Result: AC497 / All American (9/17/97)
Mass Change, using the Thin Film Oven Test (TFOT) at 325°F	ASTM D 1754	-0.222	-0.030
Mass Change, using the Rolling Thin Film Oven Test (RTFOT) at 325°F	ASTM D 2872	-0.417	-0.094
Mass Change, using the Thin Film Oven Test (TFOT) at 350°F	*ASTM D 1754	-0.477	-0.097
Mass Change, using the Rolling Thin Film Oven Test (RTFOT) at 350°F	*ASTM D 2872	-0.684	-0.185
		A2	A1

RESULTS ARE % CHANGE MASS BASIS

*Note: Temperature of 350°F deviates from ASTM D1754 and ASTM D2872 standard test methods. An ASTM 13C thermometer was calibrated at 350°F, marked and used to conduct these non-standard tests. This was approved by Mr. Frank Phoenix.

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ADVANCED ASPHALT TECHNOLOGIES

LABORATORY AND TECHNICAL SERVICES

TEST REPORT

Test Report No.: 03840003.DOC

Report Date: 07/20/98

[X] **Original** [ ] **Amended**

Client: **Pacific Environmental Services, Inc.** **560 Herndon Parkway, Suite 200** **Herndon Virginia 20170-5240**	**Project No.:** WO#384 **Description:** Mass Loss Study for Pacific Environmental
Report Distribution: Mr. Frank Phoenix	
Sample No.: AC508, AC517, & AC564	**Date Received:** 6/12/98, 6/29/98, and 7/16/98
Sample Description: [redacted], 6/5/98" - AAT# AC508 [redacted], 6/21/98" -AAT# AC517 "[redacted], 7/14/98" -AAT# AC564	

Technical Responsibility		**Technical Contact**	
Name	William Pennington	**Name:**	Kevin J. Knechtel
Title:	Binder Team Leader	**Title:**	Laboratory Manager
Signature:	William Pennington	**Signature:**	Kevin J. Knechtel
Date:	7/20/98	**Date:**	7/20/98

Comments: - This a true record of test results obtained by Advanced Asphalt Technologies, L.P. in accordance with the test methods and procedures stipulated by AASHTO/ASTM.

Test Results

Test	Method	Test Result *		
		AC508 All-American Asphalt, Sampled-6/5/98	**AC517** All-American Asphalt, Sampled-6/21/98	**AC564** All-American Asphalt, Sampled-7/14/98
Mass Change, using the Thin Film Oven Test (TFOT) at 325°F	ASTM D 1754	-0.178	-0.214	-0.216
Mass Change, using the Rolling Thin Film Oven Test (RTFOT) at 325°F	ASTM D 2872	-0.366	-0.398	-0.383
		A3	A4	A5

* MASS CHANGE, %

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ADVANCED ASPHALT TECHNOLOGIES

LABORATORY AND TECHNICAL SERVICES

TEST REPORT

Test Report No.: 03840004.DOC
Report Date: 09/28/98

[ ] Original [X] Amended

Client: Pacific Environmental Services, Inc. 560 Herndon Parkway, Suite 200 Herndon Virginia 20170-5240	**Project No.:** WO#384 **Description:** Mass Loss Study for Pacific Environmental
Report Distribution: Mr. Frank Phoenix	
Sample No.: See Below	**Date Received:** 8/18/98
Sample Description: "See Below	
Technical Responsibility	**Technical Contact**
Name Tim Clark	**Name:** Kevin J. Knechtel
Title: Laboratory Technician	**Title:** Laboratory Manager
Signature:	**Signature:**
Date: 9/28/98	**Date:** 9/28/98
Comments: - This a true record of test results obtained by Advanced Asphalt Technologies, L.P. in accordance with the test methods and procedures stipulated by AASHTO/ASTM.	

Test Results

		Mass Change of Asphalt Samples, %					
		Rolling Thin FilmOven Test ASTM D 1754			*Thin Film Oven Test* ASTM D 2872		
PES Sample ID#	*AAT Sample ID#*	Temperature (F)			Temperature (F)		
		300	325	350	300	325	350
AC1B	*AC587*		-0.347			-0.176	
AC1M	*AC588*	-0.216	-0.369	-0.686	-0.100	-0.178	-0.397
AC1E	*AC589*		-0.370			-0.196	
AC2B	*AC590*		-0.313			-0.182	
AC2M	*AC591*	-0.200	-0.311	-0.611	-0.090	-0.173	-0.343
AC2E	*AC592*		-0.341			-0.186	
AC3B	*AC593*		-0.301			-0.146	
AC3M	*AC594*	-0.142	-0.286	-0.498	-0.075	-0.166	-0.331
AC3E	*AC595*		-0.264			-0.150	
AC4B	*AC596*		-0.351			-0.141	
AC5B	*AC597*	-0.171	-0.292	-0.510	-0.075	-0.157	-0.351
AC6B	*AC598*		-0.322			-0.095	
AC6E	*AC599*		-0.408			-0.237	

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TEST REPORT

Test Report No.: 03840004.DOC
Report Date: 09/28/98

[ ] **Original** [X] **Amended**

RAP Samples Test Results

PES Sample ID#	*AAT Sample ID#*	*Asphalt Content, %* ASTM D 2172	*Moisture Content, %*
RAB2B	*FS481.1*	4.67	1.90
RAB2E	*FS482.1*		2.25
RAB3B	*FS483.1*		2.61
RAB3M1	*FS484.1*		1.90
RAB3M2	*FS485.1*	5.13	2.52
RAB3M3	*FS486.1*		3.25
RAB3E	*FS487.1*		2.04
RAB4B	*FS488.1*		2.56
RAB5B	*FS489.1*	5.27	2.75
RAB6B	*FS490.1*		3.22
RAB6E	*FS491.1*		2.73

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APPENDIX B.9

VELOCITY OF AIR ACROSS TOP OF
TRANSPORT TRUCKS DURING LOAD-OUT

VELOCITY OF AIR ACROSS TOP OF TRANSPORT TRUCKS DURING LOAD-OUT

Air velocity measurements were taken above seven transport trucks inside the tunnel during load-out from Silo No. 2. Measurements were taken using a hot wire anemometer at five regularly spaced spaced intervals just above the back end of the truck bed. In each case, a second truck was waiting at the entrance of the tunnel. The results are summarized in Table T.1 below. Refer to Figure 1 for the exact locations of the measuring points and numbering scheme.

TABLE T.1
AIR VELOCITY OVER TRUCKS SUMMARY

Test Date	Point No.	Time of Reading	Truck No.	Velocity Reading fpm
7/24/98	1	1209	29	60
	2	1209	29	52
	3	1209	29	59
	4	1213	16	271
	5	1213	16	220
7/24/98	1	1219	TP	71
	2	1219	TP	21
	3	1216	88	140
	4	1216	88	135
	5	1216	88	170
7/25/98	1	1209	21	104
	2	1209	21	135
	3	1211	7	136
	4	1211	7	123
	5	1211	7	72
7/25/98	1	1220	15	43
	2	1220	15	41
	3	1215	8	64
	4	1215	8	55
	5	1215	8	71

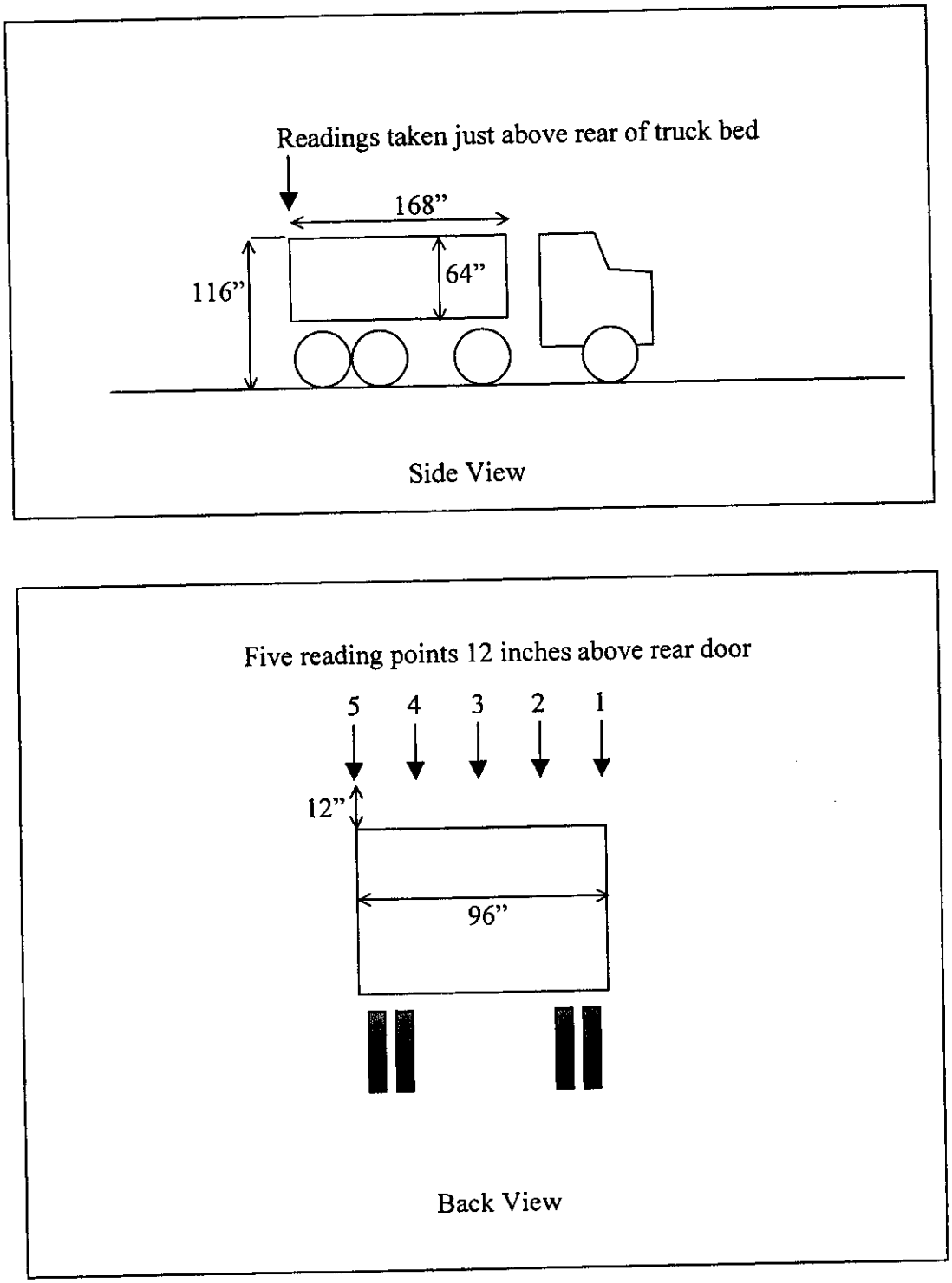

Figure 1 Velocity Measurement Locations and Dimensions for Transport Trucks

APPENDIX B.10

METALS ANALYSIS OF PROCESS SAMPLES

TRIANGLE LABS

SAMPLE DATA

Triangle Laboratories, Inc.
801 Capitola Drive
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Research Triangle Park, NC 27709
Fax # 919-544-5491

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TRIANGLE LABS

CASE NARRATIVE

Analysis of Samples for the Presence of Trace Metals

Methods

6010A	Rev.1 (7/92)
7470	Rev.0 (9/86)

Client:	Pacific Environmental Services
TLI Project Number:	46705A
Date:	September 23, 1998

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Rev. 25-Sep-96

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Overview

Seven samples were analyzed for arsenic (As), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), manganese (Mn), nickel (Ni), lead (Pb), antimony (Sb), selenium (Se), and mercury (Hg). For all analyses (except Hg), the samples and associated QC samples were prepared by hotplate digestion following the guidelines of EPA SW-846 Method 3050A. The samples and associated QC samples for the analysis of Hg were prepared following the guidelines of EPA SW-846 Method 7471 Rev.0 (9/86). The samples were analyzed following the guidelines of EPA SW-846 Methods 6010A Rev. 1 (7/92), 7471 Rev. 0 (9/86). Results reported relate only to the items tested.

QC Remarks

The release of this set of data by Triangle Laboratories, Inc. was authorized by the Quality Control Chemist who has reviewed each sample data package individually following a series of inspections/reviews. When applicable, general deviations from acceptable QC requirements are identified below and comments are made on the effects of these deviations upon the validity and reliability of the results. Specific QC issues associated with this particular project are:

Sample Receipt:

Three aggregate samples, four liquid AC and three asphalt cement samples were received at 25 ^{0}C on September 15, 1998 in good condition. These samples were received in a box instead of a cooler. Only seven samples were analyzed for this particular project.

Sample Preparation:

Laboratory documentation of the sample preparation is included in the data package.

Instrumentation:

Arsenic (As), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), manganese (Mn), nickel (Ni), lead (Pb), antimony (Sb), selenium (Se), concentrations were determined by Inductively Coupled Plasma Emission Spectroscopy (ICP).

The linear range for the instrument TJA 61E Trace Analyzer was based on four standards and a blank, which established a correlation coefficient value greater than or equal to 0.995. A calibration curve, based on a blank and one standard, is established for each analytical run, followed by a check high standard and an initial calibration verification (ICV). The check high standard does not deviate from the calibration curve by more than 5%. In addition, continuing calibration verifications (CCVs) are performed throughout the analytical run.

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A Reporting Detection Limit (RDL) is used instead of an Instrument Detection Limit (IDL). The spectrometer and atomic absorption instruments can achieve low detection limits between 0.2-8 ppb levels for many analytes. Triangle Labs is using RDL values of 1-10 times the IDL as detection limits for reporting purposes.

Data Review:

All analytes found in the method blank (MB) are detected at a level equal to or less than the respective Reporting Detection Limit (RDL) except Ni and Pb. The following guidelines may be used to assess analyte concentrations relative to the method blank: 1. Analyte quantitations should be considered valid if the level of blank contamination is less than five percent of the level detected in the field sample, 2. Analyte quantitations should be considered estimated if the analyte level in the sample is five to twenty times the level of the analyte in the blank, or 3. Analytes whose level in a sample is the same as or less than five times the level detected in the associated blank should be considered present likely due to laboratory contamination and not native to the sample.
The sample results are based on dry weight.

A sampling date was not supplied by the client and the sampling to analysis holding times cannot be determined. All samples were analyzed within 7 days of sample receipt at Triangle Laboratories.

The pre-digestion spike duplicate (MSD) for Mn, Ni, and Pb for the sample RAP2B/AC demonstrated percent recoveries outside the QC criteria which may indicate significant matrix effects specific to these analytes in the native sample matrix. Please note that the pre-digestion spike (MS) and the post-digestion spike (PDS) met QC criteria for Mn, Ni, and Pb for sample RAP2B/AC.

The duplicate analyses for Ni for the sample AC1B demonstrated a RPD outside the QC criteria of 20.0 percent, which indicates the presence of a significant amount of interferents specific to this analyte in the native sample matrix.

QC requirements:

The analytical duplicates for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the original and/or duplicate sample are not at least ten times the respective RDLs. The RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

For analytical duplicates which are valid qualifiers, the quality control RPD is ± 20.0 percent. If RPDs are outside this range, interferences are suspected.

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The serial dilution analyses for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the serial dilution sample are less than ten times the respective RDLs. The serial dilution RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

For serial dilution analyses which are valid qualifiers, the quality control RPD is ± 10.0 percent. If RPDs are outside this range, interferences are suspected.

The quality control range for percent recoveries of laboratory control spiked samples is 80-120.

The quality control range for percent recoveries of pre-digestion spiked samples analyzed by ICP is 80-120. If recoveries are outside this range, a matrix effect is suspected.

The quality control range for percent recoveries of post-digestion spiked samples analyzed by ICP is 75-125. If recoveries are outside this range, a matrix effect is suspected.

The quality control range for percent recoveries of spiked samples analyzed by CVAA is 75-125. If recoveries are outside this range, a matrix effect is suspected.

By our interpretation, the analytical data in this project are valid based on the guidelines of US EPA SW-846 Methods 6010A Rev.1(7/92) and 7471 (9/86). Any specific QC concerns or problems have been discussed in the QC REMARKS section with emphasis on their effect on the data. Should Pacific Environmental Services have any questions or comments regarding this data package, please feel free to contact Triangle Laboratories, Inc., at (919) 544-5729.

For Triangle Laboratories, Inc.,

Report Preparation

Brenda H. Bell
Report Preparation Chemist

Quality Control

Darnella Streeter-Edwards
Darnella S. Edwards
Report Preparation Chemist

The total number of pages in this data package is: 81.

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STANDARD CONCENTRATIONS for the TJA 61E TRACE ANALYZER

Analyte	Units	High Std	ICV/CCV	ICSAB	RDL	Wavelength
Ag	ppb	1000	500	500	2	3280
As	ppb	1000	500	500	5	1890
Al	ppb	1000	500	500000	50	3082
B	ppb	1000	500	500	7	2496
Ba	ppb	1000	500	500	2	4934
Be	ppb	1000	500	500	1	3130
Ca	ppb	1000	500	500000	90	3179
Cd	ppb	1000	500	500	1	2265
Ce	ppb	1000	500	500	10	4186
Co	ppb	1000	500	500	2	2286
Cr	ppb	1000	500	500	2	2677
Cu	ppb	1000	500	500	2	3247
Fe	ppb	1000	500	200000	40	2714
K	ppb	10000	5000	19000	220	7664
Li	ppb	1000	500	500	1	6706
Mg	ppb	1000	500	500000	30	2790
Mn	ppb	1000	500	500	2	2576
Mo	ppb	1000	500	500	2	2020
Na	ppb	10000	5000	5000	400	3302
Ni	ppb	1000	500	500	3	2316
P	ppb	1000	500	500	30	2149
Pb	ppb	1000	500	500	2	2203
Sb	ppb	1000	500	500	4	2068
Se	ppb	1000	500	500	3	1960
Sn	ppb	1000	500	500	13	1899
Sr	ppb	1000	500	650	3	4215
Ti	ppb	1000	500	500	8	3349
Tl	ppb	1000	500	500	5	1908
V	ppb	1000	500	500	2	2924
Zn	ppb	1000	500	500	12	2062

Note: Use this reference page to review the raw data from the TJA 61E Trace Analyzer.

This page includes the standard concentrations for the check high standard, initial calibration verification (ICV), continuing calibration verification (CCV), and the interference check solution (ICSAB). In addition the reporting detection limit (RDL) and wavelength are reported for each analyte.

Revision Date: 05-May-98

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ABBREVIATIONS

BH = Back Half
CCB = Continuing Calibration Blank
CCV = Continuing Calibration Verification
CHECK HS = Check High Standard
D = DUP = Analytical Duplicate (Prepared Duplicate)
DA = Duplicate Analysis
FH = Front Half
FV = Final Digestate Volume
ICB = Initial Calibration Blank
ICV = Initial Calibration Verification
ICSAB = Interference Check Solution (Solution AB)
I = Initial
F = Final
Solution AB contains common interferents in addition to the analyte of interest.
IDL = Instrument Detection Limit
L = Serial Dilution
LCS = Laboratory Control Spike Sample
MB = Method Blank
MPV = Mercury Preparation Volume
MS = Pre-digestion Spike
MSD = Pre-digestion Spike Duplicate
N/A = Not Applicable
N/Av = Not Available
N/V = Not Valid
PDS = Post-digestion Spike
%REC = Percent Recovery
RDL = Reporting Detection Limit
RPD = Relative Percent Difference
T = Analytical Triplicate (Prepared Triplicate; for Hg analysis by Method 7471 only)
TV = Total Sample Volume
< = Analyte concentration in the sample is less than the respective RDL

CALCULATIONS FOR SOLID SAMPLES

RESULTS FOR TRACE METALS (except mercury):

$$\text{RESULT in mg/Kg} = \frac{\mu g/L * ml\ FV * DF}{gram\ WT\ used * 1000}$$

ml FV = final volume in ml
DF = Dilution Factor

RESULTS FOR MERCURY (Hg):

$$\text{RESULT in mg/Kg} = \frac{\mu g/L * MPV * DF}{gram\ WT\ used}$$

MPV = Mercury Preparation Volume = 0.1 L or 0.008 L
DF = Dilution Factor

%REC (Percent Recovery) for MS/MSD and Hg spikes:

$$\%REC = \frac{\text{Spike sample results - original sample results}}{\text{true spike sample results}} * 100$$

%REC (Percent Recovery) for PDS:

$$\%REC = \frac{\text{Spike sample conc. } \mu g/L \text{ - original sample conc. } \mu g/L}{\text{spike conc. } \mu g/L} * 100$$

%REC (Percent Recovery) for LCS/LCSD:

$$\%REC = \frac{\text{Spike sample conc. } \mu g/L}{\text{spike conc. } \mu g/L} * 100$$

RPDs:

$$RPD = \frac{|\text{Result 2 - Result 1}|}{(\text{Result 2 + Result 1})/2} * 100$$

Rev. 10/10/95

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TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

American Association for Laboratory Accreditation. Accredidation pending. Certificate Number 0226-01. Accreditation for technical competence in Environmental Testing. (Including Waste Water, Sol/Haz Waste, Pulp/Paper, and Air Matrices) Parameters are AOX/TOX, and Dioxin/Furan. Method 1613 for Drinking Water **Currently re-applying.**.

State of Alabama, Department of Environmental Management. Expires December 31, 1998. Laboratory I.D. # 40950. Dioxin in drinking water.

State of Alaska, Department of Environmental Conservation. Expires December 21, 1998. Certificate number OS-006-98. Dioxin in drinking water.

State of Arizona, Department of Health Services. Expires May 26, 1998. Certificate #AZ0423. Drinking Water for Dioxin, Dioxin in WW and S/H Waste. Currently appying for renewal.

State of Arkansas, Department of Pollution Control and Ecology. Expires February 19, 1999. Pulp/paper, soil, water, and Hazardous Waste for Dioxin/Furan; AOX/TOX, Volatiles, Semi-volatiles, and Metals.

State of California, Department of Health Services. Expires August 31, 1999. Certificate #1922. Selected Metals in Waste Water; Volatiles, Semi-volatiles, and Dioxin/furan in WW and Sol/Haz Waste. Dioxin in drinking water.

State of Connecticut, Department of Health Services. Expires September 30, 1999. Registration # PH-0117. Dioxin in drinking water.

Delaware Health and Social Services. Expires December 31, 1998. Certificate #NC 140. Dioxin in drinking water.

Florida Department of Health and Rehabilitative Services. Expires June 30, 1998. Dioxin in SDW. Drinking Water ID HRS# 87424. Pending new certificate.

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Hawaii Department of Health. Expires March 1, 1999. Dioxin in drinking water. "Accepted" status for regulatory purposes.

Idaho Department of Health and Welfare. Expires December 31, 1998. Dioxin in drinking water.

State of Kansas, Department of Health and Environment. Expires January 31, 1999. Method 1613 for drinking water. ID #'s - Drinking water and/or pollution control - E-10215. Solid or Hazardous Waste - E-101209.

Commonwealth of Kentucky, Department for Environmental Protection. Expires December 31, 1998. ID#90060. Dioxin in drinking water.

Maryland Department of Health and Mental Hygiene. Expires September 30, 1998. Certification #235 Drinking water by Method 1613A. Currently applying for renewal.

State of Michigan, Department of Public Health. Expires June 30, 1999. Drinking water by Method 1613. Current certification is extended, based on New York certificate renewal.

Mississippi State Department of Health. No expiration date. Dioxin in drinking water.

Montana Department of Health and Environmental Services. Expires December 31, 1998. Dioxin in drinking water.

State of New Jersey, Department of Environmental Protection and Energy. Expires June 30, 1998. Extended until July 31, 1998 per letter dated May 29, 1998. ID #67851. BNAs and Volatiles. Dioxin in drinking water. Currently applying for renewal.

State of New Mexico, Environment Department. Still certified, awaiting information from A2LA Dioxin in drinking water.

New York State Department of Health. Received updated certificates. ID #11026. Environmental Analyses of potable water, non-potable Water, Solid and Hazardous Waste. Method 1613 in DW.

State of North Carolina, Department of Environment Health and Natural Resources Expires. August 31, 1998. Certificate # 37751. Dioxin in drinking water.

State of North Carolina, Department of Environment, Health, and Natural Resources, Division of Environmental Management. Expires December 31, 2000. Certificate # 485. Metals, pesticides & PCBs, semi-volatiles and volatiles; TCLP.

North Dakota State Department of Health and Consolidated Laboratories. Expires December 31, 1998. Certificate # R-076. Effective October 4, 1993. Dioxin in drinking water.

Oklahoma Department of Environmental Quality. Expires August 31, 1998. Laboratory #9612. Dioxin by 1613A, 8290 and 8280. Submitted renewal application 7/1.

State of South Carolina, Department of Health and Environmental Control. Expires June 30, 1998. Extended August 31, 1999. Certificate number #99040001 (drinking water). Expires August 31, 1999. Certificate number #99040002 (other parameters). Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste.

State of Tennessee. Department of Environment and Conservation. Expires February 5, 1999. ID #02992. Method 1613 Drinking water only.

U.S. Department of Agriculture Soil Permit. Expires September 30, 2001. Permit No. S-3790. Under the authority of the Federal Plant Pest Act, permission is granted to receive foreign soil samples for use in laboratory analysis.

U.S. Army Corps of Engineers. Expires October 19, 1999. Validated to perform analyses for the Fort Belvoir, VA (Contract Number DACA31-97-D-0029), Vint Hill Farms Station, Vint Hill, VA (Contract Number DACA31-95-D-0083), and Selma Pressure Treating Superfund Site, Selma, CA (Contract number DACW45-94-D-0054).

U.S. EPA Region V. Expires November 14, 1999. Dioxin in drinking water.

U.S. EPA Region VIII, for the State of Wyoming. Expires November 12, 1998. Dioxin in drinking water.

State of Utah, Department of Health. Expires May 30,2000. Certificate Number E-166. Certification for the following parameters: Semi-Volatiles and Volatiles under RCRA; Volatiles under Clean Water Act; Dioxin/furans by Method 8280; Drinking water for Dioxin by Method 1613; Metals including Mercury and Microwave Digestion.

Commonwealth of Virginia, Department of General Services, Division of Consolidated Laboratory Services. Expires June 30, 1999. ID # 00341. Dioxin in drinking water.

State of Washington, Department of Ecology. Expires September 11, 1998. Lab Accreditation Number C067. Scope of Accreditation applies to water analyses for

Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans, BNA Extr (Semivolatile) Organics and Purgeable (Volatile) Organics.
State of Washington, Department of Health. Expires April 30, 1999. Dioxin in drinking water. Lab I.D. 129.

State of West Virginia, Department of Health. Expires December 31, 1998. Certificate No. 9923(C). Dioxin in drinking water.

State of Wisconsin, Department of Natural Resources. Expires August 31, 1998. Laboratory ID Number 999869530. Certification for the following categories of Organics: Purgeable, Base/Neutral, Acid, PCBs, and Dioxin. Expires November 14, 1999. Laboratory ID 999869530. Dioxin in drinking water.

PHARMACEUTICAL

Drug Enforcement Agency (DEA). Expires November 30, 1998. Registration number RT01195835. Controlled substance registration for schedules 1,2,3,3N,4,5.

N.C. Department of Human Resources. Expires October 31, 1998. Registration number NC-PT 0000 0031. North Carolina controlled substances registration. Application submitted for renewal.

Food & Drug Administration (FDA) Registration. Expires June 1998. ID #'s 001500 1053481. Annual registration of drug establishment.

OTHER

Clinical Laboratory Improvement Amendments (CLIA) Registration. Expires May 30, 1999. ID # 34D0705123. Department of Health & Human Services, Health Care Financing Administration.

U.S. EPA Large Quantity Hazardous Waste Generator. No expiration date. EPA ID #NCD982156879. Permit indicates that the laboratory is a large generator of hazardous waste.

North Carolina General License for Radiation Protection. No expiration date. No License. 032-875-OG. The general license applies only to radioactive material contained in devices which have been manufactured and labeled in accordance with specific requirements.

DOCUMENT CONTROL

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	AC1B
TLI Sample ID:	218-12-1
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-0.823	N/A	0.609	100	1	< 0.821
Be	-0.021	N/A	0.609	100	1	< 0.164
Cd	-0.192	N/A	0.609	100	1	< 0.164
Co	4.867	N/A	0.609	100	1	0.799
Cr	0.204	N/A	0.609	100	1	< 0.328
Mn	1.375	N/A	0.609	100	1	< 0.328
Ni	210.290	N/A	0.609	100	1	34.5
Pb	6.186	N/A	0.609	100	1	1.02
Sb	1.250	N/A	0.609	100	1	< 0.657
Se	5.179	N/A	0.609	100	1	0.850

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	AC1B
TLI Sample ID:	218-12-1 D
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-2.709	N/A	0.647	100	1	< 0.773
Be	-0.118	N/A	0.647	100	1	< 0.155
Cd	-0.206	N/A	0.647	100	1	< 0.155
Co	0.633	N/A	0.647	100	1	< 0.309
Cr	-0.359	N/A	0.647	100	1	< 0.309
Mn	0.731	N/A	0.647	100	1	< 0.309
Ni	49.276	N/A	0.647	100	1	7.62
Pb	2.919	N/A	0.647	100	1	0.451
Sb	0.148	N/A	0.647	100	1	< 0.618
Se	0.983	N/A	0.647	100	1	< 0.464

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	AC2B
TLI Sample ID:	218-12-2
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-1.444	N/A	0.514	100	1	< 0.973
Be	-0.110	N/A	0.514	100	1	< 0.195
Cd	-0.220	N/A	0.514	100	1	< 0.195
Co	8.019	N/A	0.514	100	1	1.56
Cr	1.034	N/A	0.514	100	1	< 0.389
Mn	4.448	N/A	0.514	100	1	0.865
Ni	291.857	N/A	0.514	100	1	56.8
Pb	3.106	N/A	0.514	100	1	0.604
Sb	-2.120	N/A	0.514	100	1	< 0.778
Se	5.196	N/A	0.514	100	1	1.01

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	RAP2B/AC
TLI Sample ID:	218-12-3
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	1.245	N/A	0.576	100	1	< 0.868
Be	-0.167	N/A	0.576	100	1	< 0.174
Cd	0.238	N/A	0.576	100	1	< 0.174
Co	3.371	N/A	0.576	100	1	0.585
Cr	1.630	N/A	0.576	100	1	< 0.347
Mn	52.992	N/A	0.576	100	1	9.20
Ni	234.393	N/A	0.576	100	1	40.7
Pb	31.007	N/A	0.576	100	1	5.38
Sb	0.594	N/A	0.576	100	1	< 0.694
Se	3.746	N/A	0.576	100	1	0.650

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	RAP2B/AC
TLI Sample ID:	218-12-3 L
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	0.864	N/A	0.576	100	5	< 4.34
Be	-0.149	N/A	0.576	100	5	< 0.868
Cd	0.054	N/A	0.576	100	5	< 0.868
Co	1.198	N/A	0.576	100	5	< 1.74
Cr	0.387	N/A	0.576	100	5	< 1.74
Mn	10.772	N/A	0.576	100	5	9.35
Ni	47.382	N/A	0.576	100	5	41.1
Pb	6.109	N/A	0.576	100	5	5.30
Sb	0.165	N/A	0.576	100	5	< 3.47
Se	1.116	N/A	0.576	100	5	< 2.60

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	RAP2B/AC MS
TLI Sample ID:	218-12-3 MS
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	45.259	N/A	0.534	100	1	8.48
Be	45.643	N/A	0.534	100	1	8.55
Cd	45.860	N/A	0.534	100	1	8.59
Co	49.917	N/A	0.534	100	1	9.35
Cr	48.552	N/A	0.534	100	1	9.09
Mn	95.805	N/A	0.534	100	1	17.9
Ni	262.042	N/A	0.534	100	1	49.1
Pb	75.086	N/A	0.534	100	1	14.1
Sb	46.222	N/A	0.534	100	1	8.66
Se	47.150	N/A	0.534	100	1	8.83

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Client: **Pacific Environmental Services**
Project Number: **46705A**

Sample Report

Client Sample ID:	RAP2B/AC MSD
TLI Sample ID:	218-12-3 MSD
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	43.250	N/A	0.552	100	1	7.84
Be	46.674	N/A	0.552	100	1	8.46
Cd	46.595	N/A	0.552	100	1	8.44
Co	47.721	N/A	0.552	100	1	8.65
Cr	48.170	N/A	0.552	100	1	8.73
Mn	59.290	N/A	0.552	100	1	10.7
Ni	84.610	N/A	0.552	100	1	15.3
Pb	55.565	N/A	0.552	100	1	10.1
Sb	47.180	N/A	0.552	100	1	8.55
Se	43.921	N/A	0.552	100	1	7.96

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	AC3B
TLI Sample ID:	218-12-5
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-3.235	N/A	0.504	100	1	< 0.992
Be	-0.118	N/A	0.504	100	1	< 0.198
Cd	-0.288	N/A	0.504	100	1	< 0.198
Co	0.196	N/A	0.504	100	1	< 0.397
Cr	-0.602	N/A	0.504	100	1	< 0.397
Mn	1.017	N/A	0.504	100	1	< 0.397
Ni	26.323	N/A	0.504	100	1	5.22
Pb	2.282	N/A	0.504	100	1	0.453
Sb	1.523	N/A	0.504	100	1	< 0.794
Se	0.861	N/A	0.504	100	1	< 0.595

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	RAP3M2/AC
TLI Sample ID:	218-12-6
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-2.215	N/A	0.644	100	1	< 0.776
Be	-0.194	N/A	0.644	100	1	< 0.155
Cd	0.040	N/A	0.644	100	1	< 0.155
Co	0.072	N/A	0.644	100	1	< 0.311
Cr	-0.083	N/A	0.644	100	1	< 0.311
Mn	13.105	N/A	0.644	100	1	2.03
Ni	39.449	N/A	0.644	100	1	6.13
Pb	14.295	N/A	0.644	100	1	2.22
Sb	0.085	N/A	0.644	100	1	< 0.621
Se	-0.075	N/A	0.644	100	1	< 0.466

