O'BRIEN & GERE
LABORATORIES, INC.

August 18, 1999

Ms. Karuna Mirchandani
PARSONS ENGINEERING SCIENCE, INC.
8000 Centre Park Drive, Suite 200
Austin, TX 78754-5140

Re: Verification of corrective measures
File: Camp Stanley Storage Activity

Dear Ms. Mirchandani:

Please find enclosed the documentation to support the corrective measures stated in our letter dated July 26, 1999. We have taken the liberty to include only sections of a larger document to minimize the volume of documents and expedite your review. A Table of Contents assists in the review process.

We trust this information meets with the project needs and should any questions arise in the review process, please feel free to contact us.

Very truly yours,

O'BRIEN & GERE LABORATORIES, INC.

David R. Hill
President

Enc.

O'Brien & Gere Laboratories, Inc., an O'Brien & Gere company
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. . . and offices in major U.S. cities

TABLE OF CONTENTS

8260B, AP300-27A, Rev #2 8-17-99
8270C, AP300-12A, Rev #2 8-17-99 } Revisions in italics

7.11 Quantitation (8260B), 7.7 (8270C)

7.11.1 The presence of a target compound should normally be automatically identified by the integration algorithm of the acquisition software. Chromatograms which do not exhibit visible evidence of baseline abnormality due to some type of matrix effect should normally integrate the EICP of target compounds accurately. This includes calibration standards, blanks, LCS standards and samples (with an absence of matrix interference). The integration parameters should be routinely adjusted to ensure accurate automatic integration of any target compounds without manual integration. Since it is impractical to alter integration parameters within an analytical sequence (12 hr clock) the impetus for optimizing integration parameters shall be the automatic integration of the CCC-level calibration standard (or the corresponding concentration in an initial calibration sequence).

7.11.2 It must be recognized that the autointegration of some target compounds can present exceptional difficulty due to erratic chromatographic behavior (volatile gases and Benzoic acid are good examples). It is difficult to optimize the integration parameters for these compounds due to their tendency to exhibit jagged, non-gaussian peak shape (fronting or tailing are common peak shape problems for some compounds, but should be interpreted as an indicator that instrument maintenance may be required when the compound does not normally exhibit poor chromatography). Since peak shape can be erratic from injection to injection, these compounds may consistently require manual integration as opposed to repeated adjustment of the integration parameter file.

7.11.3 To provide accurate integration and quantitation of target compounds, it is occasionally necessary to manually adjust the integration of a chromatographic peak using the edit feature of the quantitation software. This is usually required only for environmental samples which exhibit matrix interference and thus alter the normal peak shape of a target. Manual integration should not be used as a substitute for a properly optimized integration parameter file. When manually integrating a peak, the integration drawn must be consistent with guidelines for automatic integration of the compound in the corresponding standards, and should rely on obvious visual landmarks such as valleys and/or slope changes. *(ie. To extend the integration of a tailing compound beyond an obvious upward slope change would be improper). The manual integration drawn normally should not exceed the limits of the retention time window which has been established for that compound, except in cases where the peak may have tailed or shifted beyond the window due to a matrix effect or concentration beyond calibration limits*

7.11.4 Manual integration may not be used as a mechanism for obtaining acceptable quality control results. Adding or subtracting peak area to change a surrogate, internal standard, LCS, or other QC parameter from failing to passing is unacceptable unless obvious chromatographic abnormalities suggest it is necessary. Area adjustments of less than 5 percent should be avoided to eliminate

the appearance of impropriety. In the absence of chromatographic aberrations the need for manual integration may signify an improperly optimized integration parameter file, as discussed above.

7.11.5 The quantitation software will place an "m" next to the revised integrated area which appears on the target compound summary report . The "m" for this manual area must be initialed by the analyst who processes the raw data (date and time of edit are software stamped on the top of each page). By initialing the manual integration the analyst has certified that the manual integration he/she has drawn meets criteria outlined above for application of manual integration. For analysts who are being initially trained in the application of manual integration, the procedure must be demonstrated and trainee manual integrations visually verified by a senior analyst for a sufficient period of time to ensure the procedure is being properly applied. The verification must include the additional initialing and dating by a senior analyst of the manual integration performed by the trainee, until the section supervisor has determined that training is complete.