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	AC4B
TLI Sample ID:	218-12-8
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-2.262	N/A	0.528	100	1	< 0.947
Be	-0.209	N/A	0.528	100	1	< 0.189
Cd	-0.259	N/A	0.528	100	1	< 0.189
Co	0.208	N/A	0.528	100	1	< 0.379
Cr	-0.195	N/A	0.528	100	1	< 0.379
Mn	1.354	N/A	0.528	100	1	< 0.379
Ni	46.037	N/A	0.528	100	1	8.72
Pb	1.640	N/A	0.528	100	1	< 0.379
Sb	0.630	N/A	0.528	100	1	< 0.758
Se	0.907	N/A	0.528	100	1	< 0.568

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Client: Pacific Environmental Services
Project Number: 46705A

Sample Report

Client Sample ID:	RAP5B/AC
TLI Sample ID:	218-12-9
Date Received:	September 15, 1998
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	SOLID

Analyte	Conc. (ug/L)	grams Submitted	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	-3.079	N/A	0.532	100	1	< 0.940
Be	-0.209	N/A	0.532	100	1	< 0.188
Cd	-0.250	N/A	0.532	100	1	< 0.188
Co	-0.429	N/A	0.532	100	1	< 0.376
Cr	-0.315	N/A	0.532	100	1	< 0.376
Mn	8.609	N/A	0.532	100	1	1.62
Ni	13.783	N/A	0.532	100	1	2.59
Pb	5.878	N/A	0.532	100	1	1.10
Sb	1.454	N/A	0.532	100	1	< 0.752
Se	0.699	N/A	0.532	100	1	< 0.564

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Client: **Pacific Environmental Services**
Project Number: 46705A

QA: Serial Dilution

Client Sample ID:	RAP2B/AC	RAP2B/AC
TLI Sample ID:	218-12-3	218-12-3 L
Date Prepared:	September 21, 1998	September 21, 1998
Date Analyzed:	September 22, 1998	September 22, 1998
Matrix:	SOLID	SOLID

	Native Sample		Serial Dilution		
Analyte	mg/Kg Result	ug/L Conc.	mg/Kg Result	ug/L Conc.	RPD
As	< 0.868	1.245	< 4.34	0.864	<RDL
Be	< 0.174	-0.167	< 0.868	-0.149	<RDL
Cd	< 0.174	0.238	< 0.868	0.054	<RDL
Co	0.585	3.371	< 1.74	1.198	<RDL
Cr	< 0.347	1.630	< 1.74	0.387	<RDL
Mn	9.20	52.992	9.35	10.772	<RDL
Ni	40.7	234.393	41.1	47.382	0.978%
Pb	5.38	31.007	5.30	6.109	<RDL
Sb	< 0.694	0.594	< 3.47	0.165	<RDL
Se	0.650	3.746	< 2.60	1.116	<RDL

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Client: Pacific Environmental Services
Project Number: 46705A

QA: Duplicate

Client Sample ID:	AC1B	AC1B
TLI Sample ID:	218-12-1	218-12-1 D
Date Prepared:	September 21, 1998	September 21, 1998
Date Analyzed:	September 22, 1998	September 22, 1998
Matrix:	SOLID	SOLID

	Sample		Duplicate		
Analyte	mg/Kg Result	ug/L Conc.	mg/Kg Result	ug/L Conc.	RPD
As	< 0.821	-0.823	< 0.773	-2.709	<RDL
Be	< 0.164	-0.021	< 0.155	-0.118	<RDL
Cd	< 0.164	-0.192	< 0.155	-0.206	<RDL
Co	0.799	4.867	< 0.309	0.633	<RDL
Cr	< 0.328	0.204	< 0.309	-0.359	<RDL
Mn	< 0.328	1.375	< 0.309	0.731	<RDL
Ni	34.5	210.290	7.62	49.276	128%
Pb	1.02	6.186	0.451	2.919	<RDL
Sb	< 0.657	1.250	< 0.618	0.148	<RDL
Se	0.850	5.179	< 0.464	0.983	<RDL

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Client: Pacific Environmental Services
Project Number: 46705A

QA: Matrix Spikes (Pre-Digestion)

Client Sample ID:	RAP2B/AC MS	RAP2B/AC MSD
TLI Sample ID:	218-12-3 MS	218-12-3 MSD
Date Prepared:	September 21, 1998	September 21, 1998
Date Analyzed:	September 22, 1998	September 22, 1998
Matrix:	SOLID	SOLID

	Matrix Spike			Matrix Spike Duplicate			
Analyte	Result mg/Kg	True Spike mg/Kg	% Recovery	Result mg/Kg	True Spike mg/Kg	% Recovery	RPD
As	8.48	9.37	91%	7.84	9.06	87%	7.84%
Be	8.55	9.37	91%	8.46	9.06	93%	1.06%
Cd	8.59	9.37	92%	8.44	9.06	93%	1.76%
Co	9.35	9.37	94%	8.65	9.06	89%	7.78%
Cr	9.09	9.36	97%	8.73	9.06	96%	4.04%
Mn	17.9	9.34	93%	10.7	9.02	17%	50.3%
Ni	49.1	9.37	90%	15.3	9.04	-281%	105%
Pb	14.1	9.39	93%	10.1	9.09	52%	33.1%
Sb	8.66	9.37	92%	8.55	9.06	94%	1.28%
Se	8.83	9.36	87%	7.96	9.06	81%	10.4%

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Client: Pacific Environmental Services
Project Number: 46705A

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	RAP2B/AC PDS	
TLI Sample ID:	218-12-3 PDS	
Date Prepared:	September 21, 1998	
Date Analyzed:	September 22, 1998	
Matrix:	SOLID	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			RPD
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	
As	48.71	50	97%				---
Be	47.49	50	95%				---
Cd	47.88	50	96%				---
Co	52.03	50	97%				---
Cr	50.65	50	101%				---
Mn	102.04	50	98%				---
Ni	284.51	50	100%				---
Pb	78.84	50	96%				---
Sb	48.74	50	97%				---
Se	48.69	50	90%				---

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Client: **Pacific Environmental Services**
Project Number: **46705A**

QA: Method Blank

TLI Sample ID:	46705A MB
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	N/A

	Method Blank		
Analyte	Recovered Amount (ug/L)	Detection Limit (ug/L)	Pass or Fail
As	-2.84	5	Pass
Be	-0.18	1	Pass
Cd	-0.32	1	Pass
Co	-0.46	2	Pass
Cr	-0.33	2	Pass
Mn	0.55	2	Pass
Ni	-3.91	3	Fail
Pb	2.94	2	Fail
Sb	1.33	4	Pass
Se	0.22	3	Pass
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Triangle Laboratories, Inc.
801 Capitola Drive * Durham, NC 27713
Tele: (919) 544-5729 * Fax: (919) 544-5491

Printed: 23-Sep-98 at 04:00 PM

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Client: Pacific Environmental Services
Project Number: 46705A

QA: Lab Control Spikes

TLI Sample ID:	46705A LCS
Date Prepared:	September 21, 1998
Date Analyzed:	September 22, 1998
Matrix:	N/A

	Lab Control Spike			Lab Control Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	42.38	50	85%				---
Be	51.00	50	102%				---
Cd	47.41	50	95%				---
Co	48.21	50	96%				---
Cr	48.52	50	97%				---
Mn	48.62	50	97%				---
Ni	45.02	50	90%				---
Pb	49.59	50	99%				---
Sb	49.26	50	99%				---
Se	43.95	50	88%				---

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Printed: 23-Sep-98 at 04:00 PM

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lient: Pacific Environmental Services
:oject Number: 46705A

·ample Report

te Received:	September 15, 1998
te Prepared:	September 22, 1998
te Analyzed:	September 22, 1998
ATA FILE:	AB936
atrix:	SOLID

ANALYTE:	Hg
ug/L RDL:	0.2
Analysis Method:	7471
Instrument:	P E Zeeman 5100
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

ent Sample ID	TLI SAMPID	ug/L CONC	ml MPV	gram wt. USED	DIL FACTOR	mg/Kg RESULT	Avg. RESULT	RPD	%REC
:1B	218-12-1	-0.018	100	0.630	1	< 0.032	--	--	--
:1B D	218-12-1 D	0.010	100	0.630	1	< 0.032	< 0.032	--	--
:2B	218-12-2	-0.028	100	0.647	1	< 0.031	--	--	--
:2B D	218-12-2 D	-0.041	100	0.649	1	< 0.031	< 0.031	--	--
\P2B/AC	218-12-3	-0.034	100	0.680	1	< 0.029	--	--	--
\P2B/AC D	218-12-3 D	-0.028	100	0.674	1	< 0.030	< 0.030	--	--
:3B	218-12-5	-0.013	100	0.611	1	< 0.033	--	--	--
:3B D	218-12-5 D	-0.005	100	0.613	1	< 0.033	< 0.033	--	--
\P3M2/AC	218-12-6	-0.049	100	0.655	1	< 0.031	--	--	--
\P3M2/AC D	218-12-6 D	-0.044	100	0.653	1	< 0.031	< 0.031	--	--
:4B	218-12-8	-0.018	100	0.654	1	< 0.031	--	--	--
:4B D	218-12-8 D	-0.034	100	0.649	1	< 0.031	< 0.031	--	--
\P5B/AC	218-12-9	-0.039	100	0.654	1	< 0.031	--	--	--
\P5B/AC D	218-12-9 D	-0.052	100	0.649	1	< 0.031	< 0.031	--	--
\P2B/AC MS	218-12-3 MS	3.915	100	0.603	1	0.649	--	--	78%
\P2B/AC MSD	218-12-3 MSD	4.330	100	0.610	1	0.710	--	8.92%	87%
\P2B/AC MS	True Spike MS	5	100	0.603	1	0.829	--	--	--
\P2B/AC MSD	True Spike MSD	5	100	0.610	1	0.820	--	--	--
ethod Blank	46705A MB	0.041	--	--	--	--	--	--	--
ethod Blank D	46705A MBD	-0.003	--	--	--	--	--	--	--
:S	46705A LCS	4.384	--	--	--	--	--	--	88%
:SD	46705A LCSD	4.219	--	--	--	--	--	--	84%

iangle Laboratories, Inc.

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PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

COPY

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Sample Chain Of Custody Record

PLANT: US EPA HOT MIX ASPHALT PLANT C
RECOVERY PERSON: J. Swift

PROJECT NO.: S508.001
SAMPLERS: N/A

Sample ID	Sample Name	No. of Cont.	Analytical Request	Comments
AC1B	Liquid AC, Run 1 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
AC2B	Liquid AC, Run 2 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP2B/AC	Recycled Asph, Run 2 Begin (Asphalt Cement)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP2B/AGG	Recycled Asph, Run 2 Begin (Aggregate)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
AC3B	Liquid AC, Run 3 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP3M2/AC	Recycled Asph Run 3 Middle (Asphalt Cement)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP3M2/AGG	Recycled Asph Run 3 Middle (Aggregate)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
AC4B	Liquid AC, Run 4 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP5B/AC	Recycled Asph, Run 5 Begin (Asphalt Cement)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP5B/AGG	Recycled Asph, Run 5 Begin (Aggregate)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg

Relinquished by:	Date	Time	Received by:
MARSHALL CANNON			
Relinquished by:	**Date**	**Time**	**Received for Lab by:**
			[illegible] 9-15-98 5:[illegible]

Quote# 0711070083

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TRIANGLE LABORATORIES, INC. -- LOG IN RECORD/CHAIN OF CUSTODY

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

COPY

TLI Project Number 46705
Client: PES03 - Pacific Environmental Services

Book 218

Date Received 09/15/98 By [signature]

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Box NO COOLANT Temp 25.0 C

Carrier and Number MARSHALL CANNON

TLI Number.. mR/H:CPM.	....Client Sample ID..... .....Client COC ID.....*	.....Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
218-12-1	AC1B AC1B	LIQUID AC METALS LAB									
218-12-2	AC2B AC2B	LIQUID AC METALS LAB									
218-12-3	RAP2B/AC RAP2B/AC	ASPH. CEMENT METALS LAB									
218-12-4	RAP2B/AGG RAP2B/AGG	AGGREGATE METALS LAB									
218-12-5	AC3B AC3B	LIQUID AC METALS LAB									
218-12-6	RAP3M2/AC RAP3M2/AC	ASPH.CEMENT METALS LAB									
218-12-7	RAP3M2/AGG RAP3M2/AGG	AGGREGATE METALS LAB									
218-12-8	AC4B AC4B	LIQUID AC METALS LAB									
218-12-9	RAP5B/AC RAP5B/AC	ASPH. CEMENT METALS LAB									
218-12-10	~~AC5B~~ RAP5B/AGG RAP5B/AGG	AGGREGATE METALS LAB									

AC 9-16-98

Receiving Remarks: SAMPLES REC'D IN BOX - NO COOLANT

Archive Remarks:

Form Revised 05/27/1997 -- Page 1 OF 1

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TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

Client: Pacific Environmental Services (PES03)

t: 46705A

Sample Information

: 3050-A Extraction Date: 9/21/98

t/Acids(): HNO3/H2O2/HCL Lot: 118010 | 4171 20 TLI DSP / N O 141 resin 3 was used for digestion

TLI SAMPLE ID	CLIENT SAMPLE ID	Sample Wgt g / Vol ml	Final Volume ml						
TLI Blank	TLI Blank	N/A	100						
218-12-1	AC1B	0.609							
218-12-2	AC2B	0.514							
218-12-5	AC3B	.504							
218-12-8	AC4B	.528 .532							
218-12-3	RAP2B/AC	0.576							
218-12-6	RAP3M2/AC	0.644							
218-12-9	RAP5B/AC	.532							
LCS	LAB CONTROL SPIKE	N/A	100						
218-12-1 D	AC1B DUPLICATE	0.647							
218-12-3 MS	AC3B MATRIX SPIKE	0.534							
218-12-3 MSD	AC3B MATRIX SPIKE DUP.	0.552							

nts: See ASL-1 Spike Log p. 105
10 mls of 1:1 HNO3, 10 mls of conc. HNO3, 12 mls of DI H2O, 3 mls of 30% H2O2 and 5 mls of conc. HCL was used for digestion.

REV 07/26/93 (PSTMF 7)

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INORGANICS SPIKE LOG

DATE	PROJECT # SAMPLE IDs	ANALYTE	ORIGINAL STANDARD #	ORIGINAL STANDARD CONC. (PPM)	SPIKE SAMPLE (µL) / FINAL VOLUME (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
16-98	46705B-LCS	*	3-62-1	*	1000/100	*	LDJ	BLB 9/16/98
	218-12-10 MS						9-16-98	
	218-12-10 MS						LDJ	BLB 9/16/98
21-98	46682 LCS	*	3-62-1	*	1000/1000	*	CU	DSE
		P	3-65-2	1000	1000/100	100	CU 9-21-98	DSE 9/21/98
9/21/98	46705A LCS	*	3-62-1	*	1000/100	*	DSE	BLB
	218-12-3 MS							
	218-12-3 MSD						DSE 9/21/98	BLB 9/21/98

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* SEE SPIKE LOG

Project # 467054

EXP date	Element	Spiking Standard Preparation: Standard ID	Orig. Std. (ppm)	Spike(uL) Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard: Spike(uL) FVol(100ml)	conc (ppb)	combined total
6/1/99	Ag	3-54-7	100	5000	5	1000	50	
6/1/99	As	3-60-8	100	5000	5	1000	50	
6/1/99	Al	3-54-7	100	5000	5	1000	50	
6/1/99	Al	3-60-6	10000	950	95	1000	950	1000
6/1/99	B	3-54-7	100	5000	5	1000	50	
6/1/99	Ba	3-54-7	100	5000	5	1000	50	
6/1/99	Be	3-60-8	100	5000	5	1000	50	
6/1/99	Ca	3-60-8	100	5000	5	1000	50	
6/1/99	Ca	3-60-10	10000	950	95	1000	950	1000
6/1/99	Cd	3-60-8	100	5000	5	1000	50	
6/1/99	Co	3-60-8	100	5000	5	1000	50	
6/1/99	Cr	3-60-8	100	5000	5	1000	50	
6/1/99	Cu	3-60-8	100	5000	5	1000	50	
6/1/99	Fe	3-60-8	100	5000	5	1000	50	
6/1/99	Fe	3-60-9	10000	950	95	1000	950	1000
6/1/99	K	3-54-7	1000	5000	50	1000	500	
4/1/99	K	3-45-5	10000	1500	150	1000	1500	2000
6/1/99	Mg	3-60-8	100	5000	5	1000	50	
6/1/99	Mg	3-60-5	10000	950	95	1000	950	1000
6/1/99	Mn	3-60-8	100	5000	5	1000	50	
6/1/99	Mo	3-60-8	100	5000	5	1000	50	
6/1/99	Na	3-54-7	100	5000	5	1000	50	
6/1/99	Na	3-60-2	10000	1950	195	1000	1950	2000
6/1/99	Ni	3-60-8	100	5000	5	1000	50	
6/1/99	Pb	3-60-8	100	5000	5	1000	50	
6/1/99	Sb	3-60-8	100	5000	5	1000	50	
6/1/99	Se	3-60-8	100	5000	5	1000	50	
6/1/99	Tl	3-60-8	100	5000	5	1000	50	
6/1/99	Tl	3-60-8	100	5000	5	1000	50	
6/1/99	V	3-60-8	100	5000	5	1000	50	
6/1/99	Zn	3-60-8	100	5000	5	1000	50	
6/1/99	Zn	3-60-7	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100m	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	50	5000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 3-62-1

EXP: 10/28/98

Spiked by: D. Streeter-Edwards 9/21/98

Predigestion-

Postdigestion-

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TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 46705-A

Transfer From: IWL To: IA I

	Initials..	Date.....	Time...
Released by:	MGA	9/23/98	12:30
Accepted by:	MGA	9/23/98	12:35

MILES.ID.....		TLI_No.....	Cust.Id.....
46705-A	-000	TLI Blank	TLI Blank
46705-A	-001	218-12-1	AC1B
46705-A	-002	218-12-2	AC2B
46705-A	-003	218-12-5	AC3B
46705-A	-004	218-12-8	AC4B
46705-A	-005	218-12-3	RAP2B/AC
46705-A	-006	218-12-6	RAP3M2/AC
46705-A	-007	218-12-9	RAP5B/AC
46705-A	-008	LCS	LAB CONTROL SPIKE
46705-A	-009	218-12-1 D	AC1B DUPLICATE
46705-A	-010	218-12-3 MS	AC3B MATRIX SPIKE
46705-A	-011	218-12-3 MSD	AC3B MATRIX SPIKE DUP.

XfrCOC (Rev 11/01/94)

litional comments or instructions:

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* SEE SPIKE LOG

Project # 4605A

EXP date	Element	Spiking Standard Preparation: Standard ID	Orig. Std. (ppm)	Spike(uL) / Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard: Spike(uL) / FVol(100ml)	conc (ppb)	combined total
6/1/99	Ag	3-54-7	100	5000	5	1000	50	
8/1/99	Ag	3-60-8	100	5000	5	1000	50	
6/1/99	Al	3-54-7	100	5000	5	1000	50	
8/1/99	Al	3-60-8	10000	950	95	1000	950	1000
6/1/99	B	3-54-7	100	5000	5	1000	50	
6/1/99	Ba	3-54-7	100	5000	5	1000	50	
8/1/99	Be	3-60-8	100	5000	5	1000	50	
8/1/99	Ca	3-60-8	100	5000	5	1000	50	
8/1/99	Ca	3-60-10	10000	950	95	1000	950	1000
8/1/99	Cd	3-60-8	100	5000	5	1000	50	
8/1/99	Co	3-60-8	100	5000	5	1000	50	
8/1/99	Cr	3-60-8	100	5000	5	1000	50	
8/1/99	Cu	3-60-8	100	5000	5	1000	50	
8/1/99	Fe	3-60-8	100	5000	5	1000	50	
8/1/99	Fe	3-60-9	10000	950	95	1000	950	1000
8/1/99	K	3-54-7	1000	5000	50	1000	500	
4/1/99	K	3-45-5	10000	1500	150	1000	1500	2000
8/1/99	Mg	3-60-8	100	5000	5	1000	50	
8/1/99	Mg	3-60-5	10000	950	95	1000	950	1000
8/1/99	Mn	3-60-8	100	5000	5	1000	50	
8/1/99	Mo	3-60-8	100	5000	5	1000	50	
8/1/99	Na	3-54-7	100	5000	5	1000	50	
8/1/99	Na	3-60-9	10000	1950	195	1000	1950	2000
8/1/99	Ni	3-60-8	100	5000	5	1000	50	
8/1/99	Pb	3-60-8	100	5000	5	1000	50	
8/1/99	Sb	3-60-8	100	5000	5	1000	50	
8/1/99	Se	3-60-8	100	5000	5	1000	50	
8/1/99	Ti	3-60-8	100	5000	5	1000	50	
8/1/99	Tl	3-60-8	100	5000	5	1000	50	
8/1/99	V	3-60-8	100	5000	5	1000	50	
8/1/99	Zn	3-60-8	100	5000	5	1000	50	
8/1/99	Zn	3-60-7	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100m	conc (ppb)
Au	1000	140	1400
Ca	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	50	5000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 3-62-2

EXP: 10/28/98

Spiked by:

Predigestion-

Postdigestion- MKA 9/23/98

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Date	Project # & Sample IDs	Analyst	Std ID	Std conc ppm	spike vol / sample vol mL/mL	Spike conc ppb	Initials	Witness
8/2/98	46220A 213-23-21 PDS	+ SC	3-62-2 3-028-7	1 100	100/10 10/10	+ 100	MCH	MCH
8/5/98	46346B 214-50-1 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/5/98	46315 214-19-1 APDS	+	3-62-2	+	100/10	+	MCH	MCH
8/5/98	46257 213-60-2 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/6/98	46190 A 212-92-1 MCCPDS	+ P	3-62-2 3-028-7	+ 100	100/10 100/10	+ 1000	FWP	FWP
8/11/98	46319 215-3-1 MCCO PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/17/98	46427A 215-31-3 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/17/98	46427B 215-31-6 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/18/98	46419A 215-23-1 ABD PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/18/98	46363B 214-67-3 MCCPDS	+ P	3-62-2 3-028-7	+ 100	100/10 100/10	+ 1000	MCH	MCH
8/20/98	46394A 214-97-1 MCCOPDS	+	3-62-2	+	100/10	+	MCH	MCH
8/20/98	46459 215-93-1 MCCO PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/20/98	46348 214-52-12 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/20/98	46473 215-77-2 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/23/98	46432B 215-36-2 PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/24/98	46520 216-25-34 PDS	+ P	3-62-2 3-028-7	+ 100	100/10 100/10	+ 1000	DKH	MCH
8/26/98	46496 216-1 ABD PDS	+	3-62-2	+	100/10	+	MCH	MCH
8/27/98	46523 216-81-1 PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/2/98	46552B 216-27-1 ABCD PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/13/98	46574B 216-79-21,22,23 PDS 216-79-17,18 PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/13/98	46587A 216-92-23,24,15 PDS 216-92-25,26 PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/14/98	46629 217-35-1 MCCO PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/15/98	46507B 216-12-1,2,3,4 PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/20/98	46605B 218-12-10 PDS	+	3-62-2	+	100/10	+	MCH	MCH
9/21/98	46682 217-88-19,17,1,4 PDS	+ P	3-62-2 3-68-2B	+ 100	100/10 100/10	+ 1000	MCH	MCH
9/23/98	46705A 218-12-3 PDS	+	3-62-2	+	100/10	+	MCH	MCH

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Sample Name	File	Method	Date	Time	Dil0	Type	Mode
STD1-BLANK	92398	TRIANGLE	09/23/98	11:56		X	IR
STD3	92398	TRIANGLE	09/23/98	12:00		X	IR
STD2	92398	TRIANGLE	09/23/98	12:05	DXH	Q	CONC
CHECK LO	92398	TRIANGLE	09/23/98	12:10	DXH	Q	CONC
ICV/CCV	92398	TRIANGLE	09/23/98	12:14	DXH	Q	CONC
ICB/CCB	92398	TRIANGLE	09/23/98	12:22	DXH	Q	CONC
ICSAB	92398	TRIANGLE	09/23/98	12:27	DXH	Q	CONC
46705A MB	92398	TRIANGLE	09/23/98	12:30	DXH	S	CONC
46705A LCS	92398	TRIANGLE	09/23/98	12:35	DXH	S	CONC
218-12-1	92398	TRIANGLE	09/23/98	12:39	DXH	S	CONC
218-12-1 D	92398	TRIANGLE	09/23/98	12:44	DXH	S	CONC
218-12-2	92398	TRIANGLE	09/23/98	12:49	DXH	S	CONC
218-12-3	92398	TRIANGLE	09/23/98	12:53	DXH	S	CONC
218-12-3 MS	92398	TRIANGLE	09/23/98	12:58	DXH	S	CONC
218-12-3 MSD	92398	TRIANGLE	09/23/98	13:02	DXH	S	CONC
218-12-3 PDS	92398	TRIANGLE	09/23/98	13:07	DXH	S	CONC
218-12-3 L	92398	TRIANGLE	09/23/98	13:12	DXH	S	CONC
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	92398	TRIANGLE	09/23/98	13:48	DXH	S	CONC
[illegible]	92398	TRIANGLE	09/23/98	[illegible]	[illegible]	S	CONC
218-12-5	92398	TRIANGLE	09/23/98	[illegible]	[illegible]	S	CONC
218-12-6	92398	TRIANGLE	09/23/98	[illegible]	[illegible]	S	CONC
218-12-5	92398	TRIANGLE	09/23/98	[illegible]	[illegible]	S	CONC
218-12-7	92398	TRIANGLE	09/23/98	[illegible]	[illegible]	S	CONC
ICV/CCV	92398	TRIANGLE	09/23/98	14:23	DXH	Q	CONC
ICB/CCB	92398	TRIANGLE	09/23/98	14:30	DXH	Q	CONC
ICSAB	92398	TRIANGLE	09/23/98	14:34	DXH	Q	CONC

Pb > RDL. Please consider elevated RDL for this element. DXH 9/23/98

Cup empty. DXH 9/23/98

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TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

:t: 46705A

Client: Pacific Environmental Services (PES03)

Sample Information

l: 7470

Extraction Date: 9/22/98

t/Acids(): HNO3/HCL

Lot: 118010 13417120

Hg

TLI SAMPLE ID / CLIENT SAMPLE ID	Sample Wgt g / Vol ml	Final Volume ml	Duplicate weight (g)	Triplicate weight (g)	Total weight (g)
TLI Blank					
MBD TLI Blank	N/A	100/100			
218-12-1 AC1B	.210 .63		.210	.210	.630
218-12-2 AC2B	.215 .215		.216 .217	.216 .217	.647 .649
218-12-5 AC3B	.204 .204		.204 .205	.203 .204	.611 .613
218-12-8 AC4B	.218 .216		.218 .217	.218 .216	.654 .649
218-12-3 RAP2B/AC	.227 .225		.228 .225	.225 .224	.680 .674
218-12-6 218-12-6D RAP3M2/AC	.218 .218		.219 .217	.218 .218	.655 .653
218-12-9 RAP5B/AC	.218 .216		.218 .216	.218 .217	.654 .649
LCS LSD LAB CONTROL SPIKE	N/A	100/100			
218-12-1 D AC1B DUPLICATE	.210		.210	.210	.630
218-12-3 MS AC3B MATRIX SPIKE	.201		.201	.201	.603
218-12-3 MSD AC3B MATRIX SPIKE DUP.	.204		.203	.203	.610

ts: See HGSL-1, Spike log p. 92

A 3:1 mixture of HCL/HNO3 was used for digestion

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REV 07/26/93 (PSTMF 7)

MERCURY SPIKE LOG

Hg

	PROJECT # SAMPLE IDs	ORIGINAL SPIKE CONC. (Hg)	STANDARD # WORKING STANDARD PREPARED FROM	SPIKE AMOUNT (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
18	46705B LCS LCSD	0.1ppm	3-20-7	5	5	DSE	BJB
4P	218-12-4 MS 218-12-4 MSD						
	46705A LCS LCSD						
	218-12-3 MS 218-12-3 MSD					DSE 9/20/96	BJB 9/20/96
8	46682 LCS LCSD	0.1ppm	3-20-7	5	5	CR	DSE
	217-88-~~4~~ 17, 4 MS 217-88-4 MSD						
	217-88-3 MS 217-88-3 MSD					CR 9/20/96	DSE 9/20/96

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Sampler Report Table: HA602 Wed 09-23-98 [illegible] Page 1

le Name: HA602 Autosampler Type: TYPE TSA
ble Positions: 170/192 QC Positions: 13/19 # Sets: 1
se Station location is rack -1, pos. -1.

Racks ---

#	Type	Usage	#Pos Left	Analyses/Pos
	Aux. (L) Rack	STD/QC/BLANK	10	10
	Sample (10mm)	Samples	34	1
	Sample (15mm)	Samples	48	1
	Sample (10mm)	Samples	48	1
	Sample (15mm)	Samples	48	1

Sample Sets ---

#	Type	Prepare?	Description	Method	#Pos	Rack#	StartPos
	Normal	No	4670SA	TRIANGLE	14	1	1

Preparation Info ---

#	Uptake	Uptake#2	Final	Dil.Factor

Samples Prepared.

[illegible]

Row	Col	Sample Name	Set #	#Used	Type
1	1	STD3	-NA-	1	Standard 1-82-5P
1	2	STD1-BLANK	-NA-	1	Standard
1	3	[illegible]	-NA-	1	QC Standard 1-82-7P
1	4	[illegible]	-NA-	1	QC Standard
1	5	[illegible]	-NA-	1	QC Standard 1-82-6P
1	6	[illegible]	-NA-	1	QC Standard

[illegible]

[illegible]

Row	Col	Sample Name	Set #	#Used	Type
1	1	4670SA MS	1	-NA-	Sample
1	2	4670SA LCS	1	-NA-	Sample
1	3	218-12-1	1	-NA-	Sample
1	4	218-12-1 D	1	-NA-	Sample
1	5	218-12-2	1	-NA-	Sample
1	6	218-12-3	1	-NA-	Sample
1	7	218-12-3 MS	1	-NA-	Sample
1	8	218-12-3 MSD	1	-NA-	Sample
1	9	218-12-3 PDS	1	-NA-	Sample
1	10	218-12-3 L	1	-NA-	Sample
1	11	218-12-5	1	-NA-	Sample
1	12	218-12-6	1	-NA-	Sample
2	1	218-12-8	1	-NA-	Sample
2	2	218-12-9	1	-NA-	Sample

[illegible]

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mkt 9/23/98

```
hod: TRIANGL2   Sample Name: STD1-BLANK              Operator:
 Time: 09/23/98 11:56            Filename: 92398
e: IR           Type: X          Corr. Factor:        1.00000
 ID..           Cust. Smbl. ID.:            Cust. ID.:


ms     Ag3280   Al3082   As1890   B_2496   Ba4934   Be3130
ts     count    count    count    count    count    count
e       .00005   .00874   -.00077  .01069   .00004   .00042
v      .00005   .0001    .00013   .00091   0        0
D      102.993  1.22772  17.388   8.37748  5.39332  .60315

ms     Ca3179   Cd2265   Ce4186   Co2286   Cr2677   Cu3247
ts     count    count    count    count    count    count
e       0       -.00035  -.00006  -.00016  -.00002  .00235
v      .00001   .00013   .00014   .00001   0        .0000.
D      791.033  38.8944  317.04   8.16653  20.9449  .79396

ms     Fe2714   K_7664   Li6707   Mg2790   Mn2576   Mo2020
ts     count    count    count    count    count    count
e       .00006   3.86373  .04793   .00015   .0001    .00009
v      .00002   .03512   .00033   .00001   0        .00002
D      40.7757  1.22648  1.12266  11.1395  3.35249  23.9494

ms     Na3302   Ni2316   P_2149   Pb2061   Pb2063   Sb2068
ts     count    count    count    count    count    count
e       .00439   -.00132  -.00141  .0013    -.00008  .00046
v      .00093   .00013   .00007   .0003    .00012   .00013
D      21.2121  10.0134  6.51463  20.0963  149.711  29.7691

ms     1960-1   1960-2   Sn1899   Sr4215   Ti3349   Tl1908
ts     count    count    count    count    count    count
e       -.01148  .00437   -.00098  .00014   .00018   -.00092
v      .00036   .00025   .0001    .00001   .00007   .00005
D      3.17272  5.82449  10.3031  3.47731  34.0109  5.92965

ms     V_2924   Zn2062   Zr1581
ts     count    count    count
e       -.00063  .00004   .00034
v      0        .00003   .00174
D      1.16133  75.4837  6.10137
```

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Mod: TRIANGLE Sample Name: STD Operator:
Time: 09/23/98 12:00 Filename: 92398
#: 18 Type: X Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.:

ms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
cs	count	count	count	count	count	count
a	.39409	.02017	.11883	.12576	.15761	.13363
v	.00117	.00028	.00039	.0002	.00145	.00198
D	.2992	1.41027	.33333	.16408	.91243	.3437

ms	Ca3179	Cd2265	Co4186	Cr2298	Cr2677	Cu3247
cs	count	count	count	count	count	count
a	.01766	.72477	.03204	.13843	.12932	.16661
v	.00023	.00914	.00013	.00081	.00117	.00236
D	1.44833	.98888	.16476	.7532	.91135	1.41431

ms	Fe2714	K_766+	Li6707	Mg1790	Mn2576	Mo2020
cs	count	count	count	count	count	count
a	.00034	16.4512	10.7166	.01937	.12219	.1234
v	.00007	.01122	.45183	.0006	.0008	.00032
D	1.19233	1.14971	4.21613	.92337	.85234	.36231

ms	Na3302	Ni2316	P_2149	Pb2203	Pb2833	Sb2068
cs	count	count	count	count	count	count
a	.16619	.04109	.03331	.10147	.10337	.13672
v	.01109	.00131	.00027	.00078	.00083	.00072
D	3.73603	.33083	.69331	.38269	.81641	.38412

ms	Se2060	Se2062	Sn1899	Sr4215	Ti3349	Tl1908
cs	count	count	count	count	count	count
a	.48751	.04712	.16746	.75406	.78342	.16792
v	.00211	.0052	.0014	.00227	.00023	.00073
D	.4274	1.52703	.74738	.70316	.92691	1.03321

ms	V_2924	Zn2062	Zr1391	Y32242	Sc1760
cs	count	count	count		
a	.1344	[illegible]	[illegible]		
v	.00013	.00266	[illegible]		
D	.37933	1.37671	.22374		

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hod: TRIANGL2 Sample Name: STD3 Operator: DKH
Time: 09/23/98 12:05 Filename: 92398
e: CONC Type: Q Corr. Factor: 1.00000
ID.. Cust. Smpl. ID.: Cust. ID.. 46705A

ms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	990.7	971.0	990.5	985.9	985.5	997.3
v	4.695	9.222	6.411	3.612	2.969	4.944
D	.4739	.9498	.6473	.3664	.3013	.4957

ms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	1006.	1001.	995.0	1000.	1000.	980.3
v	5.127	5.348	2.706	5.362	5.382	3.697
D	.5094	.5342	.272	.5362	.5381	.3771

ms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	1014.	9.822	970.6	997.3	996.1	998.3
v	18.4	.0194	1.992	6.929	4.847	6.174
D	.1812	.1976	.2032	.6947	.4860	.6184

ms	Na3302	Ni2316	P_2149	2203-1	2203-2	Cu2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	9.556	998.6	995.1	998.3	997.9	992.5
v	.0416	5.955	5.661	7.578	7.377	5.762
D	.4358	.5960	.5689	.7594	.7392	.5805

ms	1960-1	1960-2	Sn1899	Sr4215	Ti3349	Tl1908
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	997.5	979.7	999.8	982.8	991.5	1005.
v	9.714	5.057	4.242	2.922	3.847	9.864
D	.9738	.5161	.4243	.2973	.388	.9812

ms	V_2924	Zn2062	Si2881	Pb2203	Se1960
ts	ppb	ppb	ppb	ppb	ppb
e	996.0	1011.	9891.	997.9	983.7
v	4.295	3.398	56.23	7.444	6.562
D	.4312	.5831	.569	.7459	.6658

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Od: TRIANGLE Sample Name: TCV/CCV Operator: DKR
Time: 09/23/98 12:14 Filename: 92398
: CONC Type: G Corr. Factor: 1.00000
ID.: Obsc. Smpl. ID.: Obsc. ID.: 467038

S	400260	410062	481690	3_2496	684904	685130
S	000	000	000	000	000	000
	492.0	462.6	497.1	466.0	495.3	500.0
	.4383	1.393	.6252	1.397	.0660	.3522
	.0891	.0015	.1258	.0426	.0158	.0704

S	680177	682265	684186	682236	672677	683247
S	000	000	000	000	000	000
	508.1	506.3	495.6	505.4	500.4	489.6
	.3279	.4967	1.383	.3567	.3853	.2982
	.1045	.0981	.2795	.1101	.1159	.0607

S	F627.4	A_7664	616707	602750	6n2376	602120
S	000	00m	000	000	000	000
	509.4	4.385	464.4	476.7	500.4	500.1
	4.097	.0138	1.687	.9037	.2874	.7146
	.3042	.0229	.3567	.1[illegible]	.0873	.1418

S	4a3502	410216	3_2149	2260-1	2253-1	682668
S	00m	000	000	000	000	000
	4.704	500.3	474.0	500.4	500.3	499.0
	.0066	.4501	7.111	1.178	4.038	1.744
	.6161	.0859	1.44	.0832	.8034	.3499

S	1960-1	1960-2	F62200	681966	6n1399	614015
S	000	000	000	000	000	000
	502.3	496.1	502.9	495.3	506.2	495.1
	1.912	2.112	2.777	1.710	1.225	.1463
	.1302	.4466	.3326	.3547	.242	.0234

S	7.1347	71.943	7_2314	7.2261	3.1123.
S	00	000	000	000	000
	493.7	504.6	499.3	512.1	3036.
	.1139	3.159	.2712	.4001	3.371
	.3205	.6261	.0940	.0751	.1106

152

od: TRIANGLE Sample Name: 108.000 Operator: DKH
Time: 09/23/98 12:22 Filename: 92398
: CCMC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705A

S	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
S	ppb	ppb	ppb	ppb	ppb	ppb
	.0878	-37.61	1.250	-38.05	.1637	-.0115
	.221	1.312	1.147	.1789	.0837	.0341
	251.6	3.488	93.3	.4701	51.72	197
S	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
S	ppb	ppb	ppb	ppb	ppb	ppb
	1.634	.1367	1.250	.3644	.1451	-.5141
	.7273	.1001	1.025	.3367	.366	.2292
	44.31	42.27	95.37	78.14	249.2	46.31
S	Fe2714	K_7664	La4797	Mg2790	Mn2576	Mo2020
S	ppb	ppm	ppb	ppb	ppb	ppb
	2.172	.2363	.6776	.3717	.2410	.3368
	6.390	.0677	.0163	1.217	.004	.0[illegible]
	294.2	1.637	1.367	528.3	14.[illegible]	[illegible]
S	Na3302	Ni2316	P_2149	Pb2203	Pd3404	Pt2659
S	ppm	ppb	ppb	ppb	ppb	ppb
	-.0082	.5170	1.610	-1.637	1.723	1.347
	.0029	.5243	3.342	1.366	1.214	1.31
	384.1	101.4	217.3	1.4	70.46	171.7
S	Rh3692	Ru2408	Sb2206	Se1960	Sn1899	Sr4215
S	ppb	ppb	ppb	ppb	ppb	ppb
	-1.339	.3397	.3041	-.3716	-.1184	.1441
	.6122	.4453	.4662	.3648	.7366	.3124
	61.07	60.9	77.1[illegible]	747.3	633.6	3.638
S	Ti3349	Tl1908	V_2924	Zn2062	Zr3393	
	ppb	ppb	ppb	ppb	ppb	
	.1362	-.[illegible]	[illegible]	[illegible]	-8.74	
	.4115	.6360	.2076	.3331	.4313	
	70.99	13.37	32.37	70.76	3.736	

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Method: TRACE012 Sample Name: 100A6 Operator: DKH
Date/Time: 09/23/98 12:27 Filename: 92396
Dilution: 0000 Type: 4 Corr. Factor: 1.00000
Sample ID: Cust. Smpl. ID: Cust. ID: 467054

Element	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Intensity	308.0	334000.	517.9	308.9	523.2	487.7
Average	.3719	1115	2.72	.6802	.6609	.2754
Sigma	.0671	.2089	.5252	.1337	.1263	.0565

Element	Ca3179	Cd2265	Co4160	Cr2677	Cu3247	
Units	ppb	ppb	ppb	ppb	ppb	
Intensity	459000.	482.0	304.3	486.4	487.7	546.0
Average	366.1	1.389	1.213	.7031	.2509	1.217
Sigma	.0801	.1363	.1403	.145	.0314	.1414

Element	Fe2714	K_7664	Li6707	Mg2798	Mn2576	Mo3170
Units	ppb	ppm	ppb	ppb	ppb	ppb
Intensity	33300.	15.00	521.1	538300.	471.3	499.1
Average	4.13	.3481	1.379	311.7	.2104	1.193
Sigma	.1331	.1082	.1317	.1514	.0446	.4402

Element	Na3302	Ni2316	P_2149	Pb2203	Pb2833	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Intensity	5.000	461.0	4608.1	307.3	497.0	315.4
Average	.3667	1.443	1.332	1.141	3.014	1.604
Sigma	.1491	.2126	.3224	.3007	.6037	.3046

Element	Se1960	Se2063	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Intensity	301.0	301.9	300.3	341.3	317.1	313.4
Average	0.334	1.333	1.306	.3134	1.360	.603
Sigma	.1471	.0643	.3403	.1311	.4737	.1131

Element	Ti3349	Tl1908	V_2924	Zn2138	Zr3391
Units	ppb	ppb	ppb	ppb	ppb
Intensity	[illegible]	313.3	491.3	493.3	3471.
Average	[illegible]	1.177	[illegible]	.3194	1.112
Sigma	[illegible]	[illegible]	[illegible]	[illegible]	.2324

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od. TRIANGL2 Sample Name. 46705A M8 Operator: DKH
Time: 09/23/98 12.50 Filename: 92398
: CONC Type: S Corr. Factor: 1.00000
ID.. Cust. Smpl. ID.: Cust. ID.: 46705A

s	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
s	ppb	ppb	ppb	ppb	ppb	ppb
	L-2.844	L-.1801	L-.3175	L-.4582	L-.3300	L.5528
	1.111	.0235	.1594	.2076	.4132	.0306
	39.06	13.03	50.21	45.3	125.2	5.543

s	Ni2316	Pb2203	Sb2068	Se1960
s	ppb	ppb	ppb	ppb
	L-3.906	2.938	L1.333	L.2248
	.5374	.7391	1.47	.3109
	13.76	25.15	110.3	138.3

155

od: TRIANGLE Sample Name: 46703A LCS Operator: DKH
Time: 09/23/98 12:55 Filename: 92358
: CDHC Type: S Corr. Factor: 1.00000
ID.. Cust. Smpl. ID.: Cust. ID.. 46703A

S	As1890	Be5130	Cd2265	Co2286	Cr2677	Mn2576
S	000	000	000	000	000	000
	42.38	47.30	47.41	48.21	48.31	48.02
	.3171	.1141	.261	.3236	.5467	.3947
	.7483	.2412	.3503	1.096	1.127	.1940

S	Ni2316	Pb2203	Sb2068	Se1960
S	000	000	000	000
	43.42	47.33	49.12	45.93
	.4504	1.469	1.367	.8344
	1	2.502	4.304	1.379

156

hod: TRIANGL2 Sample Name: 218-12-1 Operator: DWH
Time: 09/23/98 12:59 Filename: 92398
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705A

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	L-.8233	L-.0206	L-.1918	4.867	L.2037	L1.073
v	.742	.031	.1847	.169	.0739	.0678
D	90.13	150.3	96.28	3.473	184.3	4.929

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
e	210.3	5.133	L1.250	[illegible]
v	.4131	.3174	1.400	.0391
D	.1974	5.373	1.2.3	6.736

157

Mod. TRIANGLE Sample Name. 218-12-1 D Operator: DKH
Time: 09/23/98 13:04 Filename: 92398
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705A

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	L-2.709	L-.1179	L-.2057	L.6326	L-.3592	L.7306
v	.9091	.0198	.094	.1763	.1381	.0477
D	33.55	16.75	45.7	27.87	38.45	6.524

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
e	49.23	2.919	L.1482	L.9831
v	.9468	.9703	.2513	.4089
D	1.921	33.24	169.8	41.39

158

od: TRIANGLE Sample Name: 218-12-1 Operator: OKH
Time: 09/23/98 13:09 Filename: 92398
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.. Cust. ID.: 46705A

s	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
s	ppb	ppb	ppb	ppb	ppb	ppb
	L-1.444	L-.1103	L-.2198	8.019	L1.034	4.448
	1.174	.0282	.0945	.1934	.18	.0552
	81.3	25.33	43	2.412	17.42	1.242

s	Ni2316	Pb2203	Sb2068	Se1960
s	ppb	ppb	ppb	ppb
	291.9	3.106	L-2.120	5.196
	1.871	1.673	.9146	1.032
	.6411	53.88	43.13	19.86

159

od: TRIANGLE Sample Name: 218-12-3 Operator: DNH
Time: 09/25/98 13:13 Filename: 92398
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 4o705A

S	As1890	Ba3130	Cd2265	Co2286	Cr2677	Mn2576
S	000	000	000	000	000	000
	11.245	-.1666	1.2079	3.071	11.630	32.99
	.3300	.0188	.226	.1717	.1214	.0146
	28.64	11.27	94.99	3.095	7.449	.0273

S	Ni2316	Pb2203	Sb2068	Se1960
S	000	000	000	000
	134.4	31.01	1.3930	3.746
	.7982	.2334	.653	.8803
	.4239	.3238	143.7	23.38

160

od: TRIANGLE Sample Name. 218-12-3 MS Operator: DKH
Time: 09/23/98 13:13 Filename: 92398
: 00HC Type: S Corr. Factor: 1.00000
ID.. Cust. Smpl. ID.: Cust. ID.: 46705A

S	As1890	Ba3130	Cd2265	Co2286	Cr2677	Mn2576
S	ppb	ppb	ppb	ppb	ppb	ppb
	45.26	45.04	45.86	49.92	48.35	95.81
	1.494	.0429	.1582	.4254	.2213	.1379
	3.302	.094	.3449	.8522	.4557	.1439

S	Ni2316	Pb2203	Sb2068	Se1960
S	ppb	ppb	ppb	ppb
	262.0	75.99	46.22	47.13
	1.219	1.223	1.455	.9573
	.4658	1.636	3.149	2.03

161

od: TRIANGLE Sample Name: 218-12-2 MSC Operator: DKH
Time: 09/23/98 13:23 Filename. 92395
: COHC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.. 46703A

ns	As1890	Ba3130	Cd2265	Co2286	Cr2677	Mn2576
ns	ppb	ppb	ppb	ppb	ppb	ppb
e	43.25	46.67	46.59	47.72	48.17	59.29
/	1.986	.2213	.2639	.2174	.1577	.3516
)	2.31	.4741	.5663	.4556	.2859	.593

ns	Ni2316	Pb2203	Sb2068	Se1960
ns	ppb	ppb	ppb	ppb
e	54.61	55.56	47.18	43.92
/	.9809	.8724	1.412	.7337
)	1.160	1.606	2.392	1.67

162

od: TRIANGLE Sample Name: 218-12-3 PDS Operator: DKH
Time: 09/20/96 10:27 Filename: 92396
: CONC Type: S Corr. Factor: 1.00000
ID.. Cust. Smpl. ID.: Cust. ID.. 4o70SH

15	As1890	Se3130	Cd2265	Co2286	Cr2677	Mn257o
5	ppb	ppb	ppb	ppb	ppb	ppb
	48.71	47.49	47.88	52.03	50.65	102.0
	.1753	.0486	.1306	.0645	.2102	.1234
	.3398	.1028	.2728	.1624	.413	.1209

5	Ni231o	Pb2203	Sb2068	Se1960
.5	ppb	ppb	ppb	ppb
	284.5	78.84	48.74	48.o5
	.o289	.5995	1.792	.8009
	.221	.7604	3.o7o	1.o51

163

nod: TRIANGLE Sample Name: 218-12-3 L Operator: DKH
Time: 09/23/98 13.32 Filename: 92398
e: CONC Type: S Corr. Factor. 1.00000
ID.. Cust. Smpl. ID.. Cust. ID.. 46705A

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	L.8638	L-.1490	L.0342	L1.198	L.3871	10.77
v	.3502	.0127	.18	.1048	.1547	.0276
D	44.39	8.657	331.9	8.747	42.49	.2556

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
e	47.38	6.109	L.1646	L1.116
v	.6823	.7472	.5349	.7823
D	1.44	12.23	337.2	70.11

164

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Sq. TRIAN9LE   Sample Name: 10V/10V                    Operator: DKB
Time. 09/23/98 10:36          Filename. 20202
: CONC         Type: A        Corr. Factor:        1.00000
ID..           Dust. Smpl. ID..          Dust. ID.. 40703A

S     Hg2150   Al0302   As1890   B_1498   Ba4554   Be0130
S     ppb      ppb      ppb      ppb      ppb      ppb
       167.3   ¤153.9   ¤170.9    99.27   ¤167.3   ¤164.3
      190.4    391.0    196.3    300.8    209.9    387.0
      173.3    200.7    170.7    300.1    172.9    174.4

S     Ba2703   Be2203   Ca4136   Co2286   Cr2677   Cu3247
S     ppb      ppb      ppb      ppb      ppb      ppb
      ¤153.3   ¤164.3    157.6   ¤164.3   ¤162.3   ¤158.3
      172      184.2    273.1    180      180.8    191.6
      164.2    172.7    173.3    172.1    171.6    184.6

S     Fe2714   K_7664   Li6707   Mg2779   Mn2576   Mo2020
S     ppb      ppm      ppb      ppb      ppb      ppb
      ¤74.24   ¤2.338    167.6   ¤153.3   ¤163.3   ¤163.3
      159.9    1.152    283.2    127      286.8    186.4
      167.7    34.77    170.3    177.3    173.1    172.1

S     Na3303   Ni2316   P_1149   Pb1683   Pb2203   Sb2068
S     ppm      ppb      ppb      ppb      ppb      ppb
       1.346   ¤161.9   ¤160.6    166.4    163.3   ¤167.3
      1.007    180      184.2    287.3    280.2    187.3
      141.4    173      164.3    172.3    171.6    171.6

S     Se1960   Sn1899   Sr4215   Tl1347   Tl1908   V_1924
S     ppb      ppb      ppb      ppb      ppb      ppb
       173.3    164.6   ¤163.3   ¤167.7   ¤176.7   ¤167.3
      186.6    293.9    284.6    291.3    300.9    289.6
      164.3    178.6    171      170.8    170.2    172.9