7.11.6 If the manual integration of a surrogate or internal standard is required, the graphic report for the integration should be included with the raw data for that sample *if the deliverable does not already require this. Some project-specific deliverables may also require the submittal of "before and after" quantitation reports which give detailed information on how the target compound report has been altered by the analyst. The unedited quantitation report before analyst modifications should be submitted (with or without detailed target spectra and graphic report, as required), in addition to the final processed quantitation report which shows graphics reports for manually adjusted target areas, detailed spectra, and the addition/ removal of false negative/positive target compounds.*

SOP Reading Record

Name: Mark S. Vandewarker

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
300-12	4-10-98	8270B	MV 4-12-98	
300-27	4-14-98	8260A	MV 4-14-98	
300-03	4-15-98	624	MV 4-16-98	
300-33	4-16-98	625	MV 4-16-98	
300-41	4-16-98	USEPA CLP-SVOA	MV 4-16-98	
300-36	4-16-98	NYSDEC 95-2	MV 4-16-98	
300-39	4-15-98	EPA CLP-VOA	MV 4-16-98	
300-17A	4-14-98	8270C	MV 4-17-98	
300-27A	4-14-98	8260B	MV 4-17-98	
300-30	4-15-98	NYSDEC 95-1	MV 4-20-98	

Training and Proficiency Record

Name: Mark S. Vandewarker

Procedure (Method/AP #)	QA/QC Check*/ Supervisor Comments	Employee Initials/Date	Supervisor Initials/Date
8260/300-27A	Initial Demo: MS2 water MS3 Water MS3 Soil	MV 4-14-98	
624/300-03	Initial Demo: Same as 8260	MV 4-14-98	
CLP-V/300-39		MV 4-14-98	
95-1/300-30		MV 4-14-98	
8270/300-12A	Initial Demo:	MV 4-10-98	
625/300-33	Initial Demo: Same as 8270	MV 4-10-98	
CLP-SV/300-41		MV 4-10-98	
95-2/300-36		MV 4-10-98	

* Attach results of QC Check. A QC Check can be an LCS, single blind or double blind proficiency.