S     Zn2062   Zr1304   Al2661   Ca2362   Cr2281
S     ppb      ppb      ppb      ppb      ppb
      ¤161.3   ¤173.1   ¤174.1   ¤163.6    1458.
      190.1    381.7    179.     176.3    [illegible]
      171.3    167.3    158.7    173.1    216.3
```

N7A
MCA 9/23/98

165

Mod: TRIAN6LI Sample Name: 10V/00V Operator: DKH
Time: 09/23/98 13:48 Filename: 92098
Int: CONC Type: U Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705A

ns	Ag3200	Al3082	As1890	B_2496	Ba4554	Be3130
ns	ppb	ppb	ppb	ppb	ppb	ppb
	500.7	520.3	512.4	470.0	511.4	500.7
	3.148	5.65	3.45	3.358	2.604	4.834
	.6189	1.09	.6732	.6208	.5091	.9654

ns	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ns	ppb	ppb	ppb	ppb	ppb	ppb
	500.2	500.8	501.4	504.2	501.7	512.9
	6.184	5.33	5.079	4.525	4.391	2.333
	1.227	1.194	1.013	.9767	.8745	.4549

ns	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ns	ppb	ppm	ppb	ppb	ppb	ppb
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ns	Na3302	Ni3416	P_2149	Pb2203	Sb2068	Se1960
ns	ppm	ppb	ppb	ppb	ppb	ppb
	4.381	499.5	506.0	499.5	500.3	512.2
	.1445	4.755	3.307	3.403	3.321	3.574
	2.96	.5119	.7680	.682	1.304	.5672

ns	Sn1899	Sr4215	Ta2120	Te1960	Th1842	Ti3349
ns	ppb	ppb	ppb	ppb	ppb	ppb
	529.5	510.2	500.3	522.0	500.3	508.7
	4.103	1.738	3.436	2.45	3.644	2.737
	[illegible]	.5571	1.056	.4693	1.21	.542

ns	Tl1908	V1700	W_2224	Zn2062	Zr1862
ns	ppb	ppb	ppb	ppb	ppb
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3.402	3.161	3.746	3.494	29.2
	.6755	1.147	.7512	1.187	.7763

166

Job: TXIAN012 Sample Name: 100.000 Operator: DKH
Time: 09/20/90 10:37 Filename: 92090
S. 00NO Type: W Conc. Factor: 1.00000
ID: Cust. Smpl. ID: Cust. ID: 4070034

WS	4g2180	412081	4c1370	3_1476	3a4714	1e0150
CS	000	000	000	000	000	000
S	-.5773	-21.10	1.131	-31.33	.0665	-.0977
A	.1097	1.351	.5401	.5007	.0802	.0131
D	33.03	13.41	44.36	1.092	125.4	13.09

WS	1a3.77	3a2153	084130	001130	371307	000247
CS	000	000	000	000	000	000
S	.3777	.1600	.9830	.4013	-.1730	.4134
A	.9297	.1297	2.32	.0473	.4036	.1533
D	131.3	138.1	180.7	73.77	104.3	37.01

WS	7827.4	4_7664	.16777	4g2770	4n1376	4g0010
CS	000	000	000	000	000	000
S	-1.421	.1302	.3874	-1.750	-.0307	-.0464
A	-.423	.0147	.0314	4.136	.037	.0374
D	183.2	10.75	13.33	113.3	181.4	38.4

WS	4e2302	4n2316	3_1147	1101-1	1100-1	3a2168
CS	000	000	000	000	000	000
S	-.0636	-.0585	4.034	-1.717	.7407	.1741
A	.1497	.0331	4.772	1.378	.1113	.0902
D	166.4	58.33	109.6	37.31	177.3	148.2

WS	1760-1	1740-1	732133	5a1730	3n1377	3r4113
CS	000	000	000	000	000	000
S	.3123	-1.467	-.4141	-.7747	.4511	.3731
A	.1373	2.66	.1661	1.403	.3378	.120
D	30.31	149.4	40.38	130.7	30.13	34.36

WS	713047	711703	3_1914	3n1061	31138.
CS	000	000	000	000	000
S	[illegible]	[illegible]	-.1133	-.1331	-36.70
A	.9731	.7324	.3371	.1333	3.322
D	333.1	19.12	162.4	33.37	3.703

167

od: TRIANGL2 Sample Name: 218-12-5 Operator. DKH
Time: 09/23/98 14:02 Filename: 92398
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705A

S	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
S	ppb	ppb	ppb	ppb	ppb	ppb
	L-3.233	L-.1180	L-.2884	L.1956	L-.6017	L1.017
	.3009	.0162	.1951	.2879	.4094	.0432
	24.76	13.77	67.67	147.1	68.05	4.242

S	Ni2316	Pb2203	Sb2068	Se1960
S	ppb	ppb	ppb	ppb
	26.32	2.282	L1.523	L.8609
	.9624	.8718	.4996	.6763
	3.656	38.2	32.8	78.56

168

od: TRIANGLE Sample Name: 218-12-o Operator: DKH
Time: 09/23/98 14:06 Filename: 92398
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705H

ns	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
:s	ppb	ppb	ppb	ppb	ppb	ppb
s	L-2.215	L-.1942	L.0404	L.0716	L-.0826	13.10
	1.504	.0167	.1343	.0461	.1522	.0683
)	67.9	8.386	332.1	64.43	184.3	.5211

ns	Ni2316	Pb2203	Sb2068	Se1960
:s	ppb	ppb	ppb	ppb
s	39.45	14.29	L.0832	L-.0732
	.2863	.3172	1.619	1.731
	.7204	6.417	1301	2370

169

ood: TRIANGLE Sample Name. 212-12-3 Operator: DKH
Time: 09/23/98 14:11 Filename. 92398
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.. Cust. ID.: 46705A

15	As1890	Se3136	Cd2265	Co2286	Cr2677	Mn2576
13	ppb	ppb	ppb	ppb	ppb	ppb
9	L-2.262	L-.2094	L-.2586	L.2084	L-.1948	11.354
7	.3932	.0052	.1558	.0819	.4089	.0417
3	17.38	2.497	60.26	39.3	209.9	3.08

15	Ni2316	Pb2203	Sb2068	Se1960
13	ppb	ppb	ppb	ppb
9	46.04	L1.640	L.6303	L.9069
7	.4314	1.343	.9154	.7423
3	.337	34.09	145.2	31.33

170

od: TRIANGLE Sample Name: 218-12-9 Operator: DKH
Time: 09/23/98 14:16 Filename: 92098
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.. Cust. ID.: 40705A

S	As1890	Be3130	Cd2265	Cd2250	Cr2677	Mn2576
S	ppb	ppb	ppb	ppb	ppb	ppb
	L-0.079	L-.2087	L-.2475	L-.4233	L-.0151	8.307
	.1902	.0042	.0516	.1502	.0766	.0669
	0.181	2.283	20.68	35.04	119.3	.7767

S	Ni2316	Pb2203	Zn2068	Se1960
S	ppb	ppb	ppb	ppb
	10.79	3.870	11.454	6.6990
	.5563	.4008	1.776	1.151
	4.006	6.818	122.2	164.7

171

[illegible] TRIANGLE   Sample Name: [illegible]   [illegible]
Time: [illegible] 14:23   [illegible]
[illegible]   Type: [illegible]   [illegible]   [illegible]
[illegible]   [illegible]   [illegible]

[illegible]	Ag3280	Al3082	As1890	B_2497	Ba4554	Be3130
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Cr2677	Cu3247
[illegible]	[illegible]	[illegible]	[illegible]	ppb	ppb	ppb
[illegible]	[illegible]	[illegible]	497.3	502.2	500.2	507.0
[illegible]	[illegible]	[illegible]	[illegible]	4.200	3.718	3.35
[illegible]	.7627	.8101	.6653	.8401	.7404	.7594

[illegible]	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
[illegible]	ppb	ppm	ppb	ppb	ppb	ppb
[illegible]	507.0	5.041	497.0	503.7	500.3	501.6
[illegible]	[illegible]	.0606	.5199	6.111	3.976	4.606
[illegible]	[illegible]	.0716	[illegible]	1.201	.794	[illegible]

[illegible]	Na3302	Ni2316	P_2149	[illegible]	[illegible]	Sb2068
[illegible]	ppm	ppb	ppb	ppb	ppb	ppb
[illegible]	4.837	497.1	501.5	497.7	495.9	507.6
[illegible]	.1613	4.027	3.365	[illegible]	6.748	4.215
[illegible]	5.526	.8703	1.764	1.049	1.030	.8000

[illegible]	Se1960-1	Se1960-2	Pb2203	Sb1960	Sn1899	Sr4215
[illegible]	ppb	ppb	ppb	ppb	ppb	ppb
[illegible]	322.3	312.0	478.3	315.5	501.3	592.6
[illegible]	5.426	10.95	6.112	8.44	6.3	3.402
[illegible]	.6530	[illegible]	1.226	1.606	1.035	.6759

[illegible]	Ti3349	Tl1908	V_2924	Zn2062	[illegible]
[illegible]	ppb	ppb	ppb	ppb	ppb
[illegible]	[illegible]	495.3	495.7	500.7	4982.
[illegible]	3.394	7.025	3.380	5.264	44.70
[illegible]	.7826	1.409	.7039	1.069	.8966

172

ue			500.0			500.0	500.0
ige			10.00			10.00	10.00
m	5n1397	574215	715547	711968	7_1924	502062	3.1881
ts	000	000	000	000	000	000	000
e	501.0	502.0	497.0	498.0	495.7	503.7	-756.
v	6.3	3.4	3.4	7.0	2.6	3.4	43.
b	1.033	.6787	.7015	1.469	.7227	1.069	.3560
	494.1	498.7	490.1	491.1	491.3	497.4	4937.
	504.2	504.0	499.2	499.0	497.0	506.6	5011.
	506.5	504.0	500.4	502.7	497.9	506.9	5017.
ors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	NOCHECK
ue	500.0	500.0	500.0	500.0	500.0	500.0	
ge	10.00	10.00	10.00	10.00	10.00	10.00	
ata	1	2	3	4	5	6	7
e	Volume	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
m		--	--	--	--	--	--
ian	371.000	--	--	--	--	--	--
e	200031	15000	--	--	--	--	--
v	1254.010	.0000000	--	--	--	--	--
b	.3444414	.0000000	--	--	--	--	--
	201700	15000	--	--	--	--	--
	209941	15000	--	--	--	--	--
	209317	15000	--	--	--	--	--

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od. TRIAHALI Sample Name. 100-008 Operator. DAF
Time. 09/20/98 14.00:27
ent:
: 10ml Corr. Factor: 1

m	4q0280	410082	481899	0_1496	6a4950	580100	0a0179
ts	000	000	000	000	000	000	000
e	-.1464	-11.39	.3820	-51.58	.1244	-.0800	.7121
v	.0930	-.01	.0306	.58	.0016	.0019	.1034
b	38.56	.9.00	40.36	1.00	24.01	17.58	.3721
	-.0465	-17.71	.3158	-50.81	.1077	-.0679	.7160
	-.1030	-21.10	.3298	-51.36	.1057	-.1103	.7108
	-.1576	-26.20	.6101	-51.98	.1597	-.0784	.7096
ors	NOCHECK	QC Pass	QC Pass	NOCHECK	QC Pass	QC Pass	QC Pass
ue		.0000	.0000		.0000	.0000	.0000
ge		50.00	5.000		1.000	1.000	50.00
m	0a3265	0a4186	0a2280	0.1077	0a0247	Fa2714	0_7064
ts	000	000	000	000	000	000	000
e	.1710	1.287	.3960	.0025	.7145	-1.434	.1872
v	.1401	0.032	.2517	.1975	.1058	10.280	.0075
b	82.94	185.0	42.23	7964.	23.22	716.7	4.021
	.0650	-1.461	.3121	-.1440	.8434	-13.22	.1792
	.3328	2.368	.3969	.2271	.5275	3.298	.1387
	.1162	2.755	.3789	-.0756	.7725	5.707	.1941

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ors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
ue	.0000	.0000	.0000	.0000	.0000	.0000	.0000
ge	1.000	10.00	2.000	2.000	2.000	40.00	220.0
m	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Ni2316	P_2149
ts	000	000	000	000	000	000	000
e	.4457	-1.215	.0374	.4499	-.0137	.0099	4.326
y	.0072	.076	.0316	.2677	.1008	.2909	3.489
D	1.019	55.79	87.23	59.49	392.8	729.8	80.65
	.4416	-1.789	.0054	.7342	-.1137	.5756	1.862
	.4416	-1.472	.0561	.4130	-.0477	-.1247	3.797
	.4341	-1.383	.0705	.2027	.0843	-.1313	3.318
ors	NOCHECK	QC Pass	QC Pass	QC Pass	NOCHECK	QC Pass	QC Pass
ue		.0000	.0000	.0000		.0000	.0000
ge		30.00	2.000	2.000		3.000	30.00
m	1203-1	1203-2	3520o3	1900-1	1900-2	F02203	Sa1700
ts	000	000	000	000	000	000	000
e	-3.337	1.408	.0556	2.321	-.2202	-.0463	.6231
y	.903	1.373	.7705	1.713	1.3741	.9211	1.777
D	27.31	133.1	1457.	73.31	35.12	374.3	232.3
	-2.600	-.4371	-.2300	4.306	1.903	-1.167	2.344
	-4.368	3.306	.9501	1.435	-.2421	.5789	.3163
	-3.439	1.351	-.3195	1.231	-2.382	-.2305	-.9730
ors	NOCHECK	NOCHECK	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass
ue			.0000			.0000	.0000
ge			4.000			2.000	3.000
m	Sn1899	Sr4215	Ti3349	Tl1908	V_1724	Zn2062	Zr1851
ts	000	000	000	000	000	000	000
e	.3.37	.1037	.3663	23.30	-.1171	.3316	-43.73
y	.4200	.3136	.2207	1.413	.3736	.2933	4.02
D	33.37	1.32	31.37	16.12	323.2	35.47	4.211
	.3732	.1177	.0897	210.42	.2776	.2151	-31.36
	.3736	.1430	.0487	23.377	-.1351	.1144	-96.31
	1.300	.1443	.0618	37.377	-.4838	.6633	-99.31
ors	QC Pass	QC Pass	QC Pass	QC Fail	QC Pass	QC Pass	NOCHECK
ue	.0000	.0000	.0000	.0000	.0000	.0000	
ge	13.00	3.000	3.000	3.000	2.000	12.00	

Std	1	2	3	4	5	6	7
e	Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
m	/	--	--	--	--	--	--
ten	371.030	--	--	--	--	--	--
e	229361	15000	--	--	--	--	--
y	731.6357	.0000000	--	--	--	--	--
D	.3407839	.0000000	--	--	--	--	--
	228473	15000	--	--	--	--	--

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ode: TRIAN612 Sample Name: 10548 Operator: DAN
Time: 09/20/98 14:59:24
ment.
: CONC Corr. Factor: 1

m	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Ca3179
ts	ppb	ppb	ppb	ppb	ppb	ppb	ppb
e	557.9	559100.	529.7	513.3	543.6	489.1	457600.
v	1.4	1465.	1.8	1.3	1.3	1.4	1381.
b	.2432	.2636	.3422	.3577	.2470	.2803	.3019
	557.0	558300.	528.9	511.8	543.1	488.3	456600.
	559.4	560800.	531.8	513.4	545.1	490.6	459200.
	557.2	558100.	528.3	513.3	542.3	488.2	457100.
ors	NOCHECK	QC Pass	QC Pass	NOCHECK	QC Pass	QC Pass	QC Pass
ue		500000.	500.0		500.0	500.0	500000.
ge		20.00	20.00		20.00	20.00	20.00
m	Cd2265	Co4136	Cr2267	Cu3247	Fe2714	Fe2714	K_7664
ts	ppb	ppb	ppb	ppb	ppb	ppb	ppm
e	478.6	511.3	486.8	486.5	573.6	183900.	16.45
v	1.5	1.3	1.4	1.7	1.7	331.	.97
b	.3107	.3013	.2781	.3331	.3331	.3013	.3720
	477.3	511.6	485.8	485.5	573.1	183600.	16.33
	480.3	513.4	488.3	488.5	577.7	184500.	16.46
	477.9	510.2	486.2	486.2	574.0	183300.	16.34
ors	QC Pass	NOCHECK	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
ue	500.0		500.0	500.0	500.0	500000.	17.00
ge	20.00		20.00	20.00	20.00	20.00	20.00
m	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Ni2316	P_2149
ts	ppb	ppb	ppb	ppb	ppm	ppb	ppb
e	667.5	549500.	472.2	501.7	3.719	466.1	6637.9
v	2.4	1567.	1.4	1.2	.017	1.6	7.3
b	.3333	.2834	.2972	.2349	.2793	.3649	1.247
	667.1	549500.	471.1	500.9	3.716	468.6	6667.9
	669.5	551200.	473.3	503.2	3.693	462.1	6649.2
	671.9	548100.	471.6	501.0	3.721	458.5	6663.5
ors	NOCHECK	QC Pass	QC Pass	QC Pass	NOCHECK	QC Pass	QC Fail
ue		500000.	500.0	500.0		500.0	500.0
ge		20.00	20.00	20.00		20.00	20.00
m	Zn2062	Zn2062	Sb2068	Se1960	Se1960	Pb2203	Sr1760
ts	ppb	ppb	ppb	ppb	ppb	ppb	ppb
e	497.5	500.0	523.7	588.5	556.2	499.2	507.0
v	2.9	1.7	2.0	3.9	2.9	2.1	5.2
b	.3902	.3397	.3855	.6607	.5151	.4228	.5650
	494.5	498.1	523.3	592.3	553.7	496.9	509.9
	500.1	501.5	526.5	588.8	556.9	501.0	507.5
	498.1	500.3	527.2	584.5	553.1	499.6	503.5
ors	NOCHECK	NOCHECK	QC Pass	NOCHECK	NOCHECK	QC Pass	QC Pass

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Value			500.0			500.0	500.0
Range			20.00			20.00	20.00
Elem	Sn1899	Sr4215	Ti3349	Ti1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	517.9	534.6	506.1	519.3	492.3	451.7	5475.
Sdev	1.1	1.4	1.3	10.8	2.2	2.7	12.
%RSD	.2115	.2700	.2628	2.072	.4547	.6003	.2268
#1	517.1	534.3	505.4	507.4	492.5	448.6	5469.
#2	519.1	536.2	507.6	525.2	495.2	453.7	5489.
#3	517.3	533.3	505.2	526.9	490.3	452.9	5467.
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	NOCHECK
Value	500.0	500.0	500.0	500.0	500.0	500.0	
Range	20.00	20.00	20.00	20.00	20.00	20.00	
IntStd	1	2	3	4	5	6	7
Mode	#Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	/	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	309241	15000	--	--	--	--	--
Sdev	748.3574	.0000000	--	--	--	--	--
%RSD	.4525200	.0000000	--	--	--	--	--
#1	308718	15000	--	--	--	--	--
#2	308671	15000	--	--	--	--	--
#3	310334	15000	--	--	--	--	--

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Weight File: AB936.IDW Analyst: D.STREETER-EDWARDS
ple Volume: 100 mL Nominal Weight: 1.0 g

Hg

ec.	Sample ID	Weight	Dilution
0	STD BLANK		
1	STD1=0.2ug/L		
2	STD2=0.5ug/L		
3	STD3=1.0ug/L		
4	STD4=2.0ug/L		
5	STD5=5.0ug/L		
6	STD6=10.0ug/L		
7	ICV=4.0ug/L		
8	ICB		
9	CHECK LO		
1	46705B MB		
	46705B MBD		
	46705B LCS		
	46705B LCSD		
	218-12-4		
	218-12-4 D		
	218-12-4 MS		
	218-12-4 MSD		
	CCV1=6.0ug/L		
	CCB		
	218-12-7		
	218-12-7 D		
	218-12-10		
	218-12-10 D		
	CCV2=6.0ug/L		
	CCB		
	46705A MB		
	46705A MBD		
	46705A LCS		
	46705A LCSD		
	218-12-1		
	218-12-1 D		
	218-12-3		
	218-12-3 D		
	218-12-3 MS		
	218-12-3 MSD		
	CCV1=6.0ug/L		
	CCB		
	218-12-2		
	218-12-2 D		
	218-12-5		
	218-12-5 D		
	218-12-8		
	218-12-8 D		
	218-12-6		
	218-12-6 D		
	218-12-9		
	218-12-9 D		
	CCV2=6.0ug/L		
	CCB		

3-70-8 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

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HG

nt File: HG_.MEL
nt: Hg
Data: Main+Suppl.
: Calib. Curve
ts:
DARDS: SPEX 3-70-6,8
HIGH PURITY 3-70-5,7

Analyst: EDWARDS
Peak Storage: None

Energy: 25

MENT: 5100
ngth: 253.7 Peak
Type: AA
ime: 30.0
Replicates: 1
rd Replicates: 1

Technique: MHS
Version: 7.01
Slit: 0.70 Low
Signal Measurement: Peak Height (5)
Read Delay: 0.5
BOC Time: 2

Type: Air
: Flow: 10.0 L/min

Flame Sensor: On
Fuel Flow: 2.0 L/min

ATION:

ons	ID	Conc
Blank	STD BLK	
d 1	STD 1	0.200
d 2	STD 2	0.500
d 3	STD 3	1.000
d 4	STD 4	2.000
d 5	STD 5	5.000
d 6	STD 6	10.000

ation Units: ug/L
ation Type: Linear

Sample Units: ug/L

Check Calculations:
ence for Dupls: No
ry for Spike: No

Locations:
Locations:
Conc:

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nt File: HG_.MEL Element: Hg Wavelength: 253.7
09/22/98 Time: 13:48 Slit: 0.70 L
File: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
ique: MHS Calib. Type: Linear Energy: 74
t 1: STANDARDS: SPEX 3-70-6,8
t 2: QC: HIGH PURITY 3-70-5,7

ID: Seq. 00035 Seq. No.: 00035 A/S Pos.: -- Date: 09/22/98

ate 1 Time: 14:32
rea (A-s): 0.011 Peak Height (A): -0.002
Corrected Pk Height (A): -0.002
tration (ug/L): -0.022

ero performed.

D: Seq. 00036 Seq. No.: 00036 A/S Pos.: -- Date: 09/22/98

te 1 Time: 14:33
ea (A-s): -0.031 Peak Height (A): -0.002
orrected Pk Height (A): -0.002
ration (ug/L): -0.025

ro performed.

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---

it File: HG_.MEL Element: Hg Wavelength: 253.7
09/22/98 Time: 14:34 Slit: 0.70 L
File: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
que: MHS Calib. Type: Linear Energy: 75
: 1: STANDARDS: SPEX 3-70-6,8
: 2: QC: HIGH PURITY 3-70-5,7

ID: STD BLANK Seq. No.: 00037 A/S Pos.: -- Date: 09/22/98

ate 1 Time: 14:35
rea (A-s): -0.019 Peak Height (A): 0.000
Corrected Pk Height (A): 0.000
tration (ug/L): 0.000

ero performed.

ID: STD1=0.2ug/L Seq. No.: 00038 A/S Pos.: -- Date: 09/22/98

ate 1 Time: 14:36
ea (A-s): 0.056 Peak Height (A): 0.004
Corrected Pk Height (A): 0.004
ration (ug/L): 0.058

d number 1 applied. [0.200]
tion coefficient: 1.00000 Slope: 0.0196

D: STD2=0.5ug/L Seq. No.: 00039 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
te 1 Time: 14:37
ea (A-s): 0.259 Peak Height (A): 0.016
orrected Pk Height (A): 0.016
ration (ug/L): 0.795

l number 2 applied. [0.500]
tion coefficient: 0.94072 Slope: 0.0300

): STD3=1.0ug/L Seq. No.: 00040 A/S Pos.: -- Date: 09/22/98

bs. is greater than that of the largest standard.
e 1 Time: 14:38
a (A-s): 0.605 Peak Height (A): 0.036
rrected Pk Height (A): 0.036
ation (ug/L): 1.189

number 3 applied. [1.000]
ion coefficient: 0.98278 Slope: 0.0346

: STD4=2.0ug/L Seq. No.: 00041 A/S Pos.: -- Date: 09/22/98

s. is greater than that of the largest standard.
1 Time: 14:39
(A-s): 1.235 Peak Height (A): 0.072

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Corrected Pk Height (A): 0.072
ntration (ug/L): 2.084

ard number 4 applied. [2.000]
lation coefficient: 0.99658 Slope: 0.0357

ID: STD5=5.0ug/L Seq. No.: 00042 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
ate 1 Time: 14:40
rea (A-s): 3.140 Peak Height (A): 0.198
Corrected Pk Height (A): 0.198
tration (ug/L): 5.532

rd number 5 applied. [5.000]
ation coefficient: 0.99820 Slope: 0.0389

~~ID: STD6=10.0ug/L~~ Seq. No.: 00043 A/S Pos.: -- ~~Date: 09/22/98~~

abs. is greater than that of the largest standard.
ite 1 Time: 14:41
ea (A-s): 5.382 Peak Height (A): 0.312
orrected Pk Height (A): 0.312
ration (ug/L): 8.009

d number 6 applied. [10.000]
tion coefficient: 0.99076 Slope: 0.0333

Sample Re-run below, not used DSC 9/22/98

D: STD6=10.0ug/L Seq. No.: 00044 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
te 1 Time: 14:48
a (A-s): 6.321 Peak Height (A): 0.389
rrected Pk Height (A): 0.389
ation (ug/L): 11.673

number 6 applied. [10.000]
ion coefficient: 0.99962 Slope: 0.0389

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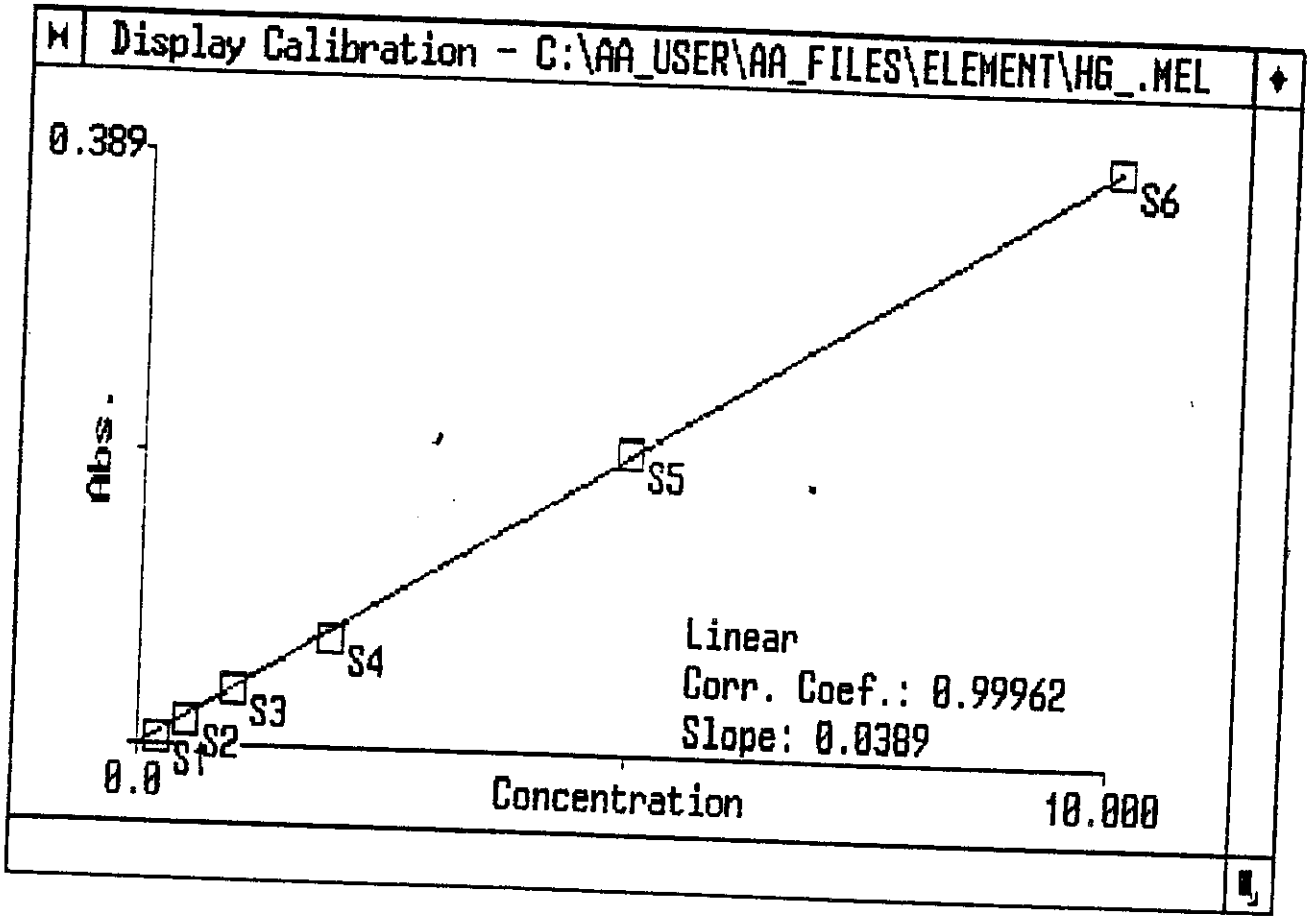
nt File: HG_.MEL
09/22/98
File: AB936.DAT
ique: MHS
k 1: STANDARDS: SPEX 3-70-6,8
k 2: QC: HIGH PURITY 3-70-5,7

Element: Hg
Time: 14:49
ID/Wt File: AB936.IDW
Calib. Type: Linear

Wavelength: 253.7
Slit: 0.70 L
Lamp Current: 0
Energy: 75



): ICV=4.0ug/L Seq. No.: 00045 A/S Pos.: -- Date: 09/22/98

e 1 Time: 14:51
a (A-s): 2.327 Peak Height (A): 0.141
rrected Pk Height (A): 0.141
ation (ug/L): 3.638

: ICB Seq. No.: 00046 A/S Pos.: -- Date: 09/22/98

e 1 Time: 14:53
a (A-s): -0.118 Peak Height (A): -0.005
rrected Pk Height (A): -0.005
ation (ug/L): -0.124

CHECK LC Seq. No.: 00047 A/S Pos.: -- Date: 09/22/98

1 Time: 14:54
(A-s): 0.009 Peak Height (A): 0.003
rected Pk Height (A): 0.003
tion (ug/L): 0.083

File: HG_.MEL Element: Hg Wavelength: 253.7
/22/98 Time: 15:22 Slit: 0.70 L
e: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
e: MHS Calib. Type: Linear Energy: 75
: STANDARDS: SPEX 3-70-6,8
: QC: HIGH PURITY 3-70-5,7

: 46705A MB Seq. No.: 00068 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:23
a (A-s): 0.016 Peak Height (A): 0.002
rrected Pk Height (A): 0.002
ation (ug/L): 0.041

: 46705A MBD Seq. No.: 00069 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:24
a (A-s): 0.011 Peak Height (A): -0.000
rrected Pk Height (A): -0.000
ation (ug/L): -0.003

: 46705A LCS Seq. No.: 00070 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:25
a (A-s): 2.871 Peak Height (A): 0.170
rrected Pk Height (A): 0.170
ation (ug/L): 4.384

: 46705A LCSD Seq. No.: 00071 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:26
a (A-s): 2.853 Peak Height (A): 0.164
rrected Pk Height (A): 0.164
ation (ug/L): 4.219

: 218-12-1 Seq. No.: 00072 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:27
a (A-s): -0.002 Peak Height (A): -0.001
rrected Pk Height (A): -0.001
ation (ug/L): -0.018

: 218-12-1 D Seq. No.: 00073 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:28
a (A-s): 0.017 Peak Height (A): 0.000
rrected Pk Height (A): 0.000
ation (ug/L): 0.010

: 218-12-3 Seq. No.: 00074 A/S Pos.: -- Date: 09/22/98

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:e 1 Time: 15:29
:a (A-s): -0.024 Peak Height (A): -0.001
orrected Pk Height (A): -0.001
ration (ug/L): -0.034

): 218-12-3 D Seq. No.: 00075 A/S Pos.: -- Date: 09/22/98

:e 1 Time: 15:30
:a (A-s): -0.025 Peak Height (A): -0.001
orrected Pk Height (A): -0.001
ration (ug/L): -0.028

): 218-12-3 MS Seq. No.: 00076 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:33
:a (A-s): 2.638 Peak Height (A): 0.152
orrected Pk Height (A): 0.152
ration (ug/L): 3.915

): 218-12-3 MSD Seq. No.: 00077 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:34
:a (A-s): 2.740 Peak Height (A): 0.168
orrected Pk Height (A): 0.168
ration (ug/L): 4.330

): CCV1=6.0ug/L Seq. No.: 00078 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:35
:a (A-s): 3.431 Peak Height (A): 0.220
orrected Pk Height (A): 0.220
ration (ug/L): 5.654

D: CCB Seq. No.: 00079 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:36
ea (A-s): -0.075 Peak Height (A): -0.003
orrected Pk Height (A): -0.003
ration (ug/L): -0.065

D: 218-12-2 Seq. No.: 00080 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:37
ea (A-s): -0.048 Peak Height (A): -0.001
orrected Pk Height (A): -0.001
ration (ug/L): -0.028

D: 218-12-2 D Seq. No.: 00081 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:41
ea (A-s): -0.049 Peak Height (A): -0.002
orrected Pk Height (A): -0.002

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ation (ug/L): -0.041

****

: 218-12-5 Seq. No.: 00082 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:47
a (A-s): -0.040 Peak Height (A): -0.001
rrected Pk Height (A): -0.001
ation (ug/L): -0.013

****

: 218-12-5 D Seq. No.: 00083 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:48
a (A-s): -0.036 Peak Height (A): -0.000
rrected Pk Height (A): -0.000
ation (ug/L): -0.005

****

: 218-12-8 Seq. No.: 00084 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:49
a (A-s): -0.037 Peak Height (A): -0.001
rrected Pk Height (A): -0.001
ation (ug/L): -0.018

****

: 218-12-8 D Seq. No.: 00085 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:50
a (A-s): -0.050 Peak Height (A): -0.001
rrected Pk Height (A): -0.001
ation (ug/L): -0.034

****

: 218-12-6 Seq. No.: 00086 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:51
a (A-s): -0.064 Peak Height (A): -0.002
rrected Pk Height (A): -0.002
ation (ug/L): -0.049

****

: 218-12-6 D Seq. No.: 00087 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:52
a (A-s): -0.059 Peak Height (A): -0.002
rrected Pk Height (A): -0.002
ation (ug/L): -0.044

****

: 218-12-9 Seq. No.: 00088 A/S Pos.: -- Date: 09/22/98

e 1 Time: 15:53
a (A-s): -0.057 Peak Height (A): -0.002
rrected Pk Height (A): -0.002
ation (ug/L): -0.039

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ID: 218-12-9 D Seq. No.: 00089 A/S Pos.: -- Date: 09/22/98

icate 1 Time: 15:55
Area (A-s): -0.066 Peak Height (A): -0.002
k Corrected Pk Height (A): -0.002
entration (ug/L): -0.052

~~ID: CCV2=6.0ug/L Seq. No.: 00090 A/S Pos.: -- Date: 09/22/98~~

icate 1 Time: 15:56
Area (A-s): -0.078 Peak Height (A): -0.003
k Corrected Pk Height (A): -0.003
entration (ug/L): -0.072

Ran blank instead of CCV. DSE 9/22/98

Standards not used. DSE 9/22/98

ID: CCV2=6.0ug/L Seq. No.: 00091 A/S Pos.: -- Date: 09/22/98

icate 1 Time: 15:58
Area (A-s): 3.054 Peak Height (A): 0.179
k Corrected Pk Height (A): 0.179
~~entration (ug/L): 4.593~~

ID: CCV2=6.0ug/L Seq. No.: 00092 A/S Pos.: -- Date: 09/22/98

icate 1 Time: 16:02
Area (A-s): 3.080 Peak Height (A): 0.194
k Corrected Pk Height (A): 0.194
entration (ug/L): 4.996

ID: CCB Seq. No.: 00093 A/S Pos.: -- Date: 09/22/98

icate 1 Time: 16:03
Area (A-s): -0.060 Peak Height (A): -0.002
k Corrected Pk Height (A): -0.002
entration (ug/L): -0.057

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TRIANGLE LABS

CASE NARRATIVE

Analysis of Samples for the Presence of Trace Metals

Methods

6010A	Rev.1 (7/92)
7000A Series	Rev.1 (7/92)
7470	Rev.0 (9/86)

Client:	Pacific Environmental Services
TLI Project Number:	46705B
Date:	September 23, 1998

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Triangle Laboratories, Inc.

Rev. 25-Sep-96

Triangle Laboratories, Inc.
801 Capitola Drive
Durham, NC 27713-4411
919-544-5729
P.O. Box 13485
Research Triangle Park, NC 27709-3485
Fax # 919-544-5491

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Overview

Three aggregate samples were analyzed for arsenic (As), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), manganese (Mn), nickel (Ni), lead (Pb), antimony (Sb), selenium (Se), and mercury (Hg). For all analyses (except Hg), the samples and associated QC samples were prepared by hotplate digestion following the guidelines of EPA SW-846 Method 3050A. The samples and associated QC samples for the analysis of Hg were prepared following the guidelines of EPA SW-846 Method 7471 Rev.0 (9/86). The samples were analyzed following the guidelines of EPA SW-846 Methods 6010A Rev. 1 (7/92), 7471 Rev. 0 (9/86), and 7000A Rev. 1 (7/92) series. Results reported relate only to the items tested.

QC Remarks

The release of this set of data by Triangle Laboratories, Inc. was authorized by the Quality Control Chemist who has reviewed each sample data package individually following a series of inspections/reviews. When applicable, general deviations from acceptable QC requirements are identified below and comments are made on the effects of these deviations upon the validity and reliability of the results. Specific QC issues associated with this particular project are:

Sample Receipt:

Three aggregate samples, four liquid AC and three asphalt cement samples were received at 25 ^{0}C on September 15, 1998 in good condition. These samples were received in a box instead of a cooler.

Sample Preparation:

Laboratory documentation of the sample preparation is included in the data package.

Instrumentation:

Arsenic (As), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), manganese (Mn), nickel (Ni), lead (Pb), antimony (Sb), selenium (Se), concentrations were determined by Inductively Coupled Plasma Emission Spectroscopy (ICP).

Beryllium (Be) concentrations for the front half samples were analyzed by Graphite Furnace Atomic Absorption (GFAA).
Mercury (Hg) concentrations were determined by Cold Vapor Atomic Absorption (CVAA).

The linear range for the instrument TJA 61E Trace Analyzer was based on four standards and a blank, which established a correlation coefficient value greater than or

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equal to 0.995. A calibration curve, based on a blank and one standard, is established for each analytical run, followed by a check high standard and an initial calibration verification (ICV). The check high standard does not deviate from the calibration curve by more than 5%. In addition, continuing calibration verifications (CCVs) are performed throughout the analytical run.

A Reporting Detection Limit (RDL) is used instead of an Instrument Detection Limit (IDL). The spectrometer and atomic absorption instruments can achieve low detection limits between 0.2-8 ppb levels for many analytes. Triangle Labs is using RDL values of 1-10 times the IDL as detection limits for reporting purposes.

Data Review:

All analytes found in the method blank (MB) are detected at a level equal to or less than the respective Reporting Detection Limit (RDL).

The sample results are based on dry weight.

A sampling date was not supplied by the client and the sampling to analysis holding times cannot be determined. All samples were analyzed within 7 days of sample receipt at Triangle Laboratories.

The pre-digestion spike (MS) and the pre-digestion spike duplicate (MSD) for Sb, also the pre-digestion spike duplicate (MSD) for Pb for the sample RAP5B/AGG demonstrated percent recoveries outside the QC criteria which may indicate significant matrix effects specific to these analytes in the native sample matrix. Please note that the post-digestion spike (PDS) met QC criteria for Sb and Pb for sample RAP5B/AGG. Also note the the results for Sb in this sample should be considered biased low due to matrix interferences.

The recoveries for the matrix spike (MS), matrix spike duplicate (MSD), and post-digestion spike (PDS) are not reported for Mn and Pb for the sample RAP5B/AGG. The spike concentrations added were insignificant in comparison to the levels of these analytes present in the native sample.

The duplicate analyses for Cr and Ni for the sample RAP5B/AGG demonstrated RPDs outside the QC criteria of 20.0 percent, which indicates the presence of a significant amount of interferents specific to these analytes in the native sample matrix.

The post-digestion spike (PDS) for Be for sample RAP5B/AGG demonstrated a percent recovery outside the QC criteria of 80-120 percent, which indicates significant matrix effects specific to this analyte in the native sample matrix. The interference QC analysis is not reported (i.e. PDS, MS, MSD, and serial dilution) for this analyte since the Method of Standard Additions (MSA) was performed. The MSA results are

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The post-digestion spike (PDS) for Be for sample RAP5B/AGG demonstrated a percent recovery outside the QC criteria of 80-120 percent, which indicates significant matrix effects specific to this analyte in the native sample matrix. The interference QC analysis is not reported (i.e. PDS, MS, MSD, and serial dilution) for this analyte since the Method of Standard Additions (MSA) was performed. The MSA results are reported if the correlation coefficient value is at least 0.995. The MSA results are reported for all samples.

QC requirements:

The analytical duplicates for analytes analyzed by GFAA cannot be considered valid qualifiers if the concentrations of the analytes in the original and/or duplicate sample are not at least five times the respective RDL. The RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

The analytical duplicates for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the original and/or duplicate sample are not at least ten times the respective RDLs. The RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

For analytical duplicates which are valid qualifiers, the quality control RPD is ± 20.0 percent. If RPDs are outside this range, interferences are suspected.

The serial dilution analyses for analytes analyzed by GFAA cannot be considered valid qualifiers if the concentrations of the analytes in the serial dilution sample are not at least five times the respective RDLs. The serial dilution RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

The serial dilution analyses for analytes analyzed by ICP cannot be considered valid qualifiers if the concentrations of the analytes in the serial dilution sample are less than ten times the respective RDLs. The serial dilution RPDs for these analyses are indicated by "<RDL" in the Analyte Summary Reports.

For serial dilution analyses which are valid qualifiers, the quality control RPD is ± 10.0 percent. If RPDs are outside this range, interferences are suspected.

The quality control range for percent recoveries of laboratory control spiked samples is 80-120.

The quality control range for percent recoveries of pre-digestion spiked samples analyzed by GFAA and ICP is 80-120. If recoveries are outside this range, a matrix effect is suspected.

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The quality control range for percent recoveries of post-digestion spiked samples analyzed by ICP is 75-125. If recoveries are outside this range, a matrix effect is suspected.

The quality control range for percent recoveries of spiked samples analyzed by CVAA is 75-125. If recoveries are outside this range, a matrix effect is suspected.

If the analyte concentrations analyzed by GFAA in the native samples are less than five times the respective RDLs, or if valid serial dilution analyses demonstrate RPDs outside the ten percent quality control range, the percent recoveries of post-digestion spiked samples is 85-115. If recoveries are outside this range, all matrix-related samples are analyzed by the Method of Standard Additions (MSA). The MSA analysis for each sample is reported only if the correlation coefficient value is at least 0.995.

By our interpretation, the analytical data in this project are valid based on the guidelines of US EPA SW-846 Methods 6010A Rev.1(7/92), 7000A Rev. 1 (7/92) series, and 7471 (9/86). Any specific QC concerns or problems have been discussed in the QC REMARKS section with emphasis on their effect on the data. Should Pacific Environmental Services have any questions or comments regarding this data package, please feel free to contact Triangle Laboratories, Inc., at (919) 544-5729.

For Triangle Laboratories, Inc.,

Report Preparation

Brenda H. Bell
Report Preparation Chemist

Quality Control

Leslie D. Jones
Report Preparation Chemist

The total number of pages in this data package is: 95.

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TRIANGLE LABS

TRIANGLE LABORATORIES, INC.

LIST OF CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

American Association for Laboratory Accreditation. Accredidation pending. Certificate Number 0226-01. Accreditation for technical competence in Environmental Testing. (Including Waste Water, Sol/Haz Waste, Pulp/Paper, and Air Matrices) Parameters are AOX/TOX, and Dioxin/Furan. Method 1613 for Drinking Water **Currently re-applying.**.

State of Alabama, Department of Environmental Management. Expires December 31, 1998. Laboratory I.D. # 40950. Dioxin in drinking water.

State of Alaska, Department of Environmental Conservation. Expires December 21, 1998. Certificate number OS-006-98. Dioxin in drinking water.

State of Arizona, Department of Health Services. Expires May 26, 1998. Certificate #AZ0423. Drinking Water for Dioxin, Dioxin in WW and S/H Waste. Currently appying for renewal.

State of Arkansas, Department of Pollution Control and Ecology. Expires February 19, 1999. Pulp/paper, soil, water, and Hazardous Waste for Dioxin/Furan; AOX/TOX, Volatiles, Semi-volatiles, and Metals.

State of California, Department of Health Services. Expires August 31, 1999. Certificate #1922. Selected Metals in Waste Water; Volatiles, Semi-volatiles, and Dioxin/furan in WW and Sol/Haz Waste. Dioxin in drinking water.

State of Connecticut, Department of Health Services. Expires September 30, 1999. Registration # PH-0117. Dioxin in drinking water.

Delaware Health and Social Services. Expires December 31, 1998. Certificate #NC 140. Dioxin in drinking water.

Florida Department of Health and Rehabilitative Services. Expires June 30, 1998. Dioxin in SDW. Drinking Water ID HRS# 87424. Pending new certificate.

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Hawaii Department of Health. Expires March 1, 1999. Dioxin in drinking water. "Accepted" status for regulatory purposes.

Idaho Department of Health and Welfare. Expires December 31, 1998. Dioxin in drinking water.

State of Kansas, Department of Health and Environment. Expires January 31, 1999. Method 1613 for drinking water. ID #'s - Drinking water and/or pollution control - E-10215. Solid or Hazardous Waste - E-101209.

Commonwealth of Kentucky, Department for Environmental Protection. Expires December 31, 1998. ID#90060. Dioxin in drinking water.

Maryland Department of Health and Mental Hygiene. Expires September 30, 1998. Certification #235 Drinking water by Method 1613A. Currently applying for renewal.

State of Michigan, Department of Public Health. Expires June 30, 1999. Drinking water by Method 1613. Current certification is extended, based on New York certificate renewal.

Mississippi State Department of Health. No expiration date. Dioxin in drinking water.

Montana Department of Health and Environmental Services. Expires December 31, 1998. Dioxin in drinking water.

State of New Jersey, Department of Environmental Protection and Energy. Expires June 30, 1998. Extended until July 31, 1998 per letter dated May 29, 1998. ID #67851. BNAs and Volatiles. Dioxin in drinking water. Currently applying for renewal.

State of New Mexico, Environment Department. Still certified, awaiting information from A2LA Dioxin in drinking water.

New York State Department of Health. Received updated certificates. ID #11026. Environmental Analyses of potable water, non-potable Water, Solid and Hazardous Waste. Method 1613 in DW.

State of North Carolina, Department of Environment Health and Natural Resources Expires. August 31, 1998. Certificate # 37751. Dioxin in drinking water.

State of North Carolina, Department of Environment, Health, and Natural Resources, Division of Environmental Management. Expires December 31, 2000. Certificate # 485. Metals, pesticides & PCBs, semi-volatiles and volatiles; TCLP.

North Dakota State Department of Health and Consolidated Laboratories. Expires December 31, 1998. Certificate # R-076. Effective October 4, 1993. Dioxin in drinking water.

Oklahoma Department of Environmental Quality. Expires August 31, 1998. Laboratory #9612. Dioxin by 1613A, 8290 and 8280. Submitted renewal application 7/1.

State of South Carolina, Department of Health and Environmental Control. Expires June 30, 1998. Extended August 31, 1999. Certificate number #99040001 (drinking water). Expires August 31, 1999. Certificate number #99040002 (other parameters). Dioxin/Furans, BNA, Volatiles, and PCBs/pesticides under Clean Water Act, 2,3,7,8-TCDD for Drinking Water, and Organic extractables for Solid and Hazardous Waste.

State of Tennessee. Department of Environment and Conservation. Expires February 5, 1999. ID #02992. Method 1613 Drinking water only.

U.S. Department of Agriculture Soil Permit. Expires September 30, 2001. Permit No. S-3790. Under the authority of the Federal Plant Pest Act, permission is granted to receive foreign soil samples for use in laboratory analysis.

U.S. Army Corps of Engineers. Expires October 19, 1999. Validated to perform analyses for the Fort Belvoir, VA (Contract Number DACA31-97-D-0029), Vint Hill Farms Station, Vint Hill, VA (Contract Number DACA31-95-D-0083), and Selma Pressure Treating Superfund Site, Selma, CA (Contract number DACW45-94-D-0054).

U.S. EPA Region V. Expires November 14, 1999. Dioxin in drinking water.

U.S. EPA Region VIII, for the State of Wyoming. Expires November 12, 1998. Dioxin in drinking water.

State of Utah, Department of Health. Expires May 30,2000. Certificate Number E-166. Certification for the following parameters: Semi-Volatiles and Volatiles under RCRA; Volatiles under Clean Water Act; Dioxin/furans by Method 8280; Drinking water for Dioxin by Method 1613; Metals including Mercury and Microwave Digestion.

Commonwealth of Virginia, Department of General Services, Division of Consolidated Laboratory Services. Expires June 30, 1999. ID # 00341. Dioxin in drinking water.

State of Washington, Department of Ecology. Expires September 11, 1998. Lab Accreditation Number C067. Scope of Accreditation applies to water analyses for

Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans, BNA Extr (Semivolatile) Organics and Purgeable (Volatile) Organics.
State of Washington, Department of Health. Expires April 30, 1999. Dioxin in drinking water. Lab I.D. 129.

State of West Virginia, Department of Health. Expires December 31, 1998. Certificate No. 9923(C). Dioxin in drinking water.

State of Wisconsin, Department of Natural Resources. Expires August 31, 1998. Laboratory ID Number 999869530. Certification for the following categories of Organics: Purgeable, Base/Neutral, Acid, PCBs, and Dioxin. Expires November 14, 1999. Laboratory ID 999869530. Dioxin in drinking water.

PHARMACEUTICAL

Drug Enforcement Agency (DEA). Expires November 30, 1998. Registration number RT01195835. Controlled substance registration for schedules 1,2,3,3N,4,5.

N.C. Department of Human Resources. Expires October 31, 1998. Registration number NC-PT 0000 0031. North Carolina controlled substances registration. Application submitted for renewal.

Food & Drug Administration (FDA) Registration. Expires June 1998. ID #'s 001500 1053481. Annual registration of drug establishment.

OTHER

Clinical Laboratory Improvement Amendments (CLIA) Registration. Expires May 30, 1999. ID # 34D0705123. Department of Health & Human Services, Health Care Financing Administration.

U.S. EPA Large Quantity Hazardous Waste Generator. No expiration date. EPA ID #NCD982156879. Permit indicates that the laboratory is a large generator of hazardous waste.

North Carolina General License for Radiation Protection. No expiration date. No License. 032-875-OG. The general license applies only to radioactive material contained in devices which have been manufactured and labeled in accordance with specific requirements.

DOCUMENT CONTROL

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Triangle Laboratories, Inc.
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919-544-5729
P.O. Box 13485
Research Triangle Park, NC
Fax # 919-544-8491

PACIFIC ENVIRONMENTAL SERVICES, INC.

5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

COPY

Sample Chain Of Custody Record

PLANT: US EPA HOT MIX ASPHALT PLANT C
RECOVERY PERSON: J. Swift

PROJECT NO.: S508.001
SAMPLERS: N/A

Sample ID	Sample Name	No. of Cont.	Analytical Request	Comments
AC1B	Liquid AC, Run 1 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
AC2B	Liquid AC, Run 2 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP2B/AC	Recycled Asph, Run 2 Begin (Asphalt Cement)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP2B/AGG	Recycled Asph, Run 2 Begin (Aggregate)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
AC3B	Liquid AC, Run 3 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP3M2/AC	Recycled Asph Run 3 Middle (Asphalt Cement)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP3M2/AGG	Recycled Asph Run 3 Middle (Aggregate)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
AC4B	Liquid AC, Run 4 Begin	1	Metals* using 7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP5B/AC	Recycled Asph, Run 5 Begin (Asphalt Cement)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg
RAP5B/AGG	Recycled Asph, Run 5 Begin (Aggregate)	1	Metals* using 6010/7000 series (SW-846)	* 11-Sb, As, Be, Cd, Cr, Pb, Mn, Ni, Se, Co,& Hg

Relinquished by:	Date	Time	Received by:
MARSHALL CANNON			
Relinquished by:	**Date**	**Time**	**Received for Lab by:**
			[illegible] 9-15-98 5:00 pm

Quote# 0711070083

Custody Seal : Absent
Chain of Custody : Present
Sample Tags : Absent
Sample Tag Numbers: Not Listed on Chain of Custody
SMO Forms : N/A

Sample Seals: Absent
Container...: Intact

COPY

TLI Project Number 46705
Client: PES03 - Pacific Environmental Services

Book 218

Date Received 09/15/98 By

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Carrier and Number MARSHALL CANNON

Box NO COOLANT Temp 25.0 C

TLI Number.. mR/H:CPM.	....Client Sample ID..... .....Client COC ID.....*	.....Matrix Location.....	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	To LAB Date/Init	To STORAGE Date/Init	DISPOSED Date/Init
218-12-1	AC1B AC1B	LIQUID AC METALS LAB									
218-12-2	AC2B AC2B	LIQUID AC METALS LAB									
218-12-3	RAP2B/AC RAP2B/AC	ASPH. CEMENT METALS LAB									
218-12-4	RAP2B/AGG RAP2B/AGG	AGGREGATE METALS LAB									
218-12-5	AC3B AC3B	LIQUID AC METALS LAB									
218-12-6	RAP3M2/AC RAP3M2/AC	ASPH.CEMENT METALS LAB									
218-12-7	RAP3M2/AGG RAP3M2/AGG	AGGREGATE METALS LAB									
218-12-8	AC4B AC4B	LIQUID AC METALS LAB									
218-12-9	RAP5B/AC RAP5B/AC	ASPH. CEMENT METALS LAB									
218-12-10	~~AGG1~~ RAP5B/AGG RAP5B/AGG	AGGREGATE METALS LAB									

AC 9-16-98

Receiving Remarks: SAMPLES REC'D IN BOX - NO COOLANT

Archive Remarks:

TRIANGLE LABORATORIES, INC.
Percent Moisture/Solid Calculations
Project: 46705-B

Empty Vial.Wt	Wet Vial Weight...	Dry Vial Weight...	Entered.By.....	Date....	Time....	%Moist	%Solid	Valid Weight From.....-To.....	Target Weight...
<Results not entered>									
<no FINAL results found>									
13.5299	15.6302	15.6256	WALTERS	09/18/98	15:40:17				
13.5299	15.6302	15.6215	DURHAM	09/18/98	07:19:28	0.4	99.6		
13.5299	15.6302	0.0000	JONESL	09/17/98	14:11:48			9.6386-10.4418	10.0402
<Results not entered>									
<no FINAL results found>									
13.5185	15.6937	15.6852	WALTERS	09/18/98	15:40:18				
13.5185	15.6937	15.6843	DURHAM	09/18/98	07:19:28	0.4	99.6		
13.5185	15.6937	0.0000	JONESL	09/17/98	14:11:48			9.6386-10.4418	10.0402
<Results not entered>									
<no FINAL results found>									
13.4318	15.7760	15.7649	WALTERS	09/18/98	15:40:18				
13.4318	15.7760	15.7627	DURHAM	09/18/98	07:19:29	0.6	99.4		
13.4318	15.7760	0.0000	JONESL	09/17/98	14:11:48			9.6579-10.4628	10.0604
<no FINAL results found>									
<no FINAL results found>									
<no FINAL results found>									
<no FINAL results found>									

ıt Moisture/Solid Summary

ILES.ID....	TLI.Number..	Client.Id.Number.....	%Moist	%Solid	ExtrctWt	DryWtEqu	RPD..
-B -002	218-12-4	RAP2B/AGG	0.4	99.6			
-B -004	218-12-7	RAP3M2/AGG	0.4	99.6			
-B -006	218-12-10	RAP5B/AGG	0.6	99.4			

ıd of Report ***

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TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

:t: 46705B

Client: Pacific Environmental Services (PES03)

Sample Information

i: 3050A Extraction Date: 9/16/98

nt/Acids(): HNO_3-HCL-H_2O_2 Lot: 118010/978912/417120

TLI SAMPLE ID / CLIENT SAMPLE ID	LDJ 9-16-98 Sample Wgt / Vol g / ml	LDJ 9-17-98 Final Volume ml	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
TLI Blank / TLI Blank	—	100						
218-12-4 / RAP2B/AGG	0.518							
218-12-7 / RAP3M2/AGG	0.512							
218-12-10 / RAP5B/AGG	0.521							
218-12-10DUP / RAP5B/AGG	0.513							
218-12-10 MS / RAP5B/AGG	0.516							
218-12-10MSD / RAP5B/AGG	0.572							
LCS / LAB CONTROL SPIKE	—	100						

nts: Inorganic Spike Log #1 pg. 105 : 10ml of 1:1 HNO_3, 10ml of HNO_3, 3ml of 30 H_2O_2, 5ml of HCL and 12 ml of Di Water used for Digestion LDJ 9-16-98

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REV 07/26/93 (PSTMF 7)

INORGANICS SPIKE LOG

DATE	PROJECT # SAMPLE IDs	ANALYTE	ORIGINAL STANDARD #	ORIGINAL STANDARD CONC. (PPM)	SPIKE SAMPLE (µL) / FINAL VOLUME (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
16-98	46705B-LCS	*	3-62-1	*	1000/100	*	LDJ	BLB 9/16/98
	218-12-10 MS						LDJ 9/16/98	BLB 9/16/98
	218-12-10 MS							

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* SEE SPIKE LOG

Project # 46705B

EXP date	Element	Spiking Standard Preparation: Standard ID	Orig. Std. (ppm)	Spike(uL) Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard: Spike(uL) FVol(100ml)	conc (ppb)	combined total
6/1/99	Ag	3-54-7	100	5000	5	1000	50	
8/1/99	Ag	3-60-8	100	5000	5	1000	50	
6/1/99	Al	3-54-7	100	5000	5	1000	50	
8/1/99	Al	3-60-8	10000	950	95	1000	950	1000
6/1/99	B	3-54-7	100	5000	5	1000	50	
6/1/99	Ba	3-54-7	100	5000	5	1000	50	
8/1/99	Ba	3-60-8	100	5000	5	1000	50	
8/1/99	Ca	3-60-8	100	5000	5	1000	50	
8/1/99	Ca	3-60-10	10000	950	95	1000	950	1000
8/1/99	Cd	3-60-8	100	5000	5	1000	50	
8/1/99	Co	3-60-8	100	5000	5	1000	50	
8/1/99	Cr	3-60-8	100	5000	5	1000	50	
8/1/99	Cu	3-60-8	100	5000	5	1000	50	
8/1/99	Fe	3-60-8	100	5000	5	1000	50	
8/1/99	Fe	3-60-9	10000	950	95	1000	950	1000
8/1/99	K	3-54-7	1000	5000	50	1000	500	
4/1/99	K	3-45-5	10000	1500	150	1000	1500	2000
8/1/99	Mg	3-60-8	100	5000	5	1000	50	
8/1/99	Mg	3-60-5	10000	950	95	1000	950	1000
8/1/99	Mn	3-60-8	100	5000	5	1000	50	
8/1/99	Mo	3-60-8	100	5000	5	1000	50	
6/1/99	Na	3-54-7	100	5000	5	1000	50	
8/1/99	Na	3-60-3	10000	1950	195	1000	1950	2000
8/1/99	Ni	3-60-8	100	5000	5	1000	50	
8/1/99	Pb	3-60-8	100	5000	5	1000	50	
8/1/99	Sb	3-60-8	100	5000	5	1000	50	
8/1/99	Se	3-60-8	100	5000	5	1000	50	
8/1/99	Ti	3-60-8	100	5000	5	1000	50	
8/1/99	Tl	3-60-8	100	5000	5	1000	50	
8/1/99	V	3-60-8	100	5000	5	1000	50	
8/1/99	Zn	3-60-8	100	5000	5	1000	50	
8/1/99	Zn	3-60-7	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100m	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	360	3600
Si	10000	50	5000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 3-62-1

EXP: 10/28/98

Spiked by: Leslie D. Jones 9-16-98

Predigestion-

Postdigestion-

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TRIANGLE LABORATORIES, INC.
Transfer Chain-of-Custody Form
Project 46705-B

Transfer From: To: IA

	Initials..	Date.....	Time...
Released by:	LDJ	9/17/98	1:50 P.M.
Accepted by:	DKA	9/20/98	11:00

MILES.ID.....		TLI_No.....	Cust.Id.....
46705-B	-000	TLI Blank	TLI Blank
46705-B	-002	218-12-4	RAP2B/AGG
46705-B	-004	218-12-7	RAP3M2/AGG
46705-B	-006	218-12-10	RAP5B/AGG
46705-B	-007	218-12-10DUP	RAP5B/AGG
46705-B	-008	218-12-10 MS	RAP5B/AGG
46705-B	-009	218-12-10MSD	RAP5B/AGG
46705-B	-010	LCS	LAB CONTROL SPIKE

XfrCOC (Rev 11/01/94)

ditional comments or instructions:

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Date	Project # & Sample IDs	Analyst	Std ID	Std conc ppm	Spike vol / sample vol mL/mL	Spike conc ppb	Initials	Witness
8/2/98	46220A 213-23-21 PDS	✓ SC	3-62-2 3-028-7	✓ 100	100/10 10/10	✓ 100	MCH MCH	MCH MCH
8/5/98	46346B 214-50-1 PDS	✓	3-62-2	✓	100/10	✓	MCH	DKH
8/5/98	46315 214-19-1 APDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/5/98	46257 213-60-21 PS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/6/98	46190A 212-92-10 BCPDS	✓ P	3-62-2 3-028-7	✓ 100	100/10 100/10	✓ 1000	FWP	FWP
8/11/98	46399 215-3-1 ABCO PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/17/98	46427A 215-31-3 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/17/98	46427B 215-31-6 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/18/98	46419A 215-23-1 ABCO PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/19/98	46363A 214-67-3 ABC PDS	✓ P	3-62-2 3-028-7	✓ 100	100/10 100/10	✓ 1000	MCH MCH	MCH MCH
8/20/98	46394A 214-97-1 ABCO PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/20/98	46489 215-93-1 ABCO PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/20/98	46348 214-52-1,2 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/20/98	46473 215-77-2 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/23/98	46432B 215-36-2 PDS	✓	3-62-2	✓	100/10	✓	MCH	DKH
8/24/98	46520 216-25-34 PDS	✓ P	3-62-2 3-028-7	✓ 100	100/10 100/10	✓ 1000	DKH	MCH
8/26/98	46496 216-1 ABCD PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
8/27/98	46573 216-81-1 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/2/98	46552B 216-27-1 ABCD PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/13/98	46574B 216-79-23,22,21 PDS 216-79-17,16 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/13/98	46587A 216-92-23,24,18 PDS 216-92-25,26 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/14/98	46629 217-35-1 ABCD PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/15/98	46507B 216-12-1 PDS 216-12-4 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/20/98	46605B 218-12-10 PDS	✓	3-62-2	✓	100/10	✓	MCH	MCH
9/21/98	46682 217-88-19,17,1,4 PDS	✓ P	3-62-2 3-68-28	✓ 100	100/10 100/10	✓ 1000	MCH	MCH

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* SEE SPIKE LOG

Project # 46705B

EXP date	Element	Spiking Standard Preparation: Standard ID	Orig. Std. (ppm)	Spike(uL) / Fvol(100mL)	conc (ppm)	SPIKING from Spiking Standard: Spike(uL) / FVol(100ml)	conc (ppb)	combined total
8/1/99	Ag	3-54-7	100	5000	5	1000	50	
8/1/99	As	3-60-8	100	5000	5	1000	50	
8/1/99	Al	3-54-7	100	5000	5	1000	50	
8/1/99	Al	3-60-6	10000	950	95	1000	950	1000
8/1/99	B	3-54-7	100	5000	5	1000	50	
8/1/99	Ba	3-54-7	100	5000	5	1000	50	
8/1/99	Be	3-60-8	100	5000	5	1000	50	
8/1/99	Ca	3-60-8	100	5000	5	1000	50	
8/1/99	Ca	3-60-10	10000	950	95	1000	950	1000
8/1/99	Cd	3-60-8	100	5000	5	1000	50	
8/1/99	Co	3-60-8	100	5000	5	1000	50	
8/1/99	Cr	3-60-8	100	5000	5	1000	50	
8/1/99	Cu	3-60-8	100	5000	5	1000	50	
8/1/99	Fe	3-60-8	100	5000	5	1000	50	
8/1/99	Fe	3-60-9	10000	950	95	1000	950	1000
8/1/99	K	3-54-7	1000	5000	50	1000	500	
4/1/99	K	3-45-5	10000	1500	150	1000	1500	2000
8/1/99	Mg	3-60-8	100	5000	5	1000	50	
8/1/99	Mg	3-60-5	10000	950	95	1000	950	1000
8/1/99	Mn	3-60-8	100	5000	5	1000	50	
8/1/99	Mo	3-60-8	100	5000	5	1000	50	
8/1/99	Na	3-54-7	100	5000	5	1000	50	
8/1/99	Na	3-60-3	10000	1950	195	1000	1950	2000
8/1/99	Ni	3-60-8	100	5000	5	1000	50	
8/1/99	Pb	3-60-8	100	5000	5	1000	50	
8/1/99	Sb	3-60-8	100	5000	5	1000	50	
8/1/99	Se	3-60-8	100	5000	5	1000	50	
8/1/99	Ti	3-60-8	100	5000	5	1000	50	
8/1/99	Tl	3-60-8	100	5000	5	1000	50	
8/1/99	V	3-60-8	100	5000	5	1000	50	
8/1/99	Zn	3-60-8	100	5000	5	1000	50	
8/1/99	Zn	3-60-7	1000	1500	15	1000	150	200

1000uL of the Spiking Standard gives the listed conc. of the above elements.

**Spike seperately

Element	Orig Std (ppm)	Spike(uL) Fvol(100m	conc (ppb)
Au	1000	140	1400
Ce	1000	30	300
Li	1000	70	700
P	1000	100	1000
Pd	1000	160	1600
Pt	1000	300	3000
S	1000	350	3500
Si	10000	50	5000
Sn	1000	20	200
Sr	1000	5	50

Spiking Standard 3-62-2

EXP: 10/28/98

Spiked by:

Predigestion-

Postdigestion- MKt 9/20/98

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TRIANGLE LABORATORIES, INC.

Sample Preparation Tracking & Management Form

:t: 46705B

Client: Pacific Environmental Services (PES03)

(IE) DSE 9/21/98

i: ~~7470~~ 7471

Sample Information

Extraction Date: 9/21/98

nt/Acids(): HCL/HNO3

Lot: 417030 / 118000

9-19-98 "Hg"

TLI SAMPLE ID / CLIENT SAMPLE ID		LDJ Sample Wgt / Vol (g) / ml	LDJ Final Volume ml	__/__/__	LDJ Duplicate Weighing	LDJ Triplicate weighing	__/__/__	Total Sample Vol (g)	__/__/__
TLI Blank MBD	TLI Blank		100						
218-12-4	RAP2B/AGG	0.295			0.201	0.246		0.742	
218-12-7	RAP3M2/AGG	0.204			0.233	0.237		0.674	
218-12-10	RAP5B/AGG	0.291			0.237	0.240		0.768	
218-12-10DUP	RAP5B/AGG	0.293			0.265	0.270		0.828	
~~218-12-10 MS~~ (IE) LDJ 9-19-98 218-12-4MS	RAP2B/AGG ~~RAP5B/AGG~~	0.211			0.216	0.207		0.634	
~~218-12-10MSD~~ (IE) LDJ 9-19-98 218-12-4MSD	RAP2B/AGG ~~RAP5B/AGG~~	0.204			0.247	0.210		0.661	
LCS LCSD	LAB CONTROL SPIKE								
218-12-4 Dup	RAP2B/AGG	0.225			0.290	0.299		0.814	
218-12-7 Dup	RAP3M2/AGG	0.257	100		0.278	0.219		0.754	
218-~~7~~12-7		.240			.241	.240		.721	
218-12-7D		.243			.242	.243		.728	

ents: See HGSL-1, Spike log p. 91,92

(IE) ~~25 mls of~~ A 3:1 mixture of HCL/HNO3 was used for digestion

6 1/21/98 206

REV 07/26/93 (PSTMF 7)

MERCURY SPIKE LOG

DATE	PROJECT # SAMPLE IDs	ORIGINAL SPIKE CONC. (Hg)	STANDARD # WORKING STANDARD PREPARED FROM	SPIKE AMOUNT (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
9/8/98	46522B LCS LCSD	0.1 ppm	3-69-2	5	5	DSE	CK
	216-27-1D MS	↓	↓	↓	↓	DSE	9-9-98
	216-27-1D MSD						
9/9/98	46513 LCS LCSD	0.1 ppm	3-69-2	5	5	DSE	CG
	216-18-1 MS	↓	↓	↓	↓	DSE	9-9-98
	216-18-1 MSD						
9/11/98	46518 LCS LCSD	0.1 ppm	3-69-6	5	5	DSE	BJ 9/11/98
	216-23-10 MS	↓	↓	↓	↓	↓	↓
	216-23-10 MSD						
9/14/98	46629 LCS LCSD	0.1 ppm	3-69-7	5	5	DSE	CK
	217-35-1CD MS	↓	↓	↓	↓	↓	↓
	217-35-1CD MSD						
	217-35-3CD MS						
	217-35-3CD MSD						
	217-35-4BC MS						
	217-35-4BC MSD						
	217-35-5ACMS					DSE 9/14/98	CK 9-14-98
	217-35-5ACMSD						
9/15/98	46574B LCS LCSD	0.1 ppm	3-69-8	5	5	DSE	CK
	216-79-23,22,21 MS	↓	↓	↓	↓	↓	↓
	216-79-23,22,21 MSD						
	216-79-8,14 MS						
	216-79-8,14 MSD						
	46587A LCS LCSD						
	216-92-25,26 MS					DSE 9/15/98	CK 9-15-98
	216-92-25,26 MSD						
9/21/98	46705B LCS LCSD	0.1 ppm	3-70-5	5	5	DSE	BJ
	218-12-4 MS	↓	↓	↓	↓	DSE	BJ 9/21/98
	218-12-4 MSD						

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MERCURY SPIKE LOG

	PROJECT # SAMPLE IDs	ORIGINAL SPIKE CONC. (Hg)	STANDARD # WORKING STANDARD PREPARED FROM	SPIKE AMOUNT (mL)	SPIKE SAMPLE (PPB)	INITIALS	WITNESS
18	46705B LCS LCSD	0.1ppm	3-10-7	5	5	DSE	B/JB
up	218-12-4 MS 218-12-4 MSD	↓		↓	↓	↓	↓
	46705A LCS LCSD						
	218-12-3 MS 218-12-3 MSD					DSE 9/22/98	B.[illegible] 9/23/98
8	46682 LCS LCSD	0.1ppm	3-10-7	5	5	CR	DSE
	217-88-~~14,17~~ 4 MS 217-88-4 MSD	↓	↓	↓	↓	↓	↓
	217-88-3 MS 217-88-3 MSD					CR 9/22/98	DSE 9/22/98

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TRIANGLE LABS

SAMPLE DATA

Triangle Laboratories, Inc.
801 Capitola Drive
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919-544-5729
P.O. Box 13485
Research Triangle Park, NC 27709
Fax # 919-544-5491

209

Client: **Pacific Environmental Services**
Project Number: **46705B**

Sample Report

Client Sample ID:	RAP2B/AGG
TLI Sample ID:	218-12-4
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	24.702	99.6	0.518	100	1	4.79
Be	1.100	99.6	0.518	100	1	< 0.969
Cd	3.220	99.6	0.518	100	1	0.624
Co	33.331	99.6	0.518	100	1	6.46
Cr	67.106	99.6	0.518	100	1	13.0
Mn	1352.786	99.6	0.518	100	1	262
Ni	45.310	99.6	0.518	100	1	8.78
Pb	106.235	99.6	0.518	100	1	20.6
Sb	0.767	99.6	0.518	100	1	< 0.775
Se	10.282	99.6	0.518	100	1	1.99

Triangle Laboratories, Inc.
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Client: Pacific Environmental Services
Project Number: 46705B

Sample Report

Client Sample ID:	RAP3M2/AGG
TLI Sample ID:	218-12-7
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	20.869	99.6	0.512	100	1	4.09
Be	1.100	99.6	0.512	100	1	< 0.98
Cd	3.431	99.6	0.512	100	1	0.673
Co	28.585	99.6	0.512	100	1	5.61
Cr	51.099	99.6	0.512	100	1	10.0
Mn	1237.938	99.6	0.512	100	1	243
Ni	45.859	99.6	0.512	100	1	8.99
Pb	113.184	99.6	0.512	100	1	22.2
Sb	-1.243	99.6	0.512	100	1	< 0.784
Se	12.937	99.6	0.512	100	1	2.54

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211

Client: **Pacific Environmental Services**
Project Number: **46705B**

Sample Report

Client Sample ID:	RAP5B/AGG
TLI Sample ID:	218-12-10
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	33.548	99.4	0.521	100	1	6.48
Be	1.100	99.4	0.521	100	1	< 0.965
Cd	3.400	99.4	0.521	100	1	0.657
Co	36.858	99.4	0.521	100	1	7.12
Cr	64.161	99.4	0.521	100	1	12.4
Mn	1273.526	99.4	0.521	100	1	246
Ni	40.507	99.4	0.521	100	1	7.82
Pb	167.679	99.4	0.521	100	1	32.4
Sb	-0.516	99.4	0.521	100	1	< 0.772
Se	11.478	99.4	0.521	100	1	2.22

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Client: Pacific Environmental Services
Project Number: 46705B

Sample Report

Client Sample ID:	RAP5B/AGG
TLI Sample ID:	218-12-10 L
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	6.616	99.4	0.521	100	5	6.39
Be	N/A	99.4	0.521	100	5	N/A
Cd	0.844	99.4	0.521	100	5	< 0.965
Co	7.552	99.4	0.521	100	5	7.29
Cr	13.714	99.4	0.521	100	5	13.2
Mn	262.057	99.4	0.521	100	5	253
Ni	8.552	99.4	0.521	100	5	8.26
Pb	33.681	99.4	0.521	100	5	32.5
Sb	0.427	99.4	0.521	100	5	< 3.86
Se	2.110	99.4	0.521	100	5	< 2.90

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Client: Pacific Environmental Services
Project Number: 46705B

Sample Report

Client Sample ID:	RAP5B/AGG
TLI Sample ID:	218-12-10 D
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	28.651	99.4	0.513	100	1	5.62
Be	1.000	99.4	0.513	100	1	< 0.981
Cd	3.418	99.4	0.513	100	1	0.670
Co	39.240	99.4	0.513	100	1	7.70
Cr	101.407	99.4	0.513	100	1	19.9
Mn	1211.558	99.4	0.513	100	1	238
Ni	51.413	99.4	0.513	100	1	10.1
Pb	165.564	99.4	0.513	100	1	32.5
Sb	0.701	99.4	0.513	100	1	< 0.784
Se	11.620	99.4	0.513	100	1	2.28

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Client: Pacific Environmental Services
Project Number: 46705B

Sample Report

Client Sample ID:	RAP5B/AGG
TLI Sample ID:	218-12-10 MS
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	78.042	99.4	0.516	100	1	15.2
Be	N/A	99.4	0.516	100	1	N/A
Cd	51.592	99.4	0.516	100	1	10.1
Co	82.049	99.4	0.516	100	1	16.0
Cr	110.244	99.4	0.516	100	1	21.5
Mn	1295.977	99.4	0.516	100	1	253
Ni	89.290	99.4	0.516	100	1	17.4
Pb	221.732	99.4	0.516	100	1	43.2
Sb	16.527	99.4	0.516	100	1	3.22
Se	55.014	99.4	0.516	100	1	10.7

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Client: **Pacific Environmental Services**
Project Number: **46705B**

Sample Report

Client Sample ID:	RAP5B/AGG
TLI Sample ID:	218-12-10 MSD
Date Received:	September 15, 1998
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	Aggregate

Analyte	Conc. (ug/L)	Percent Solid	grams Used	mL Final Vol.	Dilution Factor	mg/Kg Result
As	85.967	99.4	0.572	100	1	15.1
Be	N/A	99.4	0.572	100	1	N/A
Cd	49.275	99.4	0.572	100	1	8.67
Co	81.726	99.4	0.572	100	1	14.4
Cr	109.101	99.4	0.572	100	1	19.2
Mn	1146.941	99.4	0.572	100	1	202
Ni	87.128	99.4	0.572	100	1	15.3
Pb	217.105	99.4	0.572	100	1	38.2
Sb	15.480	99.4	0.572	100	1	2.72
Se	55.212	99.4	0.572	100	1	9.71

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Client: **Pacific Environmental Services**
Project Number: 46705B

QA: Serial Dilution

Client Sample ID:	RAP5B/AGG	RAP5B/AGG
TLI Sample ID:	218-12-10	218-12-10 L
Date Prepared:	September 16, 1998	September 16, 1998
Date Analyzed:	September 20-21, 1998	September 20-21, 1998
Matrix:	Aggregate	Aggregate

	Native Sample		Serial Dilution		
Analyte	mg/Kg Result	ug/L Conc.	mg/Kg Result	ug/L Conc.	RPD
As	6.48	33.548	6.39	6.616	<RDL
Be	< 0.965	1.100	N/A	N/A	<RDL
Cd	0.657	3.400	< 0.965	0.844	<RDL
Co	7.12	36.858	7.29	7.552	<RDL
Cr	12.4	64.161	13.2	13.714	<RDL
Mn	246	1273.526	253	262.057	2.81%
Ni	7.82	40.507	8.26	8.552	<RDL
Pb	32.4	167.679	32.5	33.681	0.308%
Sb	< 0.772	-0.516	< 3.86	0.427	<RDL
Se	2.22	11.478	< 2.90	2.110	<RDL

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Client: Pacific Environmental Services
Project Number: 46705B

QA: Duplicate

Client Sample ID:	RAP5B/AGG	RAP5B/AGG
TLI Sample ID:	218-12-10	218-12-10 D
Date Prepared:	September 16, 1998	September 16, 1998
Date Analyzed:	September 20-21, 1998	September 20-21, 1998
Matrix:	Aggregate	Aggregate

	Sample		Duplicate		
Analyte	mg/Kg Result	ug/L Conc.	mg/Kg Result	ug/L Conc.	RPD
As	6.48	33.548	5.62	28.651	<RDL
Be	< 0.965	1.100	< 0.981	1.000	<RDL
Cd	0.657	3.400	0.67	3.418	<RDL
Co	7.12	36.858	7.70	39.240	7.83%
Cr	12.4	64.161	19.9	101.407	46.4%
Mn	246	1273.526	238	1211.558	3.31%
Ni	7.82	40.507	10.1	51.413	25.4%
Pb	32.4	167.679	32.5	165.564	0.308%
Sb	< 0.772	-0.516	< 0.784	0.701	<RDL
Se	2.22	11.478	2.28	11.620	<RDL

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Client: Pacific Environmental Services
Project Number: 46705B

QA: Matrix Spikes (Pre-Digestion)

Client Sample ID:	RAP5B/AGG MS	RAP5B/AGG MSD
TLI Sample ID:	218-12-10 MS	218-12-10 MSD
Date Prepared:	September 16, 1998	September 16, 1998
Date Analyzed:	September 20-21, 1998	September 20-21, 1998
Matrix:	Aggregate	Aggregate

	Matrix Spike			Matrix Spike Duplicate			
Analyte	Result mg/Kg	True Spike mg/Kg	% Recovery	Result mg/Kg	True Spike mg/Kg	% Recovery	RPD
As	15.2	9.74	90%	15.1	8.78	98%	0.660%
Be	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cd	10.1	9.79	96%	8.67	8.80	91%	15.2%
Co	16.0	9.75	91%	14.4	8.81	83%	10.5%
Cr	21.5	9.75	93%	19.2	8.80	77%	11.3%
Mn	253	9.76	Spike Low	202	8.81	Spike Low	22.4%
Ni	17.4	9.74	98%	15.3	8.78	85%	12.8%
Pb	43.2	9.74	111%	38.2	8.80	66%	12.3%
Sb	3.22	9.74	25%	2.72	8.79	22%	16.8%
Se	10.7	9.72	87%	9.71	8.79	85%	9.70%

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Client: Pacific Environmental Services
Project Number: 46705B

QA: Matrix Spikes (Post-Digestion)

Client Sample ID:	RAP5B/AGG PDS	
TLI Sample ID:	218-12-10 PDS	
Date Prepared:	September 16, 1998	
Date Analyzed:	September 20-21, 1998	
Matrix:	Aggregate	

	Post-Digestion Spike			Post-Digestion Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	79.82	50	93%				---
Be	N/A	50	N/A				---
Cd	51.44	50	96%				---
Co	86.58	50	99%				---
Cr	113.01	50	98%				---
Mn	1309.49	50	Spike Low				---
Ni	89.72	50	98%				---
Pb	216.00	50	97%				---
Sb	47.78	50	96%				---
Se	56.69	50	90%				---

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Client: Pacific Environmental Services
Project Number: 46705B

QA: Method Blank

TLI Sample ID:	46705B MB
Date Prepared:	September 16, 1998
Date Analyzed:	September 20-21, 1998
Matrix:	N/A

	Method Blank		
Analyte	Recovered Amount (ug/L)	Detection Limit (ug/L)	Pass or Fail
As	-2.68	5	Pass
Be	0.0	5	Pass
Cd	-0.08	1	Pass
Co	-0.55	2	Pass
Cr	-0.22	2	Pass
Mn	0.49	2	Pass
Ni	-2.71	3	Pass
Pb	0.48	2	Pass
Sb	0.18	4	Pass
Se	-0.62	3	Pass
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Client: Pacific Environmental Services
Project Number: 46705B

QA: Lab Control Spikes

TLI Sample ID:	46705B LCS	
Date Prepared:	September 16, 1998	
Date Analyzed:	September 20-21, 1998	
Matrix:	N/A	

	Lab Control Spike			Lab Control Spike Duplicate			
Analyte	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	Recovered Amount (ug/L)	Spike Amount (ug/L)	% Recovery	RPD
As	44.49	50	89%				---
Be	51.00	50	102%				---
Cd	49.79	50	100%				---
Co	50.46	50	101%				---
Cr	51.15	50	102%				---
Mn	51.36	50	103%				---
Ni	47.46	50	95%				---
Pb	50.90	50	102%				---
Sb	49.21	50	98%				---
Se	45.15	50	90%				---

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ent: Pacific Environmental Services
ject Number: 46705B

ample Report

e Received:	September 15, 1998
e Prepared:	September 21, 1998
e Analyzed:	September 22, 1998
TA FILE:	AB
rix:	Aggregate

ANALYTE: Hg	
ug/L RDL: 0.2	
Analysis Method:	7471
Instrument: P E Zeeman 5100	
Spike Conc. (ug/L)	5

CVAA ANALYTE SUMMARY REPORT

nt Sample ID	TLI SAMPID	ug/L CONC	ml MPV	gram wt. USED	Percent Solid	DIL FACTOR	mg/Kg RESULT	Avg. RESULT	RPD	%REC
P2B/AGG	218-12-4	0.114	100	0.742	99.6%	1	< 0.027	--	--	--
P2B/AGG D	218-12-4 D	0.010	100	0.814	99.6%	1	< 0.025	< 0.026	--	--
P3M2/AGG	218-12-7	0.253	100	0.674	99.6%	1	0.038	--	--	--
P3M2/AGG D	218-12-7 D	0.302	100	0.754	99.6%	1	0.040	0.039	--	--
P5B/AGG	218-12-10	0.266	100	0.768	99.4%	1	0.035	--	--	--
P5B/AGG D	218-12-10 D	0.315	100	0.828	99.4%	1	0.038	0.037	--	--
P2B/AGG MS	218-12-4 MS	4.286	100	0.634	99.6%	1	0.679	--	--	86%
P2B/AGG MSD	218-12-4 MSD	4.271	100	0.661	99.6%	1	0.649	--	4.52%	85%
P2B/AGG MS	True Spike MS	5	100	0.634	99.6%	1	0.792	--	--	--
P2B/AGG MSD	True Spike MSD	5	100	0.661	99.6%	1	0.759	--	--	--
thod Blank	46705B MB	0.039	--	--	--	--	--	--	--	--
thod Blank D	46705B MBD	0.021	--	--	--	--	--	--	--	--
S	46705B LCS	4.596	--	--	--	--	--	--	--	92%
SD	46705B LCSD	4.962	--	--	--	--	--	--	--	99%

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Sampler Report Table: HA600 Sun 09-20-98 01:17:17 PM page 1

.e Name: HA600 Autosampler Type: TYPE TJA
ple Positions: 179/192 QC Positions: 13/19 # Sets: 2
se Station location is rack -1, pos. -1.

Racks ---

#	Type	Usage	#Pos Left	Analyses/Pos
	Aux. (L) Rack	STD/QC/BLANK	13	10
	Sample (16mm)	Samples	35	1
	Sample (16mm)	Samples	48	1
	Sample (16mm)	Samples	48	1
	Sample (16mm)	Samples	48	1

Sample Sets ---

#	Type	Prepare?	Description	Method	#Pos	Rack#	StartPos
	Normal	No	465748	TRIANGL2	3	2	1
	Normal	No	467058	TRIANGL2	10	2	4

Preparation Info ---

#	Uptake	Uptake#2	Final	Dil.Factor

Samples Prepared.

k #1

Row	Col	Sample Name	Set #	#Used	Type
1	1	STD3	-NA-	2	Standard 1-81-12P
1	2	STD1-BLANK	-NA-	1	Standard
1	3	ICSAB	-NA-	3	QC Standard 1-81-14P
1	4	CHECK LO	-NA-	1	QC Standard
1	5	ICV/CCV	-NA-	3	QC Standard 1-81-13P
1	6	ICB/CCB	-NA-	3	QC Standard

...19 Not Used)

MKH
9/20/98

k #2

Row	Col	Sample Name	Set #	#Used	Type
1	1	465748 MB	1	-NA-	Sample
1	2	465748 LCS	1	-NA-	Sample
1	3	216-79-8.14	1	-NA-	Sample
1	4	467058 MB	2	-NA-	Sample
1	5	467058 LCS	2	-NA-	Sample
1	6	218-12-4	2	-NA-	Sample
1	7	218-12-7	2	-NA-	Sample
1	8	218-12-10	2	-NA-	Sample
1	9	218-12-10 D	2	-NA-	Sample
1	10	218-12-10 MS	2	-NA-	Sample
1	11	218-12-10 MSD	2	-NA-	Sample
1	12	218-12-10 PDS	2	-NA-	Sample
2	1	218-12-10 L	2	-NA-	Sample

...48 Not Used)

224

: #3

Row	Col	Sample Name	Set #	#Used	Type

..48 Not Used)

(#4

Row	Col	Sample Name	Set #	#Used	Type

..48 Not Used)

(#5

Row	Col	Sample Name	Set #	#Used	Type

..48 Not Used)

225

Sample Name	File	Method	Date	Time	OpID	Type	Mode
STD1-BLANK	92098	TRIANGL2	09/20/98	10:00		X	IR
STD1-BLANK	92098	TRIANGL2	09/20/98	10:09		X	IR
STD3	92098	TRIANGL2	09/20/98	10:14		X	IR
STD3	92098	TRIANGL2	09/20/98	10:18	DKH	Q	CONC
CHECK LO	92098	TRIANGL2	09/20/98	10:23	DKH	Q	CONC
ICV/CCV	92098	TRIANGL2	09/20/98	10:28	DKH	Q	CONC
ICB/CCB	92098	TRIANGL2	09/20/98	10:35	DKH	Q	CONC
ICSAB	92098	TRIANGL2	09/20/98	10:40	DKH	Q	CONC
465748 MB	92098	TRIANGL2	09/20/98	10:55	DKH	S	CONC
465748 LCS	92098	TRIANGL2	09/20/98	11:00	DKH	S	CONC
216-79-8,14	92098	TRIANGL2	09/20/98	11:05	DKH	S	CONC
ICV/CCV	92098	TRIANGL2	09/20/98	11:09	DKH	Q	CONC
ICB/CCB	92098	TRIANGL2	09/20/98	11:18	DKH	Q	CONC
ICSAB	92098	TRIANGL2	09/20/98	11:23	DKH	Q	CONC
467058 MB	92098	TRIANGL2	09/20/98	11:45	DKH	S	CONC
46705B LCS	92098	TRIANGL2	09/20/98	11:49	DKH	S	CONC
218-12-4	92098	TRIANGL2	09/20/98	11:54	DKH	S	CONC
218-12-7	92098	TRIANGL2	09/20/98	11:58	DKH	S	CONC
218-12-10	92098	TRIANGL2	09/20/98	12:03	DKH	S	CONC
218-12-10 D	92098	TRIANGL2	09/20/98	12:08	DKH	S	CONC
218-12-10 MS	92098	TRIANGL2	09/20/98	12:12	DKH	S	CONC
218-12-10 MSD	92098	TRIANGL2	09/20/98	12:17	DKH	S	CONC
218-12-10 PDS	92098	TRIANGL2	09/20/98	12:22	DKH	S	CONC
218-12-10 L	92098	TRIANGL2	09/20/98	12:26	DKH	S	CONC
ICV/CCV	92098	TRIANGL2	09/20/98	12:37	DKH	Q	CONC
~~ICB/CCB~~	~~92098~~	~~TRIANGL2~~	~~09/20/98~~	~~12:41~~	~~DKH~~	~~Q~~	~~CONC~~
~~ICB/CCB~~	~~92098~~	~~TRIANGL2~~	~~09/20/98~~	~~12:47~~	~~DKH~~	~~Q~~	~~CONC~~
ICB/CCB	92098	TRIANGL2	09/20/98	12:53	DKH	Q	CONC
ICSAB	92098	TRIANGL2	09/20/98	12:58	DKH	Q	CONC

N/A. Reanalyzed. MCA 9/20/98

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od: TRIANGL2 Standard: STD1-BLANK
Time: 09/20/98 10:09:40

n	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Ca3179
e	-.0001	.0085	-.0005	.0056	.0000	.0003	.0000
v	.0001	.0001	.0001	.0000	.0000	.0000	.0000
D	86.74	.5765	18.42	.3052	27.88	3.230	91.62
	.0000	.0086	-.0006	.0056	.0000	.0004	.0000
	-.0001	.0085	-.0005	.0056	.0001	.0003	.0000
	-.0001	.0085	-.0004	.0056	.0001	.0003	.0000

n	Cd2265	Ce4186	Co2286	Cr2677	Cu3247	Fe2714	K_7664
e	-.0005	-.0002	-.0001	-.0001	.0027	.0000	2.955
v	.0000	.0004	.0000	.0001	.0000	.0000	.040
D	2.651	213.6	26.87	54.37	.8566	91.55	1.370
	-.0005	-.0006	-.0002	-.0001	.0027	.0000	2.909
	-.0005	-.0001	-.0001	-.0001	.0027	.0001	2.967
	-.0005	.0002	-.0001	-.0000	.0027	.0000	2.987

n	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Ni2316	P_2149
e	.0484	.0001	.0001	.0000	.0056	-.0014	-.0013
v	.0007	.0001	.0000	.0000	.0013	.0001	.0001
D	1.360	68.13	4.444	60.79	23.75	5.166	7.216
	.0476	.0000	.0001	.0000	.0071	-.0015	-.0014
	.0487	.0002	.0001	.0001	.0045	-.0014	-.0013
	.0488	.0001	.0001	.0001	.0053	-.0014	-.0012

n	2203-1	2203-2	Sb2068	1960-1	1960-2	Sn1899	Sr4215
e	.0010	.0000	.0003	-.0097	.0038	-.0008	.0001
v	.0006	.0002	.0002	.0004	.0004	.0001	.0000
D	56.90	628.2	61.85	4.315	9.486	15.81	12.70
	.0017	-.0002	.0002	-.0096	.0034	-.0009	.0001
	.0006	.0002	.0002	-.0101	.0041	-.0006	.0001
	.0007	.0001	.0005	-.0093	.0038	-.0007	.0002

n	Ti3349	Tl1908	V_2924	Zn2062	Si2881
e	.0001	-.0009	-.0007	.0000	.0324
v	.0001	.0001	.0000	.0001	.0002
D	133.1	15.65	2.784	199.4	.7255
	-.0000	-.0010	-.0007	-.0000	.0327
	.0001	-.0007	-.0007	.0000	.0323
	.0001	-.0009	-.0007	.0001	.0322

Std	1	2	3	4	5	6	7
e	*Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
n	Y	--	--	--	--	--	--
len	371.030	--	--	--	--	--	--
e	232189	15000	--	--	--	--	--
v	240.5043	.0000000	--	--	--	--	--
D	.1035814	.0000000	--	--	--	--	--
227	231965	15000	--	--	--	--	--

232454	15000	--	--	--	--	--
232127	15000	--	--	--	--	--

ıod: TRIANGL2 Standard: STD3
Time: 09/20/98 10:14:20

em	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130	Ca3179
ge	.4081	.0212	.1212	.1263	.1658	.2378	.0178
ev	.0025	.0001	.0011	.0007	.0013	.0019	.0001
SD	.6176	.6666	.9435	.5841	.7881	.7937	.7758
	.4110	.0214	.1225	.1271	.1672	.2400	.0179
	.4070	.0212	.1208	.1259	.1653	.2370	.0177
	.4063	.0211	.1203	.1259	.1648	.2365	.0177

em	Cd2265	Ce4186	Co2286	Cr2677	Cu3247	Fe2714	K_7664
ge	.8988	.0935	.1060	.1281	.1746	.0036	17.19
ev	.0063	.0008	.0008	.0010	.0014	.0000	.02
SD	.7067	.8022	.7160	.7506	.7916	.6980	.1032
	.9062	.0944	.1069	.1292	.1761	.0036	17.17
	.8956	.0932	.1055	.1277	.1742	.0035	17.20
	.8947	.0930	.1056	.1274	.1734	.0036	17.19

em	Li6707	Mg2790	Mn2576	Mo2020	Na3302	Ni2316	P_2149
ge	11.63	.0200	.1215	.1238	.1945	.3365	.0345
ev	.02	.0002	.0008	.0007	.0007	.0031	.0002
SD	.1867	.8799	.7016	.5886	.3382	.9198	.4668
	11.64	.0202	.1224	.1247	.1949	.3401	.0346
	11.65	.0199	.1211	.1235	.1948	.3346	.0346
	11.61	.0199	.1209	.1234	.1937	.3348	.0344

em	2203-1	2203-2	Sb2068	1960-1	1960-2	Sn1899	Sr4215
ge	.2009	.1016	.1948	.5327	.3657	.1389	.7774
ev	.0008	.0005	.0009	.0016	.0046	.0016	.0069
SD	.4044	.4856	.4529	.5024	1.250	.8729	.8935
	.2018	.1021	.1958	.5330	.3710	.1907	.7851
	.2001	.1014	.1941	.5342	.3629	.1883	.7753
	.2009	.1012	.1944	.5310	.3632	.1876	.7716

em	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ge	.9991	.0694	.0339	.1322	.4961
ev	.0080	.0002	.0003	.0009	.0034
SD	.7939	.2358	.7503	.6784	.6767
	1.008	.0696	.0342	.1332	.4999
	.9963	.0693	.0337	.1317	.4946
	.9929	.0693	.0337	.1317	.4937

ıtStd	1	2	3	4	5	6	7
ode	#Counts	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
.em	[illegible]	--	--	--	--	--	--
ıvlen	371.330	--	--	--	--	--	--
ge	231476	15000	--	--	--	--	--

228

od: TRIANGL2 Sample Name: STD3 Operator: DKH
Time: 09/20/98 10:18 Filename: 92098
: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 465748

s	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
s	ppb	ppb	ppb	ppb	ppb	ppb
	1000.	1001.	1007.	1000.	1000.	1001.
	4.07	.4574	5.219	7.177	.4782	6.558
	.4069	.0457	.5183	.7176	.0478	.6554

s	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
s	ppb	ppb	ppb	ppb	ppb	ppb
	1003.	1006.	1002.	1004.	1003.	1000.
	8.416	7.103	1.358	7.481	7.63	.3264
	.8392	.7062	.1354	.7453	.7604	.0326

s	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
s	ppb	ppm	ppb	ppb	ppb	ppb
	1002.	9.944	994.4	1001.	1001.	1006.
	12.88	.1019	10.04	5.677	5.928	6.38
	1.285	1.025	1.01	.5669	.5921	.6342

s	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
s	ppm	ppb	ppb	ppb	ppb	ppb
	9.879	1006.	1009.	1006.	1003.	1003.
	.0581	7.729	4.967	7.975	12.81	4.308
	.5883	.768	.4923	.793	1.278	.4296

s	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
s	ppb	ppb	ppb	ppb	ppb	ppb
	1006.	1002.	1004.	1003.	1004.	994.4
	4.451	13.87	11.19	10.6	7.865	.3735
	.4426	1.384	1.115	1.056	.7856	.0376

s	Ti3349	Tl1908	V_2924	Zn2062	Si2881
s	ppb	ppb	ppb	ppb	ppb
	998.2	1010.	1003.	1004.	10030.
	3.069	8.747	5.692	10.78	38.53
	.3075	.8664	.5673	1.073	.3843

229

od: TRIANGL2 Sample Name: ICV/CCV Operator: DKH
Time: 09/20/98 11:09 Filename: 92098
: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 465748

ns	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	501.4	480.3	508.5	491.7	515.5	504.8
v	2.172	3.827	3.002	1.689	2.73	3.33
D	.4332	.7968	.5905	.3435	.5297	.6597

ns	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	509.4	508.1	504.2	511.3	509.6	508.1
v	3.975	3.558	2.054	3.452	4.723	2.639
D	.7804	.7003	.4075	.6752	.9268	.5193

ns	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	509.6	5.033	491.9	501.8	510.7	510.8
v	11.61	.0572	7.714	3.955	3.016	2.636
D	2.279	1.136	1.568	.7882	.5907	.5162

ns	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	4.902	504.2	498.2	507.2	503.0	487.0
v	.0461	3.357	1.142	1.93	4.115	7.478
D	.9398	.6658	.2292	.3805	.8182	1.535

ns	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	511.8	510.1	504.4	510.7	512.1	508.7
v	.9534	1.53	3.215	1.043	3.525	2.486
D	.1863	.2999	.6375	.2042	.6884	.4886

ns	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	505.5	506.9	504.8	512.5	5007.
v	2.26	4.352	2.839	5.767	23.4
D	.447	.9572	.5625	1.125	.4675

230

iod: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Time: 09/20/98 11:18 Filename: 92098
: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 465748

ns	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-.2385	-22.53	.0613	-16.44	.1139	.0092
v	.974	2.756	.2133	1.238	.0824	.0133
D	408.4	12.23	347.7	7.533	72.36	144.1

ns	Ca3179	Cd2265	Ca4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	.5744	.2456	1.260	.3539	.4401	.7999
v	1.118	.2414	3.709	.84	.8711	.4722
D	194.6	98.3	294.5	237.4	197.9	59.04

ns	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	5.848	.0240	.1458	.0441	.0851	.3948
v	12.76	.0339	.0352	6.488	.0604	.3089
D	218.3	141	24.12	14700	70.91	78.23

ns	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	-.1742	-.0526	.1157	-3.715	.4299	.4829
v	.1916	.2319	5.769	1.457	1.466	1.179
D	110	441	4984	39.23	341	244.1

ms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-.5542	.1561	-.9504	-.0805	-.6453	.1060
v	.4766	.6414	.9324	.3362	.2999	.0276
D	85.98	411	98.11	417.8	46.48	26.05

ms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	.1725	2.252	.2472	.3631	-112.8
v	.1885	.3665	.484	.564	6.276
D	109.3	16.27	195.8	155.3	5.565

od: TRIANGL2 Sample Name: ICSAB Operator: DKH
Time: 09/20/98 11:23 Filename: 92098
: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 465748

ms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	551.1	524500.	525.3	534.4	542.5	491.1
v	1.125	1147	2.42	1.788	.7799	1.208
D	.2042	.2187	.4608	.3346	.1437	.2461

ms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	456700.	489.6	514.2	494.6	493.6	569.7
v	1355	1.524	.609	1.583	1.903	1.15
D	.2967	.3112	.1184	.3201	.3855	.2018

ms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	181600.	16.49	652.1	535200.	478.2	505.8
v	458.2	.0588	1.961	1509	1.304	2.609
D	.2523	.3567	.3008	.282	.2726	.5159

ms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	5.890	465.5	6634.3	512.1	499.1	519.2
v	.0774	1.258	5.934	2.93	2.203	6.393
D	1.315	.2702	.9354	.5721	.4413	1.231

ms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	559.5	545.1	503.4	548.6	524.5	533.5
v	2.774	1.731	.4998	1.349	2.953	.9446
D	.4957	.3188	.0993	.2458	.563	.1771

ms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	509.2	520.0	493.4	459.0	5441.
v	.949	7.941	1.301	1.62	12.38
D	.1863	1.527	.2605	.353	.2276

232

od: TRIANGL2 Sample Name: 467058 MB Operator: DKH
Time: 09/20/98 11:45 Filename: 92098
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
s	ppb	ppb	ppb	ppb	ppb	ppb
s	L-2.685	L-.0414	L-.0825	L-.5500	L-.2153	L.4867
	1.84	.0235	.1113	.1459	.0712	.0255
	68.52	56.81	134.9	26.52	33.08	5.237

	Ni2316	Pb2203	Sb2068	Se1960
s	ppb	ppb	ppb	ppb
s	L-2.712	L.4808	L.1774	L-.6181
	.3233	.6344	1.045	.4139
	11.92	131.9	589.1	66.96

233

ıod: TRIANGL2 Sample Name: 467058 LCS Operator: DKH
Time: 09/20/98 11:49 Filename: 92098
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	44.49	48.90	49.79	50.46	51.15	51.36
v	.5318	.4577	.2058	.3482	.4947	.456
D	1.195	.9361	.4133	.6902	.967	.8878

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
e	47.46	50.90	49.21	45.15
v	.2881	.5254	1.458	.8344
D	.607	1.032	2.963	1.848

ıod: TRIANGL2 Sample Name: 218-12-4 Operator: DKH
Time: 09/20/98 11:54 Filename: 92098
ɜ: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ns	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
ɜ	24.70	L-5.554	3.220	33.33	67.11	1353.
/	1.716	.0108	.1025	.6402	.8321	1.578
)	6.947	.1953	3.182	1.921	1.24	.1167

ns	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
ɜ	45.31	106.2	L.7672	10.28
v	.6245	1.45	.7364	.8907
)	1.378	1.365	95.99	8.662

235

hod: TRIANGL2 Sample Name: 218-12-7 Operator: DKH
Time: 09/20/98 11:58 Filename: 92098
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
a	20.87	L-3.069	3.431	28.58	51.10	1238.
iv	.7198	.0347	.0292	.1445	.1288	9.61
D	3.449	1.13	.8517	.5054	.2521	.7763

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
ja	45.86	113.2	L-1.243	12.94
iv	1.026	1.405	1.526	.5889
D	2.237	1.241	122.7	4.552

236

od: TRIANGL2 Sample Name: 218-12-10 Operator: DKH
Time: 09/20/98 12:03 Filename: 92098
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

s	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
s	ppb	ppb	ppb	ppb	ppb	ppb
	33.55	L-6.381	3.400	36.86	64.16	1274.
	1.479	.0204	.2031	.3651	.1644	1.961
	4.409	.3196	5.975	.9904	.2562	.154

s	Ni2316	Pb2203	Sb2068	Se1960
s	ppb	ppb	ppb	ppb
	40.51	167.7	L-.5160	11.48
	.9076	.3696	1.183	.7629
	2.241	.2204	229.2	6.647

237

hod: TRIANGL2 Sample Name: 218-12-1Q D Operator: DKH
Time: 09/20/98 12:08 Filename: 92098
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
a	28.65	L-5.684	3.418	39.24	101.4	1212.
v	1.411	.0046	.1694	.5381	1.117	9.884
D	4.926	.0809	4.954	1.371	1.101	.8158

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
a	51.41	165.6	L.7008	11.62
v	.5722	2.617	2.71	1.22
D	1.113	1.581	386.7	10.5

nod: TRIANGL2 Sample Name: 218-12-10 MS Operator: DKH
Time: 09/20/98 12:12 Filename: 92098
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ns	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
:s	ppb	ppb	ppb	ppb	ppb	ppb
e	78.04	42.37	51.59	82.05	110.2	1296.
/	.9675	.0974	.116	.3057	.3505	2.983
)	1.24	.2298	.2248	.3726	.3179	.2302

ns	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
e	89.29	221.7	16.53	55.01
/	1.135	1.361	.5989	1.389
)	1.271	.6136	3.624	2.525

239

ıod: TRIANGL2 Sample Name: 218-12-1Q MSD Operator: DKH
Time: 09/20/98 12:17 Filename: 92098
ɜ: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ns	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
ɜ	85.97	38.73	49.28	81.73	109.1	1147.
v	.5274	.0436	.1345	.1206	.1631	1.5
D	.6135	.1124	.273	.1476	.1495	.1308

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
ɜ	87.13	217.1	15.48	55.21
v	.9933	.5385	.5629	1.69
D	1.14	.248	3.636	3.062

240

hod: TRIANGL2 Sample Name: 218-12-10 PDS Operator: DKH
Time: 09/20/98 12:22 Filename: 92098
e: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 46705B

ms	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	79.82	41.31	51.44	86.58	113.0	1309.
v	.7798	.3126	.539	.5552	.1965	8.562
D	.9769	.7568	1.048	.6412	.1739	.6539

ms	Ni2316	Pb2203	Sb2068	Se1960
ts	ppb	ppb	ppb	ppb
e	89.72	216.0	47.78	56.69
v	.8259	1.837	1.497	1.217
D	.9206	.8503	3.134	2.147

241

od: TRIANGL2 Sample Name: 218-12-10 L Operator: DKH
Time: 09/20/98 12:26 Filename: 92098
: CONC Type: S Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

s	As1890	Be3130	Cd2265	Co2286	Cr2677	Mn2576
.s	ppb	ppb	ppb	ppb	ppb	ppb
	6.616	L-1.146	L.8441	7.552	13.71	262.1
	.4493	.0104	.1333	.2423	.0907	.9263
	6.792	.9124	15.8	3.208	.6615	.3535

ıs	Ni2316	Pb2203	Sb2068	Se1960
.s	ppb	ppb	ppb	ppb
	3.352	33.68	L.4273	L2.110
	.6356	.8303	2.176	1.288
	7.435	2.465	509.3	61.03

242

hod: TRIANGL2 Sample Name: ICV/CCV Operator. DKH
Time: 09/20/98 12:37 Filename: 92098
e: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	504.1	546.1	513.3	496.3	521.1	500.7
v	2.1	8.308	4.025	2.783	2.03	2.019
D	.4166	1.521	.7842	.5608	.3896	.4032

ms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	501.5	518.4	514.1	521.1	510.9	514.1
v	1.642	2.199	2.79	1.814	1.323	2.445
D	.3274	.4242	.5427	.3481	.259	.4755

ms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	519.5	5.042	491.5	505.6	508.4	515.9
v	2.513	.0251	1.874	4.481	1.43	1.907
D	.4837	.4979	.3812	.8864	.2812	.3695

ms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	4.915	511.1	504.3	509.6	514.5	501.2
v	.0093	2.886	9.358	2.676	1.709	1.954
D	.19	.5647	1.854	.5251	.3321	.3898

ms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	518.3	520.1	512.9	519.5	493.8	513.7
v	3.679	3.329	1.259	3.403	2.812	2.185
D	.71	.64	.2455	.655	.5695	.4254

ms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	503.3	521.3	516.3	499.3	4990.
v	1.671	2.533	1.945	2.129	22.46
D	[illegible]	.485-	.3767	.4264	.4501

243

iod: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Time: 09/20/98 12:41 Filename: 92098
: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ns	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	.0882	36.41	-.3899	-17.18	.2415	.3941
/	.1035	2.778	.3042	1.169	.0401	.0229
)	117.4	7.631	78.02	6.805	16.61	5.811

ns	Ca3179	Cd2265	Ca4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	1.853	.3498	4.485	.4485	.5167	-.5675
/	.7785	.1049	1.457	.061	.3857	.1151
)	42	29.98	32.48	13.6	74.66	20.27

ns	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	14.34	-.0256	.1573	6.175	.2455	1.250
/	1.898	.0015	.0133	1.144	.001	1.001
)	13.23	5.939	8.449	18.53	.4162	80.1

ns	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	-.1459	.0982	2.690	-3.044	-1.235	34.042
/	.1168	.2465	2.124	.6904	1.589	3.308
)	80.03	251.2	78.95	22.68	128.6	81.82

ns	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-1.031	.3494	-1.838	-.3102	.2279	.1986
/	.3614	.3175	.9113	.5217	.2063	.0088
)	38.93	90.89	49.57	168.2	90.54	4.412

ns	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	.5620	36.544	1.411	.3763	-203.6
/	.0915	.7931	.163	.4156	4.097
)	16.29	12.12	11.55	110.3	2.013

N/A.
DKH 9/20/98

244

hod: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Time: 09/20/98 12:47 Filename: 92098
e: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ms	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	.1229	35.49	-.1947	-18.52	.0863	.2995
v	.3266	3.035	1.097	.864	.0147	.0159
D	265.8	8.551	563.4	4.666	17.03	5.312

ms	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	.3223	.2408	1.824	.3665	.3373	-.5427
v	.2413	.0786	.837	.2699	.1929	.0395
D	74.88	32.65	45.89	73.63	57.2	7.277

ms	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	4.911	-.0368	.0288	1.579	.0579	.4054
v	1.871	.0069	.0317	.8819	.0537	.1595
D	38.1	18.75	110.2	55.34	92.73	39.34

ms	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	-.1294	-.4408	-3.230	-1.994	-2.056	1.301
v	.052	.1225	4.546	2.239	1.481	.4005
D	40.18	27.8	140.7	112.2	72.06	30.78

ms	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-1.109	1.339	Q-2.035	.5240	-.2154	.0810
v	.6856	1.287	.971	.6513	1.038	.0166
D	61.8	96.12	47.71	124.3	481.3	20.53

ms	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	[illegible]	2.019	1.226	.1281	[illegible]
v	[illegible]	1.98	.2733	.1348	[illegible]
D	26.54	[illegible]	[illegible]	[illegible]	[illegible]

N/A.
DKH 9/20/98

245

od: TRIANGL2 Sample Name: ICB/CCB Operator: DKH
Time: 09/20/98 12:53 Filename: 92098
: CONC Type: Q Corr. Factor: 1.00000
ID.: Cust. Smpl. ID.: Cust. ID.: 467058

ns	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-.1080	46.36	.1051	-19.60	.0198	.3104
v	.4232	2.011	.287	.5749	.0523	.0214
D	391.7	4.338	273	2.933	264.3	6.905

ns	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-.1595	.1738	2.333	.0702	.3898	-.8187
v	.4891	.0881	.9066	.1834	.2203	.0885
D	306.7	50.69	38.87	261.1	56.63	10.81

ns	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
ts	ppb	ppm	ppb	ppb	ppb	ppb
e	2.138	-.0251	.0038	-.0972	-.0532	.3308
v	5.871	.0115	.0115	.8233	.0543	.179
D	274.6	45.73	300	847.9	102.1	54.1

ns	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
ts	ppm	ppb	ppb	ppb	ppb	ppb
e	-.1365	.1476	2.096	-.8852	-1.387	.2972
v	.1066	.7035	1.806	1.388	1.057	.6293
D	78.1	476.7	86.16	156.8	76.21	211.8

ns	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
ts	ppb	ppb	ppb	ppb	ppb	ppb
e	-.6924	.1942	-1.220	-.1010	.8138	.0183
v	1.048	1.443	.2444	1.214	.6112	.0117
D	131.4	742.8	20.04	1202	75.11	63.93

ns	Ti3349	Tl1908	V_2924	Zn2062	Si2881
ts	ppb	ppb	ppb	ppb	ppb
e	.1006	[illegible]	1.248	.2522	-221.5
v	.1011	1.449	.1383	.0774	2.939
D	[illegible]	71.74	11.08	30.65	1.327

246

ethod: TRIANGL2 Sample Name: ICSAB Operator: DKH
un Time: 09/20/98 12:58 Filename: 92098
ode: CONC Type: Q Corr. Factor: 1.00000
ab ID.: Cust. Smpl. ID.: Cust. ID.: 467058

Elems	Ag3280	Al3082	As1890	B_2496	Ba4934	Be3130
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	549.4	515000.	527.9	536.6	547.7	487.7
SDev	.4926	512.9	2.206	2.606	.8116	1.511
%RSD	.0896	.0996	.4179	.4857	.1482	.3098

Elems	Ca3179	Cd2265	Ce4186	Co2286	Cr2677	Cu3247
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	448500.	499.4	522.8	504.0	494.4	574.2
SDev	1732	2.032	2.308	1.566	1.217	.9807
%RSD	.3863	.4069	.4414	.3107	.2462	.1708

Elems	Fe2714	K_7664	Li6707	Mg2790	Mn2576	Mo2020
Units	ppb	ppm	ppb	ppb	ppb	ppb
Avge	182500.	16.66	632.7	530200.	477.4	512.4
SDev	498.3	.0605	1.7	1598	1.192	2.323
%RSD	.2732	.363	.2603	.3015	.2498	.551

Elems	Na3302	Ni2316	P_2149	2203-1	2203-2	Sb2068
Units	ppm	ppb	ppb	ppb	ppb	ppb
Avge	5.970	472.4	6629.9	522.7	508.8	527.5
SDev	.0872	1.172	12.68	1.294	8.698	2.927
%RSD	1.461	.2481	2.013	.2475	1.709	.5548

Elems	1960-1	1960-2	Pb2203	Se1960	Sn1899	Sr4215
Units	ppb	ppb	ppb	ppb	ppb	ppb
Avge	566.3	554.6	513.4	558.5	504.3	540.1
SDev	.7919	1.652	6.23	1.295	3.651	.6549
%RSD	.1398	.2979	1.213	.2316	.7232	.1213

Elems	Ti3349	Tl1908	V_2924	Zn2062	Si2881
Units	ppb	ppb	ppb	ppb	ppb
Avge	507.9	530.8	511.1	447.3	5394.
SDev	.5931	5.352	1.383	3.236	8.102
%RSD	.1168	1.008	.2703	.7231	.1502

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tosampler Loading Map
Element File: BE.GEL

ID/Weight File: EB331.IDW

Loc.	Concentration	Solutions
0		Calib. Blank / Diluent / ICB / CCB
1	5.0 ug/L	Stock 1-82-1P x10
2	10.0 ug/L	Stock / Recovery Stock 1-82-2P x10
4		ICV=3.0ug/L 1-82-3P x10
5		CCV=6.0ug/L 1-82-4P x10
6		CHECK LO
7		46507B MB
8		46507B LCS X10
9		218-12-4
10		218-12-7
11		218-12-10
12		218-12-10 D
13		218-12-10 MSX10
14		218-12-10MSDX10
15		218-12-10 L
40		Modifier 1

MKA 9/20/92

MSAs analyzed.
All passing!
MKA 9/21/92

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ment File: BE.GEL
ment: Be
nt Data: Main+Suppl.
nt: Calib. Curve

Analyst: HOLSTE
Peak Storage: 1 Repl./Sample

STRUMENT: 4100 ZL
elength: 234.9 Peak
gnal Type: Zeeman AA
d Time: 3.0
ple Replicates: 2
ndard Replicates: 2

Technique: HGA
Version: 7.30
Slit: 0.70 Low
Signal Measurement: Peak Area
Read Delay: 0.0
BOC Time: 2

Spike Replicates: Same as Sample

LIBRATION:

olutions	ID	Conc	Location	Volume	Diluent Volume	Modifier #1	Modifier #2
ib. Blank	STD BLANK		0	10	5	5	
andard 1	STD1= 2.5ug/L	2.5	1	5	10	5	
andard 2	STD2= 5.0ug/L	5.0	1	10	5	5	
andard 3	STD3= 10ug/L	10.0	2	10	5	5	
slope Std.	5.0 ug/L	5.0	1	10	5	5	
mples				10	5	5	

luent Location: 0
odifier #1 Location: 40
alibration Units: ug/L
alibration Type: Linear

Modifier #2 Location:
Sample Units: ug/L

---

rnace Time/Temperature Program:

ep	Temp	Ramp	Hold	Gas Flow	Read	Gas Type
1	110	1	25	250		Norm
2	130	1	20	250		Norm
3	1500	5	15	250		Norm
4	2300	0	3	0	*	Norm
5	2500	1	5	250		Norm

jection Temp: 20 Pipette Speed: 85% Extraction System: On

QUENCE:

ep	Action and Parameters
1	Pipet diluent + modifier 1 + spike + sample/std
2	Run HGA steps 1 to End

ECKS:
alibration Type: Reslope
ations: None

nc. Above Calibration Action: Dilute & Reanalyze After 1 Rep
ternate Sample Volumes (uL): 5,2,1
n Alternate Volume Blanks: No

%RSD > 20.0 and Concentration > 0.2 then Retry 1 times
eck %RSD on: Samples + Standards + Spikes + QC Samples

covery Measurements:
uL of 10 ug/L Standard at Location 2 Gives 5.0 ug/L
asure Recovery on Samples: 11,15
d to QC Samples: Yes % Recovery Limits: 85 to 115

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:

A/S Loc.	QC Sample ID	Conc. Limits Lower	Upper	After Calib	Periodic Check	At End	Count As Sample
4	ICV=3.0ug/L	2.7	3.3				
0	ICB	-1.0	1.0				
5	CCV=6.0ug/L	4.8	7.2	X	X	X	
0	CCB	-1.0	1.0	X	X	X	

n Periodic QC Samples: Every 10
t of Limit Action: Reslope and Rerun Samples

trix Check Calculations:
Difference for Dupls: No Locations:
Recovery for Spike: No Locations: Conc:

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ment File: BE.GEL
e: 09/20/98
a File: EB331.DAT
hnique: HGA

Element: Be
Time: 14:19
ID/Wt File: UNTITLED
Calib. Type: Linear

Wavelength: 234.9
Slit: 0.70 L
Lamp Current: 30
Energy: 60

ID: STD BLANK Seq. No.: 00001 A/S Pos.: 0 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 1 Time: 14:21
k Area (A-s): 0.001 Peak Height (A): 0.004
ckground Pk Area (A-s): 0.005 Background Pk Height (A): 0.018
nk Corrected Pk Area (A-s): 0.001
ncentration (ug/L): 0.1

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 14:23
k Area (A-s): -0.000 Peak Height (A): 0.004
ckground Pk Area (A-s): 0.005 Background Pk Height (A): 0.021
nk Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

an Conc (ug/L): 0.1 SD: 0.05 RSD(%): 80.01

to-zero performed.

ID: STD1= 2.5ug/L Seq. No.: 00002 A/S Pos.: 1 Date: 09/20/98

dispensed: 10 from 0, 5 from 40, 5 from 1

ID: STD BLANK Seq. No.: 00003 A/S Pos.: 0 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 1 Time: 14:27
ak Area (A-s): -0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.006 Background Pk Height (A): 0.022
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 14:29
ak Area (A-s): -0.000 Peak Height (A): 0.004
ckground Pk Area (A-s): 0.006 Background Pk Height (A): 0.023
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

an Conc (ug/L): -0.0 SD: 0.01 RSD(%): 31.65

to-zero performed.

ID: STD1= 2.5ug/L Seq. No.: 00004 A/S Pos.: 1 Date: 09/20/98

dispensed: 10 from 0, 5 from 40, 5 from 1
plicate 1 Time: 14:31
ak Area (A-s): 0.027 Peak Height (A): 0.169
ckground Pk Area (A-s): 0.043 Background Pk Height (A): 0.219

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ank Corrected Pk Area (A-s): 0.027
ncentration (ug/L): 2.7

dispensed: 10 from 0. 5 from 40. 5 from 1
plicate 2 (Peak Stored) Time: 14:34
ak Area (A-s): 0.027 Peak Height (A): 0.155
ckground Pk Area (A-s): 0.042 Background Pk Height (A): 0.213
ank Corrected Pk Area (A-s): 0.028
ncentration (ug/L): 2.7

an Conc (ug/L): 2.7 SD: 0.02 RSD(%): 0.75

andard number 1 applied. [2.5]
rrelation coefficient: 1.00000 Slope: 0.0110

~~~~~~

ID: STD2= 5.0ug/L Seq. No.: 00005 A/S Pos.: 1 Date: 09/20/98

. dispensed: 5 from 0, 5 from 40, 10 from 1
plicate 1 Time: 14:36
ak Area (A-s): 0.059 Peak Height (A): 0.338
ckground Pk Area (A-s): 0.080 Background Pk Height (A): 0.382
ank Corrected Pk Area (A-s): 0.059
ncentration (ug/L): 5.4

. dispensed: 5 from 0. 5 from 40. 10 from 1
plicate 2 (Peak Stored) Time: 14:39
ak Area (A-s): 0.063 Peak Height (A): 0.403
ckground Pk Area (A-s): 0.083 Background Pk Height (A): 0.450
ank Corrected Pk Area (A-s): 0.063
ncentration (ug/L): 5.8

ean Conc (ug/L): 5.6 SD: 0.26 RSD(%): 4.69

andard number 2 applied. [5.0]
rrelation coefficient: 0.99112 Slope: 0.0120

~~~~~~

e ID: STD3= 10ug/L Seq. No.: 00006 A/S Pos.: 2 Date: 09/20/98

. dispensed: 5 from 0. 5 from 40, 10 from 2
plicate 1 Time: 14:41
eak Area (A-s): 0.121 Peak Height (A): 0.708
ackground Pk Area (A-s): 0.146 Background Pk Height (A): 0.745
lank Corrected Pk Area (A-s): 0.121
oncentration (ug/L): 10.0

. dispensed: 5 from 0. 5 from 40, 10 from 2
eplicate 2 (Peak Stored) Time: 14:44
eak Area (A-s): 0.122 Peak Height (A): 0.727
ackground Pk Area (A-s): 0.144 Background Pk Height (A): 0.754
lank Corrected Pk Area (A-s): 0.122
oncentration (ug/L): 10.1

ean Conc (ug/L): 10.1 SD: 0.08 RSD(%): 0.75

tandard number 3 applied. [10.0]
orrelation coefficient: 0.99902 Slope: 0.0121

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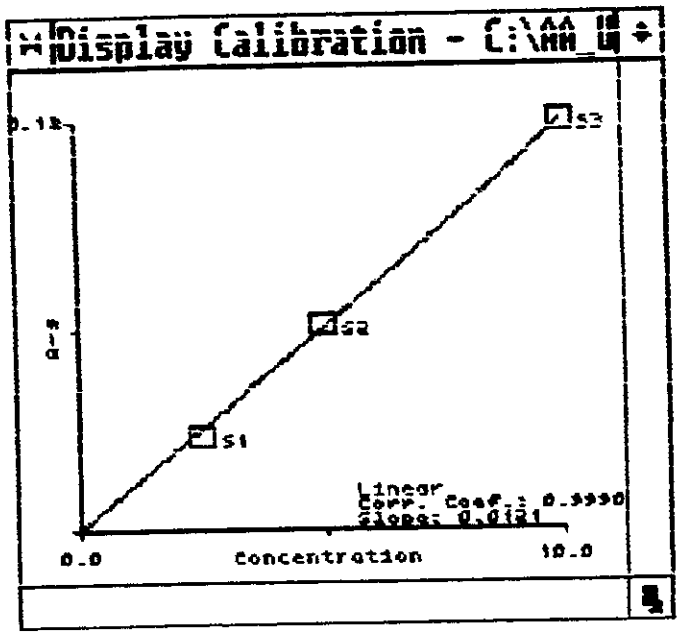
Display Calibration - C:\AA_U
S3
S2
S1
Linear
Corr. Coef.: 0.9990
Slope: 0.0121
0.0
Concentration
10.0

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```
ment File: BE.GEL            Element: Be                  Wavelength: 234.9
e: 09/20/98                  Time: 15:08                  Slit: 0.70 L
a File: EB331.DAT            ID/Wt File: EB331.IDW        Lamp Current: 30
hnique: HGA                  Calib. Type: Linear          Energy: 60

   ID: ICV=3.0ug/L          Seq. No.: 00007    A/S Pos.: 4     Date: 09/20/98

 dispensed: 5 from 0, 5 from 40, 10 from 4
plicate  1                                Time: 15:10
ak Area (A-s): 0.030                      Peak Height (A): 0.176
ckground Pk Area (A-s): 0.044             Background Pk Height (A): 0.250
ank Corrected Pk Area (A-s): 0.030
ncentration (ug/L  ): 2.5

 dispensed: 5 from 0, 5 from 40, 10 from 4
plicate  2 (Peak Stored)                  Time: 15:12
ak Area (A-s): 0.037                      Peak Height (A): 0.237
ckground Pk Area (A-s): 0.052             Background Pk Height (A): 0.296
ank Corrected Pk Area (A-s): 0.037
ncentration (ug/L  ): 3.1

an Conc  (ug/L  ):        2.8        SD: 0.42             RSD(%): 15.27

 sample is within range 2.7 - 3.3

   ID: ICB                  Seq. No.: 00008    A/S Pos.: 0     Date: 09/20/98

 dispensed: 5 from 0, 5 from 40, 10 from 0
plicate  1                                Time: 15:15
ak Area (A-s): 0.000                      Peak Height (A): 0.003
ckground Pk Area (A-s): 0.005             Background Pk Height (A): 0.026
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L  ): 0.0

 dispensed: 5 from 0, 5 from 40, 10 from 0
plicate  2 (Peak Stored)                  Time: 15:17
ak Area (A-s): 0.000                      Peak Height (A): 0.003
ckground Pk Area (A-s): 0.006             Background Pk Height (A): 0.022
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L  ): 0.0

an Conc  (ug/L  ):        0.0        SD: 0.01             RSD(%): 24.21

 sample is within range -1.0 - 1.0

   ID: CHECK LO             Seq. No.: 00009    A/S Pos.: 6     Date: 09/20/98

 dispensed: 5 from 0, 5 from 40, 10 from 6
plicate  1                                Time: 15:20
ak Area (A-s): 0.012                      Peak Height (A): 0.080
ckground Pk Area (A-s): 0.022             Background Pk Height (A): 0.127
ank Corrected Pk Area (A-s): 0.013
ncentration (ug/L  ): 1.0

 dispensed: 5 from 0, 5 from 40, 10 from 6
```

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plicate 2 (Peak Stored) Time: 15:22
ak Area (A-s): 0.013 Peak Height (A): 0.084
ckground Pk Area (A-s): 0.021 Background Pk Height (A): 0.125
ank Corrected Pk Area (A-s): 0.013
ncentration (ug/L): 1.1

an Conc (ug/L): 1.1 SD: 0.04 RSD(%): 4.13

~~~~~~

ID: 46507B MB Seq. No.: 00010 A/S Pos.: 7 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 7
plicate 1 Time: 15:25
ak Area (A-s): -0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.005 Background Pk Height (A): 0.028
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

dispensed: 5 from 0, 5 from 40, 10 from 7
plicate 2 (Peak Stored) Time: 15:27
ak Area (A-s): 0.001 Peak Height (A): 0.005
ckground Pk Area (A-s): 0.005 Background Pk Height (A): 0.026
ank Corrected Pk Area (A-s): 0.001
ncentration (ug/L): 0.1

an Conc (ug/L): 0.0 SD: 0.06 RSD(%): 136.64

~~~~~~

ID: 46507B LCS X10 Seq. No.: 00011 A/S Pos.: 8 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 8
plicate 1 Time: 15:30
ak Area (A-s): 0.060 Peak Height (A): 0.400
ckground Pk Area (A-s): 0.080 Background Pk Height (A): 0.430
ank Corrected Pk Area (A-s): 0.060
ncentration (ug/L): 5.0

dispensed: 5 from 0, 5 from 40, 10 from 8
plicate 2 (Peak Stored) Time: 15:32
ak Area (A-s): 0.063 Peak Height (A): 0.390
ckground Pk Area (A-s): 0.084 Background Pk Height (A): 0.474
ank Corrected Pk Area (A-s): 0.064
ncentration (ug/L): 5.3

an Conc (ug/L): 5.1 SD: 0.20 RSD(%): 3.82

~~~~~~

ID: 218-12-4 Seq. No.: 00012 A/S Pos.: 9 Date: 09/20/98

. dispensed: 5 from 0, 5 from 40, 10 from 9
plicate 1 Time: 15:35
ak Area (A-s): 0.025 Peak Height (A): 0.048
ckground Pk Area (A-s): 0.110 Background Pk Height (A): 0.183
ank Corrected Pk Area (A-s): 0.025
ncentration (ug/L): 2.1

. dispensed: 5 from 0, 5 from 40, 10 from 9
plicate 2 (Peak Stored) Time: 15:37
ak Area (A-s): 0.026 Peak Height (A): 0.052

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~~~~~~

ckground Pk Area (A-s): 0.113 Background Pk Height (A): 0.197
ank Corrected Pk Area (A-s): 0.026
ncentration (ug/L): 2.2

an Conc (ug/L): 2.1 SD: 0.07 RSD(%): 3.17

~~~~~~

ID: 218-12-7 Seq. No.: 00013 A/S Pos.: 10 Date: 09/20/98

dispensed: 5 from 0. 5 from 40. 10 from 10
plicate 1 Time: 15:40
ak Area (A-s): 0.027 Peak Height (A): 0.061
ckground Pk Area (A-s): 0.121 Background Pk Height (A): 0.220
ank Corrected Pk Area (A-s): 0.028
ncentration (ug/L): 2.3

dispensed: 5 from 0. 5 from 40, 10 from 10
plicate 2 (Peak Stored) Time: 15:42
ak Area (A-s): 0.026 Peak Height (A): 0.055
ckground Pk Area (A-s): 0.123 Background Pk Height (A): 0.226
ank Corrected Pk Area (A-s): 0.026
ncentration (ug/L): 2.2

an Conc (ug/L): 2.2 SD: 0.09 RSD(%): 3.97

~~~~~~

ID: 218-12-10 Seq. No.: 00014 A/S Pos.: 11 Date: 09/20/98

. dispensed: 5 from 0. 5 from 40. 10 from 11
plicate 1 Time: 15:44
ak Area (A-s): 0.025 Peak Height (A): 0.052
ckground Pk Area (A-s): 0.126 Background Pk Height (A): 0.231
ank Corrected Pk Area (A-s): 0.025
ncentration (ug/L): 2.0

. dispensed: 5 from 0. 5 from 40, 10 from 11
plicate 2 (Peak Stored) Time: 15:47
ak Area (A-s): 0.025 Peak Height (A): 0.052
ckground Pk Area (A-s): 0.130 Background Pk Height (A): 0.227
ank Corrected Pk Area (A-s): 0.025
ncentration (ug/L): 2.0

an Conc (ug/L): 2.0 SD: 0.01 RSD(%): 0.29

~~~~~~

ID: 218-12-10 Seq. No.: 00015 A/S Pos.: 11 Date: 09/20/98

. dispensed: 5 from 40, 5 from 2, 10 from 11
ample abs. is greater than that of the largest standard.
plicate 1 Time: 15:49
ak Area (A-s): 0.142 Peak Height (A): 0.324
ackground Pk Area (A-s): 0.268 Background Pk Height (A): 0.505
ank Corrected Pk Area (A-s): 0.142
oncentration (ug/L): 11.7

. dispensed: 5 from 40, 5 from 2, 10 from 11
ample abs. is greater than that of the largest standard.
plicate 2 (Peak Stored) Time: 15:52
ak Area (A-s): 0.148 Peak Height (A): 0.328

256
~~~~~~

kground Pk Area (A-s): 0.275 Background Pk Height (A): 0.545
nk Corrected Pk Area (A-s): 0.148
centration (ug/L): 12.2

ple abs. is greater than that of the largest standard.
n Conc (ug/L): 12.0 SD: 0.38 RSD(%): 3.17

overy is 198.6% (outside of specified limits)

~~~~~~

ID: 218-12-10 D Seq. No.: 00016 A/S Pos.: 12 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 12
plicate 1 Time: 15:54
ak Area (A-s): 0.024 Peak Height (A): 0.044
ckground Pk Area (A-s): 0.128 Background Pk Height (A): 0.230
ank Corrected Pk Area (A-s): 0.024
ncentration (ug/L): 2.0

dispensed: 5 from 0, 5 from 40, 10 from 12
plicate 2 (Peak Stored) Time: 15:57
ak Area (A-s): 0.023 Peak Height (A): 0.045
ckground Pk Area (A-s): 0.130 Background Pk Height (A): 0.233
ank Corrected Pk Area (A-s): 0.023
ncentration (ug/L): 1.9

an Conc (ug/L): 2.0 SD: 0.05 RSD(%): 2.40

~~~~~~

ID: 218-12-10 MSX10 Seq. No.: 00017 A/S Pos.: 13 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 13
plicate 1 Time: 15:59
ak Area (A-s): 0.080 Peak Height (A): 0.208
ckground Pk Area (A-s): 0.127 Background Pk Height (A): 0.312
ank Corrected Pk Area (A-s): 0.080
ncentration (ug/L): 6.6

dispensed: 5 from 0, 5 from 40, 10 from 13
plicate 2 (Peak Stored) Time: 16:02
ak Area (A-s): 0.081 Peak Height (A): 0.242
ckground Pk Area (A-s): 0.129 Background Pk Height (A): 0.340
ank Corrected Pk Area (A-s): 0.081
ncentration (ug/L): 6.7

an Conc (ug/L): 6.6 SD: 0.06 RSD(%): 0.84

~~~~~~

ID: 218-12-10MSDX10 Seq. No.: 00018 A/S Pos.: 14 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 14
plicate 1 Time: 16:04
ak Area (A-s): 0.076 Peak Height (A): 0.189
ckground Pk Area (A-s): 0.122 Background Pk Height (A): 0.307
ank Corrected Pk Area (A-s): 0.076
ncentration (ug/L): 6.3

dispensed: 5 from 0, 5 from 40, 10 from 14
plicate 2 (Peak Stored) Time: 16:06

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~~~~~~

ak Area (A-s): 0.075 Peak Height (A): 0.196
ckground Pk Area (A-s): 0.122 Background Pk Height (A): 0.289
ank Corrected Pk Area (A-s): 0.076
ncentration (ug/L): 6.2

an Conc (ug/L): 6.2 SD: 0.01 RSD(%): 0.18

~~~~~~

ID: CCV=6.0ug/L Seq. No.: 00019 A/S Pos.: 5 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 1 Time: 16:09
ak Area (A-s): 0.074 Peak Height (A): 0.485
ckground Pk Area (A-s): 0.099 Background Pk Height (A): 0.558
ank Corrected Pk Area (A-s): 0.075
ncentration (ug/L): 6.2

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 2 (Peak Stored) Time: 16:11
ak Area (A-s): 0.074 Peak Height (A): 0.443
ckground Pk Area (A-s): 0.098 Background Pk Height (A): 0.510
ank Corrected Pk Area (A-s): 0.074
ncentration (ug/L): 6.1

an Conc (ug/L): 6.1 SD: 0.03 RSD(%): 0.41

sample is within range 4.8 - 7.2

~~~~~~

ID: CCB Seq. No.: 00020 A/S Pos.: 0 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 1 Time: 16:14
ak Area (A-s): 0.001 Peak Height (A): 0.004
ckground Pk Area (A-s): 0.007 Background Pk Height (A): 0.033
ank Corrected Pk Area (A-s): 0.001
ncentration (ug/L): 0.1

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 16:16
ak Area (A-s): -0.000 Peak Height (A): 0.004
ckground Pk Area (A-s): 0.007 Background Pk Height (A): 0.028
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

an Conc (ug/L): 0.0 SD: 0.05 RSD(%): 143.78

sample is within range -1.0 - 1.0

~~~~~~

ID: 218-12-10 L Seq. No.: 00021 A/S Pos.: 15 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 15
plicate 1 Time: 16:18
ak Area (A-s): 0.005 Peak Height (A): 0.011
ackground Pk Area (A-s): 0.036 Background Pk Height (A): 0.059
lank Corrected Pk Area (A-s): 0.005
oncentration (ug/L): 0.4

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~~~~~~

dispensed: 5 from 0, 5 from 40, 10 from 15
plicate 2 (Peak Stored)
ak Area (A-s): 0.005
ckground Pk Area (A-s): 0.037
ank Corrected Pk Area (A-s): 0.005
ncentration (ug/L): 0.4

Time: 16:21
Peak Height (A): 0.011
Background Pk Height (A): 0.069

an Conc (ug/L): 0.4 SD: 0.00 RSD(%): 0.66

~~~~~~

ID: 218-12-10 L Seq. No.: 00022 A/S Pos.: 15 Date: 09/20/98

dispensed: 5 from 40, 5 from 2, 10 from 15
plicate 1
ak Area (A-s): 0.000
ckground Pk Area (A-s): 0.015
ank Corrected Pk Area (A-s): 0.001
ncentration (ug/L): 0.1

Time: 16:23
Peak Height (A): 0.004
Background Pk Height (A): 0.028

dispensed: 5 from 40, 5 from 2, 10 from 15
plicate 2 (Peak Stored)
ak Area (A-s): 0.001
ckground Pk Area (A-s): 0.016
ank Corrected Pk Area (A-s): 0.002
ncentration (ug/L): 0.1

Time: 16:25
Peak Height (A): 0.005
Background Pk Height (A): 0.029

an Conc (ug/L): 0.1 SD: 0.06 RSD(%): 60.35

covery is -5.9% (outside of specified limits)

~~~~~~

ID: CCV=6.0ug/L Seq. No.: 00023 A/S Pos.: 5 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 1
ak Area (A-s): 0.000
ckground Pk Area (A-s): 0.001
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

Time: 16:28
Peak Height (A): 0.004
Background Pk Height (A): 0.005

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 2 (Peak Stored)
ak Area (A-s): -0.000
ckground Pk Area (A-s): 0.001
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

Time: 16:30
Peak Height (A): 0.003
Background Pk Height (A): 0.004

an Conc (ug/L): 0.0 SD: 0.03 RSD(%): 215.70

sample is out of range 4.8 - 7.2

~~~~~~

ID: CCB Seq. No.: 00024 A/S Pos.: 0 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 1
ak Area (A-s): 0.001
ckground Pk Area (A-s): -0.000
ank Corrected Pk Area (A-s): 0.001

Time: 16:33
Peak Height (A): 0.006
Background Pk Height (A): 0.004

259

NA MM 9/21/98
~~~~~~

ncentration (ug/L): 0.1

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 16:35
ak Area (A-s): 0.000 Peak Height (A): 0.004
ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.004
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

an Conc (ug/L): 0.1 SD: 0.02 RSD(%): 30.82

sample is within range -1.0 - 1.0

~~~~~~

ID: STD BLANK Seq. No.: 00025 A/S Pos.: 0 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 0
eplicate 1 Time: 16:37
ak Area (A-s): 0.001 Peak Height (A): 0.003
ackground Pk Area (A-s): 0.001 Background Pk Height (A): 0.005
ank Corrected Pk Area (A-s): 0.001
oncentration (ug/L): 0.1

dispensed: 5 from 0, 5 from 40, 10 from 0
eplicate 2 (Peak Stored) Time: 16:40
eak Area (A-s): -0.000 Peak Height (A): 0.004
ackground Pk Area (A-s): 0.001 Background Pk Height (A): 0.005
lank Corrected Pk Area (A-s): -0.000
oncentration (ug/L): -0.0

ean Conc (ug/L): 0.0 SD: 0.06 RSD(%): 229.43

uto-zero performed.

~~~~~~

e ID: 5.0 ug/L Seq. No.: 00026 A/S Pos.: 1 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 1
eplicate 1 Time: 16:42
eak Area (A-s): -0.001 Peak Height (A): 0.003
ackground Pk Area (A-s): 0.002 Background Pk Height (A): 0.005
lank Corrected Pk Area (A-s): -0.001
oncentration (ug/L): -0.1

dispensed: 5 from 0, 5 from 40, 10 from 1
eplicate 2 (Peak Stored) Time: 16:45
eak Area (A-s): -0.000 Peak Height (A): 0.004
ackground Pk Area (A-s): 0.001 Background Pk Height (A): 0.005
lank Corrected Pk Area (A-s): -0.000
oncentration (ug/L): -0.0

ean Conc (ug/L): -0.0 SD: 0.02 RSD(%): 59.57

~~~~~~

e ID: 5.0 ug/L Seq. No.: 00027 A/S Pos.: 1 Date: 09/20/98

L dispensed: 5 from 0, 5 from 40, 10 from 1
eplicate 1 Time: 16:47
eak Area (A-s): 0.000 Peak Height (A): 0.004

260

N/A. MLH 9/21/98
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ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.005
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

dispensed: 5 from 0, 5 from 40, 10 from 1
plicate 2 (Peak Stored) Time: 16:49
ak Area (A-s): -0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.005
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

an Conc (ug/L): -0.0 SD: 0.02 RSD(%): 105.35

slope abs. is greater than that of the largest standard.

ID: ICV=3.0ug/L Seq. No.: 00028 A/S Pos.: 4 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 4
plicate 1 Time: 16:52
ak Area (A-s): 0.000 Peak Height (A): 0.005
ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.004
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

dispensed: 5 from 0, 5 from 40, 10 from 4
plicate 2 (Peak Stored) Time: 16:54
ak Area (A-s): 0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.004
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

an Conc (ug/L): 0.0 SD: 0.00 RSD(%): 4.33

sample is out of range 2.7 - 3.3

ID: ICB Seq. No.: 00029 A/S Pos.: 0 Date: 09/20/98

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 1 Time: 16:57
ak Area (A-s): 0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.004
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 16:59
ak Area (A-s): 0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.001 Background Pk Height (A): 0.003
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

an Conc (ug/L): 0.0 SD: 0.02 RSD(%): 138.35

N/A MCA 9/21/98

sample is within range -1.0 - 1.0

ID: CCV=6.0ug/L Seq. No.: 00030 A/S Pos.: 5 Date: 09/21/98

261

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 1 Time: 06:30
ak Area (A-s): 0.035 Peak Height (A): 0.186
kground Pk Area (A-s): 0.056 Background Pk Height (A): 0.285
ank Corrected Pk Area (A-s): 0.034
ncentration (ug/L): 2.8

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 2 (Peak Stored) Time: 06:33
ak Area (A-s): 0.061 Peak Height (A): 0.325
kground Pk Area (A-s): 0.092 Background Pk Height (A): 0.434
ank Corrected Pk Area (A-s): 0.061
ncentration (ug/L): 5.0

an Conc (ug/L): 3.9 SD: 1.57 RSD(%): 39.71

ID: CCV=6.0ug/L Seq. No.: 00031 A/S Pos.: 5 Date: 09/21/98

dispensed: 5 from 0, 5 from 40, 10 from 5

ID: CCV=6.0ug/L Seq. No.: 00032 A/S Pos.: 5 Date: 09/21/98

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 1 Time: 07:06
ak Area (A-s): 0.060 Peak Height (A): 0.296
kground Pk Area (A-s): 0.092 Background Pk Height (A): 0.380
ank Corrected Pk Area (A-s): 0.060
ncentration (ug/L): 5.0

dispensed: 5 from 0, 5 from 40, 10 from 5
plicate 2 (Peak Stored) Time: 07:09
ak Area (A-s): 0.063 Peak Height (A): 0.344
kground Pk Area (A-s): 0.093 Background Pk Height (A): 0.396
ank Corrected Pk Area (A-s): 0.063
ncentration (ug/L): 5.2

an Conc (ug/L): 5.1 SD: 0.17 RSD(%): 3.29

sample is within range 4.8 - 7.2

ID: CCB Seq. No.: 00033 A/S Pos.: 0 Date: 09/21/9

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 1 Time: 07:11
ak Area (A-s): 0.001 Peak Height (A): 0.004
kground Pk Area (A-s): 0.009 Background Pk Height (A): 0.040
ank Corrected Pk Area (A-s): 0.001
ncentration (ug/L): 0.1

dispensed: 5 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 07:14
ak Area (A-s): 0.001 Peak Height (A): 0.004
kground Pk Area (A-s): 0.008 Background Pk Height (A): 0.033
ank Corrected Pk Area (A-s): 0.001
ncentration (ug/L): 0.1

an Conc (ug/L): 0.1 SD: 0.02 RSD(%): 22.82

262

sample is within range -1.0 - 1.0

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ID: CHECK LD   Seq. No.: 00034   A/S Pos.: 6   Date: 09/21/98

dispensed: 5 from 0, 5 from 40, 10 from 6
plicate 1   Time: 07:16
ak Area (A-s): 0.011   Peak Height (A): 0.062
ckground Pk Area (A-s): 0.026   Background Pk Height (A): 0.116
ank Corrected Pk Area (A-s): 0.011
ncentration (ug/L): 0.9

dispensed: 5 from 0, 5 from 40, 10 from 6
plicate 2 (Peak Stored)   Time: 07:19
ak Area (A-s): 0.011   Peak Height (A): 0.064
ckground Pk Area (A-s): 0.025   Background Pk Height (A): 0.109
ank Corrected Pk Area (A-s): 0.011
ncentration (ug/L): 0.9

an Conc (ug/L):   0.9   SD: 0.01   RSD(%): 1.18

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ID: 465078 MB   Seq. No.: 00035   A/S Pos.: 7   Date: 09/21/98

dispensed: 5 from 0, 5 from 40, 10 from 7
plicate 1   Time: 07:21
ak Area (A-s): 0.000   Peak Height (A): 0.003
ckground Pk Area (A-s): 0.008   Background Pk Height (A): 0.036
ank Corrected Pk Area (A-s): 0.000
ncentration (ug/L): 0.0

dispensed: 5 from 0, 5 from 40, 10 from 7
plicate 2 (Peak Stored)   Time: 07:24
ak Area (A-s): -0.000   Peak Height (A): 0.003
ckground Pk Area (A-s): 0.009   Background Pk Height (A): 0.033
ank Corrected Pk Area (A-s): -0.000
ncentration (ug/L): -0.0

an Conc (ug/L):   -0.0   SD: 0.02   RSD(%): 209.06

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ID: 465078 LCS X10   Seq. No.: 00036   A/S Pos.: 8   Date: 09/21/98

dispensed: 5 from 0, 5 from 40, 10 from 8
plicate 1   Time: 07:26
ak Area (A-s): 0.055   Peak Height (A): 0.263
ckground Pk Area (A-s): 0.083   Background Pk Height (A): 0.351
ank Corrected Pk Area (A-s): 0.054
ncentration (ug/L): 4.5

dispensed: 5 from 0, 5 from 40, 10 from 8
plicate 2 (Peak Stored)   Time: 07:29
ak Area (A-s): 0.055   Peak Height (A): 0.279
ckground Pk Area (A-s): 0.083   Background Pk Height (A): 0.346
ank Corrected Pk Area (A-s): 0.055
ncentration (ug/L): 4.5

an Conc (ug/L):   4.5   SD: 0.04   RSD(%): 0.82

263

N/A. mw 9/21/98
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'e ID: 218-12-4 Seq. No.: 00037 A/S Pos.: 9 Date: 09/21/9

uL dispensed: 5 from 0, 5 from 40, 10 from 9
Replicate 1 Time: 07:31
Peak Area (A-s): 0.026 Peak Height (A): 0.058
Background Pk Area (A-s): 0.135 Background Pk Height (A): 0.227
Blank Corrected Pk Area (A-s): 0.025
Concentration (ug/L): 2.1

uL dispensed: 5 from 0, 5 from 40, 10 from 9
Replicate 2 (Peak Stored) Time: 07:34
Peak Area (A-s): 0.027 Peak Height (A): 0.058
Background Pk Area (A-s): 0.132 Background Pk Height (A): 0.225
Blank Corrected Pk Area (A-s): 0.027
Concentration (ug/L): 2.2

Mean Conc (ug/L): 2.2 SD: 0.08 RSD(%): 3.75

~~~~~~

Be ID: 218-12-7 Seq. No.: 00038 A/S Pos.: 10 Date: 09/21/9

uL dispensed: 5 from 0, 5 from 40, 10 from 10
Replicate 1 Time: 07:36
Peak Area (A-s): 0.025 Peak Height (A): 0.054
Background Pk Area (A-s): 0.136 Background Pk Height (A): 0.226
Blank Corrected Pk Area (A-s): 0.025
Concentration (ug/L): 2.1

uL dispensed: 5 from 0, 5 from 40, 10 from 10
Replicate 2 (Peak Stored) Time: 07:38
Peak Area (A-s): 0.026 Peak Height (A): 0.054
Background Pk Area (A-s): 0.135 Background Pk Height (A): 0.222
Blank Corrected Pk Area (A-s): 0.026
Concentration (ug/L): 2.1

Mean Conc (ug/L): 2.1 SD: 0.02 RSD(%): 1.03

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Be ID: 218-12-10 Seq. No.: 00039 A/S Pos.: 11 Date: 09/21/93

uL dispensed: 5 from 0, 5 from 40, 10 from 11

N/A. MGA 9/21/98

264
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ment File: BEMSA.GEL
ment: Be
nt Data: Main+Suppl.
nt: Calib. Curve

Analyst: BENNETT
Peak Storage: 1 Repl./Sample

STRUMENT: 4100 ZL
elength: 234.9 Peak
gnal Type: Zeeman AA
d Time: 3.0
ple Replicates: 2
ndard Replicates: 2

Technique: HGA
Version: 7.30
Slit: 0.7 Low
Signal Measurement: Peak Area
Read Delay: 0.0
BUC Time: 2

Spike Replicates: Same as Sample

IBRATION:

lutions	ID	Conc	Location	Volume	Diluent Volume	Modifier #1	Modifier #2
ib. Blank	STD BLANK		0	10	10	5	
ndard 1	STD1= 5 ug/L	5.0	1	10		5	
ndard 2	STD2= 10 ug/L	10.0	2	10		5	
ples				10	10	5	

luent Location: 0
difier #1 Location: 40
alibration Units: ug/L
alibration Type: Method of Add.

Modifier #2 Location:
Sample Units: ug/L

---

nace Time/Temperature Program:

ep	Temp	Ramp	Hold	Gas Flow	Read	Gas Type
1	110	1	25	250		Norm
2	130	1	20	250		Norm
3	1500	5	15	250		Norm
4	2300	0	3	0	*	Norm
5	2500	1	5	250		Norm

jection Temp: 20 Pipette Speed: 85% Extraction System: Off

QUENCE:

ep	Action and Parameters
1	Pipet diluent + modifier 1 + spike + sample/std
2	Run HGA steps 1 to End
3	Extra washes: 1

ECKS:
ditions Preparation: Automated
eriodic Autozero Locations: All Samples

%RSD > 20.0 and Concentration > 1.0 then Retry 1 times
eck %RSD on: Samples + Additions

:
trix Check Calculations:
Difference for Dupls: No Locations:
Recovery for Spike: No Locations: Conc:

265

ement File: BEMSA.GEL
te: 09/21/98
ta File: EB331.DAT
chnique: HGA

Element: Be
Time: 07:53
ID/Wt File: EB331.IDW
Calib. Type: Method of Add.

Wavelength: 234.9
Slit: 0.7 L
Lamp Current: 30
Energy: 64

ID: STD BLANK Seq. No.: 00040 A/S Pos.: 0 Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 0
plicate 1 Time: 07:55
ak Area (A-s): -0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.015 Background Pk Height (A): 0.051
ank Corrected Pk Area (A-s): -0.000

dispensed: 10 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 07:57
ak Area (A-s): -0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.011 Background Pk Height (A): 0.038
ank Corrected Pk Area (A-s): 0.000

an Pk Area (A-s): 0.000 SD: 0.0002 RSD(%): 1620.91

to-zero performed.

ID: 218-12-4 Seq. No.: 00041 A/S Pos.: 9 Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 9
plicate 1 Time: 08:00
ak Area (A-s): 0.023 Peak Height (A): 0.045
ckground Pk Area (A-s): 0.129 Background Pk Height (A): 0.206
ank Corrected Pk Area (A-s): 0.023

dispensed: 10 from 0, 5 from 40, 10 from 9
plicate 2 (Peak Stored) Time: 08:03
ak Area (A-s): 0.024 Peak Height (A): 0.045
ckground Pk Area (A-s): 0.130 Background Pk Height (A): 0.215
ank Corrected Pk Area (A-s): 0.024

an Pk Area (A-s): 0.024 SD: 0.0006 RSD(%): 2.58

ID: STD1= 5 ug/L Seq. No.: 00042 A/S Pos.: 9 Date: 09/21/98

dispensed: 5 from 40, 10 from 1, 10 from 9
plicate 1 Time: 08:05
ak Area (A-s): 0.130 Peak Height (A): 0.298
ckground Pk Area (A-s): 0.265 Background Pk Height (A): 0.508
ank Corrected Pk Area (A-s): 0.131

dispensed: 5 from 40, 10 from 1, 10 from 9
plicate 2 (Peak Stored) Time: 08:08
ak Area (A-s): 0.131 Peak Height (A): 0.299
ckground Pk Area (A-s): 0.265 Background Pk Height (A): 0.509
ank Corrected Pk Area (A-s): 0.131

an Pk Area (A-s): 0.131 SD: 0.0003 RSD(%): 0.27

ID: STD2= 10 ug/L Seq. No.: 00043 A/S Pos.: 9 Date: 09/21/98

266

dispensed: 5 from 40. 10 from 2. 10 from 9
plicate 1 Time: 08:11
ak Area (A-s): 0.231 Peak Height (A): 0.487
ckground Pk Area (A-s): 0.374 Background Pk Height (A): 0.679
ank Corrected Pk Area (A-s): 0.231

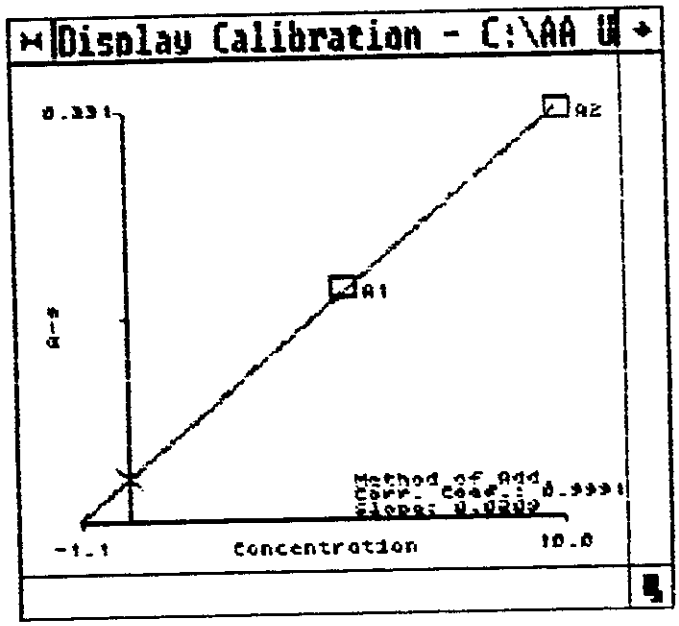
dispensed: 5 from 40, 10 from 2, 10 from 9
plicate 2 (Peak Stored) Time: 08:14
ak Area (A-s): 0.231 Peak Height (A): 0.485
ckground Pk Area (A-s): 0.376 Background Pk Height (A): 0.667
ank Corrected Pk Area (A-s): 0.231

an Pk Area (A-s): 0.231 SD: 0.0002 RSD(%): 0.08

ID: 218-12-4 Seq. No.: 00041 A/S Pos.: 9 Date: 09/21/98

ncentration (ug/L): 1.1

rrelation coefficient: 0.99911 Slope: 0.0209



ID: STD BLANK Seq. No.: 00044 A/S Pos.: 0 Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 0
plicate 1 Time: 08:17
ak Area (A-s): 0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.009 Background Pk Height (A): 0.033
ank Corrected Pk Area (A-s): 0.000

dispensed: 10 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored) Time: 08:19
ak Area (A-s): -0.000 Peak Height (A): 0.003
ckground Pk Area (A-s): 0.008 Background Pk Height (A): 0.024
ank Corrected Pk Area (A-s): 0.000

an Pk Area (A-s): 0.000 SD: 0.0002 RSD(%): 59.59

267

o-zero performed.

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ID: 218-12-7 Seq. No.: 00045 A/S Pos.: 10 Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 10
plicate 1 Time: 08:22
ak Area (A-s): 0.023 Peak Height (A): 0.052
ckground Pk Area (A-s): 0.135 Background Pk Height (A): 0.230
ank Corrected Pk Area (A-s): 0.023

dispensed: 10 from 0, 5 from 40, 10 from 10
plicate 2 (Peak Stored) Time: 08:25
ak Area (A-s): 0.023 Peak Height (A): 0.048
ckground Pk Area (A-s): 0.138 Background Pk Height (A): 0.229
ank Corrected Pk Area (A-s): 0.023

an Pk Area (A-s): 0.023 SD: 0.0001 RSD(%): 0.49

ID: STD1= 5 ug/L Seq. No.: 00046 A/S Pos.: 10 Date: 09/21/98

dispensed: 5 from 40, 10 from 1, 10 from 10
plicate 1 Time: 08:28
ak Area (A-s): 0.123 Peak Height (A): 0.282
ckground Pk Area (A-s): 0.266 Background Pk Height (A): 0.488
ank Corrected Pk Area (A-s): 0.123

dispensed: 5 from 40, 10 from 1, 10 from 10
plicate 2 (Peak Stored) Time: 08:30
ak Area (A-s): 0.125 Peak Height (A): 0.272
ckground Pk Area (A-s): 0.268 Background Pk Height (A): 0.486
ank Corrected Pk Area (A-s): 0.125

an Pk Area (A-s): 0.124 SD: 0.0012 RSD(%): 0.96

ID: STD2= 10 ug/L Seq. No.: 00047 A/S Pos.: 10 Date: 09/21/98

dispensed: 5 from 40, 10 from 2, 10 from 10
plicate 1 Time: 08:33
ak Area (A-s): 0.232 Peak Height (A): 0.533
ckground Pk Area (A-s): 0.382 Background Pk Height (A): 0.706
ank Corrected Pk Area (A-s): 0.232

dispensed: 5 from 40, 10 from 2, 10 from 10
plicate 2 (Peak Stored) Time: 08:36
ak Area (A-s): 0.230 Peak Height (A): 0.497
ckground Pk Area (A-s): 0.384 Background Pk Height (A): 0.656
ank Corrected Pk Area (A-s): 0.230

an Pk Area (A-s): 0.231 SD: 0.0014 RSD(%): 0.60

ID: 218-12-7 Seq. No.: 00045 A/S Pos.: 10 Date: 09/21/98

ncentration (ug/L): 1.1

rrelation coefficient: 0.99928 Slope: 0.0207

268
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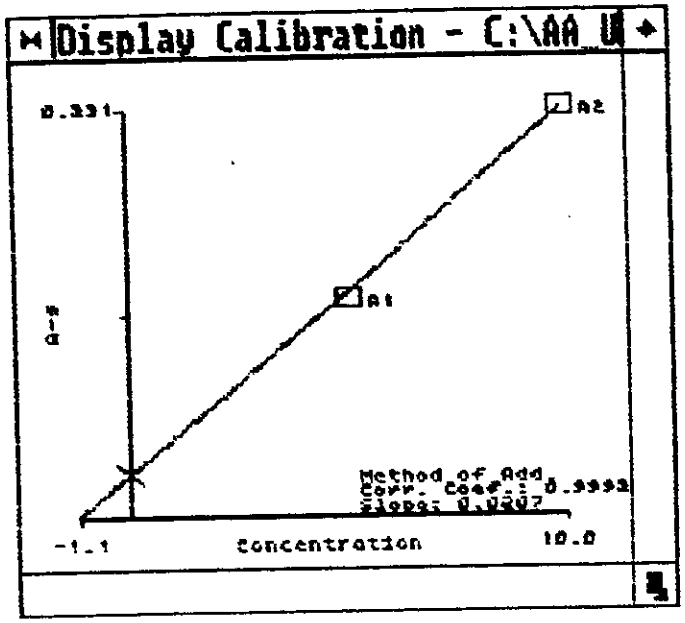

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ID: STD BLANK Seq. No.: 00048 A/S Pos.: 0 Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 0
plicate 1
Time: 08:39
ak Area (A-s): 0.001
Peak Height (A): 0.004
ckground Pk Area (A-s): 0.007
Background Pk Height (A): 0.020
ank Corrected Pk Area (A-s): 0.001

dispensed: 10 from 0, 5 from 40, 10 from 0
plicate 2 (Peak Stored)
Time: 08:42
ak Area (A-s): 0.001
Peak Height (A): 0.003
ckground Pk Area (A-s): 0.007
Background Pk Height (A): 0.022
ank Corrected Pk Area (A-s): 0.001

an Pk Area (A-s): 0.001 SD: 0.0002 RSD(%): 24.02

-o-zero performed.

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ID: 218-12-10 Seq. No.: 00049 A/S Pos.: 11 Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 11
plicate 1
Time: 08:44
ak Area (A-s): 0.021
Peak Height (A): 0.038
ckground Pk Area (A-s): 0.138
Background Pk Height (A): 0.224
ank Corrected Pk Area (A-s): 0.021

dispensed: 10 from 0, 5 from 40, 10 from 11
plicate 2 (Peak Stored)
Time: 08:47
ak Area (A-s): 0.022
Peak Height (A): 0.042
ckground Pk Area (A-s): 0.139
Background Pk Height (A): 0.228
ank Corrected Pk Area (A-s): 0.022

an Pk Area (A-s): 0.021 SD: 0.0006 RSD(%): 3.01

ID: STD1= 5 ug/L Seq. No.: 00050 A/S Pos.: 11 Date: 09/21/98

69

dispensed: 5 from 40, 10 from 1, 10 from 11
plicate 1 Time: 08:50
ak Area (A-s): 0.120 Peak Height (A): 0.238
ckground Pk Area (A-s): 0.267 Background Pk Height (A): 0.438
ank Corrected Pk Area (A-s): 0.120

dispensed: 5 from 40, 10 from 1, 10 from 11
plicate 2 (Peak Stored) Time: 08:52
ak Area (A-s): 0.118 Peak Height (A): 0.241
ckground Pk Area (A-s): 0.265 Background Pk Height (A): 0.426
ank Corrected Pk Area (A-s): 0.118

an Pk Area (A-s): 0.119 SD: 0.0013 RSD(%): 1.11

ID: STD2= 10 ug/L Seq. No.: 00051 A/S Pos.: 11 Date: 09/21/98

dispensed: 5 from 40, 10 from 2, 10 from 11
plicate 1 Time: 08:55
ak Area (A-s): 0.209 Peak Height (A): 0.455
ckground Pk Area (A-s): 0.366 Background Pk Height (A): 0.625
ank Corrected Pk Area (A-s): 0.209

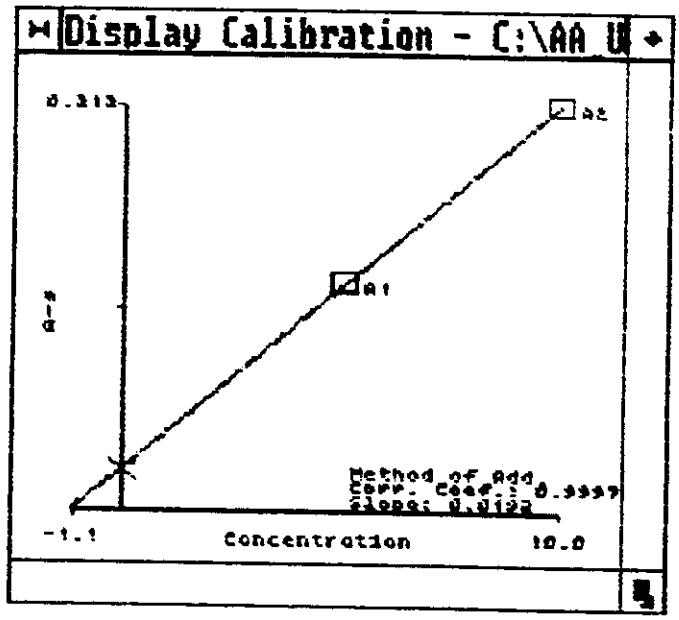
dispensed: 5 from 40, 10 from 2, 10 from 11
plicate 2 (Peak Stored) Time: 08:58
ak Area (A-s): 0.216 Peak Height (A): 0.448
ckground Pk Area (A-s): 0.373 Background Pk Height (A): 0.607
ank Corrected Pk Area (A-s): 0.216

an Pk Area (A-s): 0.212 SD: 0.0049 RSD(%): 2.33

ID: 218-12-10 Seq. No.: 00049 A/S Pos.: 11 Date: 09/21/98

ncentration (ug/L): 1.1

rrelation coefficient: 0.99972 Slope: 0.0192



270

ID: STD BLANK   Seq. No.: 00052   A/S Pos.: 0   Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 0
licate 1
k Area (A-s): 0.001
kground Pk Area (A-s): 0.007
nk Corrected Pk Area (A-s): 0.000

Time: 09:01
Peak Height (A): 0.004
Background Pk Height (A): 0.019

dispensed: 10 from 0, 5 from 40, 10 from 0
licate 2 (Peak Stored)
k Area (A-s): 0.000
kground Pk Area (A-s): 0.006
nk Corrected Pk Area (A-s): -0.000

Time: 09:04
Peak Height (A): 0.003
Background Pk Height (A): 0.018

n Pk Area (A-s): -0.000   SD: 0.0003   RSD(%): 629.97

o-zero performed.

ID: 218-12-10 D   Seq. No.: 00053   A/S Pos.: 12   Date: 09/21/98

dispensed: 10 from 0, 5 from 40, 10 from 12
licate 1
k Area (A-s): 0.020
kground Pk Area (A-s): 0.141
nk Corrected Pk Area (A-s): 0.019

Time: 09:06
Peak Height (A): 0.036
Background Pk Height (A): 0.230

dispensed: 10 from 0, 5 from 40, 10 from 12
licate 2 (Peak Stored)
k Area (A-s): 0.020
kground Pk Area (A-s): 0.142
nk Corrected Pk Area (A-s): 0.019

Time: 09:09
Peak Height (A): 0.036
Background Pk Height (A): 0.217

n Pk Area (A-s): 0.019   SD: 0.0001   RSD(%): 0.59

ID: STD1= 5 ug/L   Seq. No.: 00054   A/S Pos.: 12   Date: 09/21/98

dispensed: 5 from 40, 10 from 1, 10 from 12
licate 1
k Area (A-s): 0.118
kground Pk Area (A-s): 0.260
nk Corrected Pk Area (A-s): 0.117

Time: 09:12
Peak Height (A): 0.234
Background Pk Height (A): 0.422

dispensed: 5 from 40, 10 from 1, 10 from 12
licate 2 (Peak Stored)
k Area (A-s): 0.120
kground Pk Area (A-s): 0.274
nk Corrected Pk Area (A-s): 0.119

Time: 09:15
Peak Height (A): 0.241
Background Pk Height (A): 0.434

n Pk Area (A-s): 0.118   SD: 0.0017   RSD(%): 1.40

ID: STD2= 10 ug/L   Seq. No.: 00055   A/S Pos.: 12   Date: 09/21/98

dispensed: 5 from 40, 10 from 2, 10 from 12
licate 1
k Area (A-s): 0.212
kground Pk Area (A-s): 0.378
nk Corrected Pk Area (A-s): 0.211

Time: 09:17
Peak Height (A): 0.435
Background Pk Height (A): 0.616

271

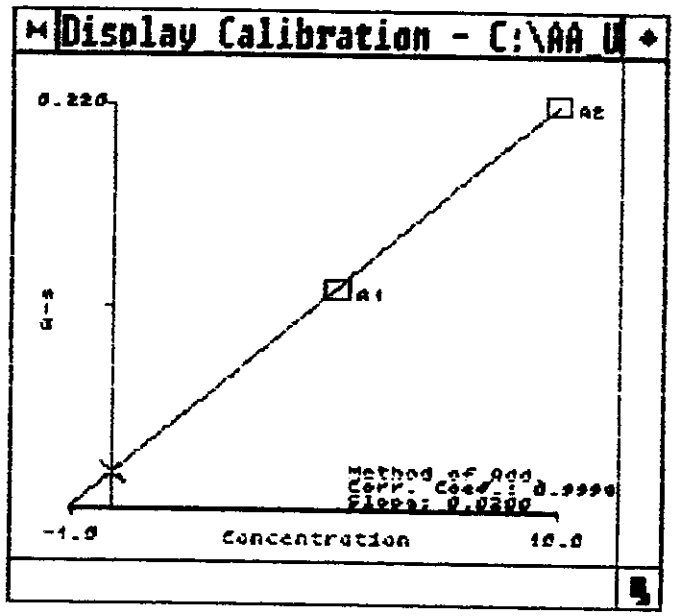
L dispensed: 5 from 40, 10 from 2, 10 from 12
eplicate 2 (Peak Stored) Time: 09:20
eak Area (A-s): 0.229 Peak Height (A): 0.447
ackground Pk Area (A-s): 0.394 Background Pk Height (A): 0.611
lank Corrected Pk Area (A-s): 0.228

ean Pk Area (A-s): 0.220 SD: 0.0120 RSD(%): 5.43

e ID: 218-12-10 D Seq. No.: 00053 A/S Pos.: 12 Date: 09/21/98

oncentration (ug/L): 1.0

orrelation coefficient: 0.99985 Slope: 0.0200



272

ht File: AB936.IDW Analyst: D.STREETER-EDWARDS
Volume: 100 mL Nominal Weight: 1.0 g

Hg

Sample ID	Weight	Dilution
STD BLANK		
STD1=0.2ug/L		
STD2=0.5ug/L		
STD3=1.0ug/L		
STD4=2.0ug/L		
STD5=5.0ug/L		
STD6=10.0ug/L		
ICV=4.0ug/L		
ICB		
CHECK LO		
46705B MB		
46705B MBD		
46705B LCS		
46705B LCSD		
218-12-4		
218-12-4 D		
218-12-4 MS		
218-12-4 MSD		
CCV1=6.0ug/L		
CCB		
218-12-7		
218-12-7 D		
218-12-10		
218-12-10 D		
CCV2=6.0ug/L		
CCB		
46705A MB		
46705A MBD		
46705A LCS		
46705A LCSD		
218-12-1		
218-12-1 D		
218-12-3		
218-12-3 D		
218-12-3 MS		
218-12-3 MSD		
CCV1=6.0ug/L		
CCB		
218-12-2		
218-12-2 D		
218-12-5		
218-12-5 D		
218-12-8		
218-12-8 D		
218-12-6		
218-12-6 D		
218-12-9		
218-12-9 D		
CCV2=6.0ug/L		
CCB		

3-70-8 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

3-70-5,7 DSE 9/22/98

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File: HG_.MEL
: Hg
ata: Main+Suppl.
Calib. Curve
:
RDS: SPEX 3-70-6,8
GH PURITY 3-70-5,7

Analyst: EDWARDS
Peak Storage: None

Energy: 25

HG

SMT: 5100
gth: 253.7 Peak
Type: AA
me: 30.0
Replicates: 1
d Replicates: 1

Technique: MHS
Slit: 0.70 Low
Signal Measurement: Peak Height (5)
Read Delay: 0.5

Version: 7.01
BOC Time: 2

---

ype: Air
Flow: 10.0 L/min

Flame Sensor: On
Fuel Flow: 2.0 L/min

PTION:

ons	ID	Conc
Blank	STD BLK	
d 1	STD 1	0.200
d 2	STD 2	0.500
d 3	STD 3	1.000
d 4	STD 4	2.000
d 5	STD 5	5.000
d 6	STD 6	10.000

ation Units: ug/L
ation Type: Linear

Sample Units: ug/L

Check Calculations:
rence for Dupls: No Locations:
ery for Spike: No Locations: Conc:

274

File: HG_.MEL Element: Hg Wavelength: 253.7
/22/98 Time: 13:48 Slit: 0.70 L
e: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
e: MHS Calib. Type: Linear Energy: 74
: STANDARDS: SPEX 3-70-6,8
: QC: HIGH PURITY 3-70-5,7

: Seq. 00035 Seq. No.: 00035 A/S Pos.: -- Date: 09/22/98

e 1 Time: 14:32
a (A-s): 0.011 Peak Height (A): -0.002
rrected Pk Height (A): -0.002
ation (ug/L): -0.022

o performed.

: Seq. 00036 Seq. No.: 00036 A/S Pos.: -- Date: 09/22/98

e 1 Time: 14:33
a (A-s): -0.031 Peak Height (A): -0.002
rrected Pk Height (A): -0.002
ation (ug/L): -0.025

o performed.

275

File: HG_.MEL Element: Hg Wavelength: 253.7
/22/98 Time: 14:34 Slit: 0.70 L
e: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
.e: MHS Calib. Type: Linear Energy: 75
: STANDARDS: SPEX 3-70-6,8
: QC: HIGH PURITY 3-70-5,7

: STD BLANK Seq. No.: 00037 A/S Pos.: -- Date: 09/22/98

:e 1 Time: 14:35
:a (A-s): -0.019 Peak Height (A): 0.000
rrected Pk Height (A): 0.000
ation (ug/L): 0.000

o performed.

): STD1=0.2ug/L Seq. No.: 00038 A/S Pos.: -- Date: 09/22/98

:e 1 Time: 14:36
a (A-s): 0.056 Peak Height (A): 0.004
rrected Pk Height (A): 0.004
ation (ug/L): 0.058

l number 1 applied. [0.200]
:ion coefficient: 1.00000 Slope: 0.0196

): STD2=0.5ug/L Seq. No.: 00039 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
:e 1 Time: 14:37
:a (A-s): 0.259 Peak Height (A): 0.016
rrected Pk Height (A): 0.016
:ation (ug/L): 0.795

l number 2 applied. [0.500]
:ion coefficient: 0.94072 Slope: 0.0300

): STD3=1.0ug/L Seq. No.: 00040 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
te 1 Time: 14:38
:a (A-s): 0.605 Peak Height (A): 0.036
rrected Pk Height (A): 0.036
:ation (ug/L): 1.189

l number 3 applied. [1.000]
tion coefficient: 0.98278 Slope: 0.0346

): STD4=2.0ug/L Seq. No.: 00041 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
te 1 Time: 14:39
:a (A-s): 1.235 Peak Height (A): 0.072

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orrected Pk Height (A): 0.072
ration (ug/L): 2.084

d number 4 applied. [2.000]
tion coefficient: 0.99658 Slope: 0.0357

D: STD5=5.0ug/L Seq. No.: 00042 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
te 1 Time: 14:40
ea (A-s): 3.140 Peak Height (A): 0.198
orrected Pk Height (A): 0.198
ration (ug/L): 5.532

d number 5 applied. [5.000]
tion coefficient: 0.99820 Slope: 0.0389

~~D: STD6=10.0ug/L Seq. No.: 00043 A/S Pos.: -- Date: 09/22/98~~

~~abs. is greater than that of the largest standard.~~
~~te 1 Time: 14:41~~
~~ea (A-s): 5.382 Peak Height (A): 0.312~~
~~orrected Pk Height (A): 0.312~~
~~ration (ug/L): 8.009~~

~~d number 6 applied. [10.000]~~
~~tion coefficient: 0.99076 Slope: 0.0333~~

Sample Re-ran below, not used
DSE
9/22/98

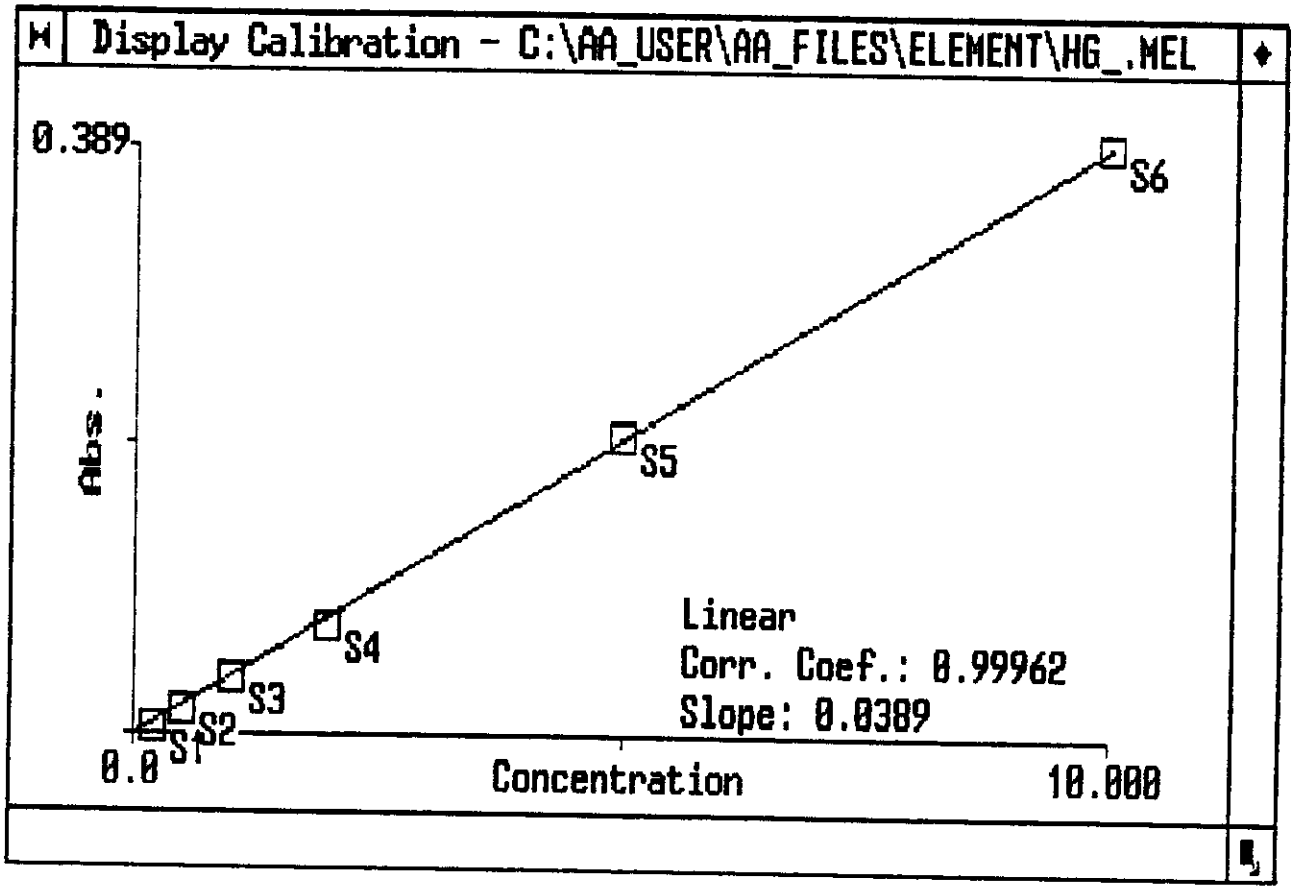
D: STD6=10.0ug/L Seq. No.: 00044 A/S Pos.: -- Date: 09/22/98

abs. is greater than that of the largest standard.
te 1 Time: 14:48
ea (A-s): 6.321 Peak Height (A): 0.389
orrected Pk Height (A): 0.389
ration (ug/L): 11.673

d number 6 applied. [10.000]
tion coefficient: 0.99962 Slope: 0.0389

277

File: HG_.MEL Element: Hg Wavelength: 253.7
9/22/98 Time: 14:49 Slit: 0.70 L
le: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
ie: MHS Calib. Type: Linear Energy: 75
1: STANDARDS: SPEX 3-70-6,8
2: QC: HIGH PURITY 3-70-5,7



D: ICV=4.0ug/L Seq. No.: 00045 A/S Pos.: -- Date: 09/22/98

te 1 Time: 14:51
ea (A-s): 2.327 Peak Height (A): 0.141
orrected Pk Height (A): 0.141
ration (ug/L): 3.638

D: ICB Seq. No.: 00046 A/S Pos.: -- Date: 09/22/98

te 1 Time: 14:53
ea (A-s): -0.118 Peak Height (A): -0.005
orrected Pk Height (A): -0.005
ration (ug/L): -0.124

D: CHECK LO Seq. No.: 00047 A/S Pos.: -- Date: 09/22/98
278
te 1 Time: 14:54
ea (A-s): 0.009 Peak Height (A): 0.003
orrected Pk Height (A): 0.003
ration (ug/L): 0.082

File: HG_.MEL Element: Hg Wavelength: 253.7
9/22/98 Time: 14:55 Slit: 0.70 L
le: AB936.DAT ID/Wt File: AB936.IDW Lamp Current: 0
ne: MHS Calib. Type: Linear Energy: 75
1: STANDARDS: SPEX 3-70-6,8
2: QC: HIGH PURITY 3-70-5,7

D: 46705B MB Seq. No.: 00048 A/S Pos.: -- Date: 09/22/98

te 1 Time: 14:56
ea (A-s): 0.027 Peak Height (A): 0.002
orrected Pk Height (A): 0.002
ration (ug/L): 0.039

D: 46705B MBD Seq. No.: 00049 A/S Pos.: -- Date: 09/22/98

te 1 Time: 14:56
ea (A-s): 0.017 Peak Height (A): 0.001
orrected Pk Height (A): 0.001
ration (ug/L): 0.021

~~D: 46705B LCS Seq. No.: 00050 A/S Pos.: -- Date: 09/22/98~~

~~te 1 Time: 14:57~~
~~ea (A-s): 5.107 Peak Height (A): 0.323~~
~~orrected Pk Height (A): 0.323~~
~~ration (ug/L): 8.314~~

Sample not used.
PSE 9/22/98

D: 46705B LCS Seq. No.: 00051 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:02
ea (A-s): 2.978 Peak Height (A): 0.179
orrected Pk Height (A): 0.179
ration (ug/L): 4.596

D: 46705B LCSD Seq. No.: 00052 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:03
ea (A-s): 3.020 Peak Height (A): 0.193
orrected Pk Height (A): 0.193
ration (ug/L): 4.962

D: 218-12-4 Seq. No.: 00053 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:04
ea (A-s): 0.079 Peak Height (A): 0.004
orrected Pk Height (A): 0.004
ration (ug/L): 0.114

D: 218-12-4 D Seq. No.: 00054 A/S Pos.: -- Date: 09/22/98

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:e 1 Time: 15:05
:a (A-s): 0.012 Peak Height (A): 0.000
orrected Pk Height (A): 0.000
ration (ug/L): 0.010

): 218-12-4 MS Seq. No.: 00055 A/S Pos.: -- Date: 09/22/98

:e 1 Time: 15:06
:a (A-s): 2.838 Peak Height (A): 0.167
orrected Pk Height (A): 0.167
ration (ug/L): 4.286

): 218-12-4 MSD Seq. No.: 00056 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:07
:a (A-s): 2.783 Peak Height (A): 0.166
orrected Pk Height (A): 0.166
ration (ug/L): 4.271

): CCV1=6.0ug/L Seq. No.: 00057 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:08
:a (A-s): 3.500 Peak Height (A): 0.221
orrected Pk Height (A): 0.221
ration (ug/L): 5.690

D: CCB Seq. No.: 00058 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:09
ea (A-s): 0.002 Peak Height (A): -0.000
orrected Pk Height (A): -0.000
ration (ug/L): -0.008

~~D: 218-12-7~~ Seq. No.: 00059 A/S Pos.: -- ~~Date: 09/22/98~~

te 1 Time: 15:09
ea (A-s): 0.131 Peak Height (A): 0.021
orrected Pk Height (A): 0.021
ration (ug/L): 0.532

(Samples not used in run)

D: 218-12-7 D Seq. No.: 00060 A/S Pos.: -- Date: 09/22/98

Reprepd below.
DSE 9/22/98

te 1 Time: 15:10
ea (A-s): 0.178 Peak Height (A): 0.009
orrected Pk Height (A): 0.009
ration (ug/L): 0.225

D: 218-12-10 Seq. No.: 00061 A/S Pos.: -- Date: 09/22/98

te 1 Time: 15:12
ea (A-s): 0.190 Peak Height (A): 0.010
orrected Pk Height (A): 0.010

-80

entration (ug/L): 0.266

ID: 218-12-10 D Seq. No.: 00062 A/S Pos.: -- Date: 09/22/98

licate 1 Time: 15:14
Area (A-s): 0.210 Peak Height (A): 0.012
k Corrected Pk Height (A): 0.012
entration (ug/L): 0.315

ID: 218-12-7 Seq. No.: 00063 A/S Pos.: -- Date: 09/22/98

licate 1 Time: 15:15
Area (A-s): 0.182 Peak Height (A): 0.010
k Corrected Pk Height (A): 0.010
entration (ug/L): 0.253

ID: 218-12-7 D Seq. No.: 00064 A/S Pos.: -- Date: 09/22/98

licate 1 Time: 15:16
Area (A-s): 0.196 Peak Height (A): 0.012
k Corrected Pk Height (A): 0.012
entration (ug/L): 0.302

~~ID: CCV2=6.0ug/L Seq. No.: 00065 A/S Pos.: -- Date: 09/22/98~~

licate 1 Time: 15:17
Area (A-s): 4.925 Peak Height (A): 0.293
k Corrected Pk Height (A): 0.293
entration (ug/L): 7.640

Sample not used DSE 9/22/98

ID: CCV2=6.0ug/L Seq. No.: 00066 A/S Pos.: -- Date: 09/22/98

licate 1 Time: 15:21
Area (A-s): 3.551 Peak Height (A): 0.216
k Corrected Pk Height (A): 0.216
entration (ug/L): 5.564

ID: CCB Seq. No.: 00067 A/S Pos.: -- Date: 09/22/98

licate 1 Time: 15:22
k Area (A-s): 0.008 Peak Height (A): -0.001
k Corrected Pk Height (A): -0.001
centration (ug/L): -0.015

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TECHNICAL REPORT DATA

Please read instructions on the reverse before completing

1. REPORT NO. EPA-454/R-00-025B	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Final Report Hot Mix Asphalt Plants, Truck Loading and Silo Filling, Manual Methods Testing, Asphalt Plant C, Los Angeles, California Volume 2 of 8		5. REPORT DATE May 2000 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Frank J. Phoenix		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Pacific Environmental Services, Inc. Post Office Box 12077 Research Triangle Park, North Carolina 27709-2077		10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO. 68-D-98004
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency Office of Air Quality Planning and Standards Emissions, Monitoring and Analysis Division Research Triangle Park, North Carolina 27711		13. TYPE OF REPORT AND PERIOD COVERED Final 14. SPONSORING AGENCY CODE EPA/200/04

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The United States Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (OAQPS) is investigating hot mix asphalt plants to identify and quantify particulate matter (PM), methylene chloride extractable matter (MCEM), and organic hazardous air pollutant (HAP) emissions during asphalt concrete loading operations. In support of this investigation, the OAQPS issued Pacific Environmental Services, Inc. (PES) a series of work assignments to conduct emissions testing at a hot mix asphalt plant during load-out operations.

The primary objective of the emissions testing was to characterize the uncontrolled emissions of PM, MCEM, polynuclear aromatic hydrocarbons (PAHs), semi-volatile organic hazardous air pollutants (SVOHAPS), and volatile organic hazardous air pollutants (VOHAPS) from a hox mix production plant during loading operations. An asphalt plant south of Los Angeles, California was selected by EPA as the host facility. Testing was performed over five consecutive days beginning on July 24, 1998. Testing was performed under two conditions. Under normal operations, testing was performed to characterize load-out emissions from the tunnel exhaust and load-in emissions from the asphalt concrete storage silo. Under background conditions, testing was performed to characterize emissions from the combustion of diesel fuel in transport trucks.

The entire report consists of eight volumes totaling 4,234 pages, Vol. 1 (388 pages), Vol. 2 (308 pages), Vol. 3 (573 pages), Vol. 4 (694 pages), Vol. 5 (606 pages), Vol. 6 (564 pages), Vol. 7 (570 pages), and Vol. 8 (531 pages).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTIONS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COASTI Field/Group
Hazardous Air Pollutants Methylene Chloride Extractable Matter Particulate Matter Polynuclear Aromatic Hydrocarbons Semi-volatile Organic Hazardous Air Pollutants Volatile Organic Hazardous Air Pollutants		

18. DISTRIBUTION STATEMENT Unlimited	19. SECURITY CLASS *(This Report)* Unclassified	21. NO. OF PAGES Vol. 2 - 308
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