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%Rec RSD	RSD Limit	OK ?	Avg %Rec	Low Limit	High Limit	OK ?
Dichlorodifluoromethane	7.41	9.64	9.75	9.67	10.0	4	28.5	21.0	N	91	43	128	Y
Chloromethane	5.61	6.86	6.93	6.70	10.0	4	15.4	15.0	N	65	63	122	Y
Vinyl chloride	8.27	10.25	10.65	10.13	10.0	4	26.5	12.0	N	98	62	134	Y
Bromomethane	4.76	5.55	6.10	6.50	10.0	4	18.8	15.0	N	57	52	141	Y
Chloroethane	8.27	9.66	9.79	9.38	10.0	4	17.3	14.0	N	93	74	128	Y
Trichlorofluoromethane	8.06	10.34	10.47	10.17	10.0	4	28.5	10.0	N	98	71	134	Y
Acetone	9.29	9.81	11.13	10.24	10.0	4	19.5	19.0	N	101	42	155	Y
1,1-Dichloroethene	11.99	11.31	11.56	11.03	10.0	4	10.2	12.0	Y	115	89	135	Y
Methylene chloride	10.98	10.19	10.66	10.19	10.0	4	9.7	7.0	N	105	82	125	Y
Carbon disulfide	8.27	9.98	10.13	10.13	10.0	4	22.7	10.0	N	96	74	133	Y
trans-1,2-Dichloroethene	11.26	10.64	10.90	10.66	10.0	4	7.2	11.0	Y	109	84	147	Y
Methyl tert-Butyl ether	10.80	10.38	10.51	10.27	10.0	4	5.7	16.0	Y	105	51	148	Y
1,1-Dichloroethane	11.62	10.86	11.18	10.80	10.0	4	9.4	8.0	N	111	84	129	Y
Vinyl acetate	10.45	14.03	14.70	13.83	10.0	4	47.6	20.0	N	133	51	132	N
2-Butanone	8.58	8.32	9.48	8.19	10.0	4	14.5	12.0	N	86	62	135	Y
cis-1,2-Dichloroethene	11.05	10.57	10.79	10.55	10.0	4	5.8	10.0	Y	107	70	131	Y
Bromochloromethane	11.24	10.79	11.06	10.89	10.0	4	4.9	8.0	Y	110	81	129	Y
Chloroform	11.32	10.83	11.20	10.88	10.0	4	6.0	7.0	Y	111	84	123	Y
2,2-Dichloropropane	10.54	9.82	10.06	9.62	10.0	4	9.9	9.0	N	100	81	137	Y
1,2-Dichloroethane	10.85	10.32	10.77	10.48	10.0	4	2.5	7.0	Y	106	80	124	Y
1,1,1-Trichloroethane	11.96	11.27	11.62	11.28	10.0	4	8.2	9.0	Y	115	85	137	Y
1,1-Dichloropropene	11.26	10.39	10.81	10.32	10.0	4	10.9	8.0	N	107	85	131	Y
Carbon tetrachloride	10.95	10.35	10.71	10.45	10.0	4	6.8	8.0	Y	106	88	134	Y
Benzene	11.34	10.52	11.04	10.56	10.0	4	9.9	7.0	N	109	84	126	Y
Trichloroethene	12.03	10.97	11.62	11.27	10.0	4	11.4	7.0	N	115	87	131	Y
Dibromomethane	10.46	10.25	10.66	10.27	10.0	4	4.8	7.0	Y	104	85	124	Y
1,2-Dichloropropane	11.44	10.86	11.14	10.71	10.0	4	8.1	6.0	N	110	86	122	Y
Bromodichloromethane	11.52	11.20	11.56	11.28	10.0	4	4.4	6.0	Y	114	86	123	Y
2-Chloroethylvinyl ether	12.32	14.27	11.72	13.41	10.0	4	28.4	16.0	N	129	48	143	Y
4-Methyl-2-pentanone	8.62	9.19	9.73	9.28	10.0	4	11.4	12.0	Y	92	62	131	Y
cis-1,3-Dichloropropene	9.67	9.40	9.89	9.48	10.0	4	5.5	10.0	Y	96	76	139	Y
Toluene	10.95	10.38	10.72	10.46	10.0	4	2.6	7.0	Y	106	87	126	Y
trans-1,3-Dichloropropene	9.49	9.39	10.04	9.51	10.0	4	7.3	12.0	Y	96	73	146	Y
1,1,2-Trichloroethane	10.50	10.28	11.03	10.41	10.0	4	8.2	8.0	N	106	80	126	Y
2-Hexanone	8.59	8.60	9.07	8.55	10.0	4	6.1	11.0	Y	87	58	127	Y
1,2-Dibromoethane	9.46	9.40	9.87	9.43	10.0	4	5.5	9.0	Y	95	76	132	Y
1,3-Dichloropropane	11.10	10.34	10.95	10.40	10.0	4	9.6	7.0	N	107	80	123	Y
Dibromochloromethane	10.99	10.27	11.43	10.54	10.0	4	12.8	7.0	N	108	79	122	Y
Tetrachloroethene	12.76	11.33	12.12	11.54	10.0	4	6.4	8.0	Y	119	82	132	Y
1-Chlorohexane	11.79	10.68	11.36	11.14	10.0	4	11.6	20.0	Y	112	50	150	Y
1,1,1,2-Tetrachloroethane	11.28	10.74	11.38	10.75	10.0	4	8.5	8.0	N	110	78	127	Y
Chlorobenzene	11.51	10.63	11.11	10.81	10.0	4	9.6	6.0	N	110	86	122	Y
Ethylbenzene	11.90	11.07	11.48	11.19	10.0	4	9.2	8.0	N	114	80	127	Y
(m+p)-Xylene	21.95	20.56	21.18	20.80	20.0	4	15.2	8.0	N	106	78	128	Y
o-Xylene	11.55	10.82	11.19	10.96	10.0	4	8.0	8.0	Y	111	78	128	Y
Styrene	11.56	10.62	10.70	10.52	10.0	4	6.0	7.0	Y	109	79	124	Y
Bromoform	10.82	10.49	10.50	10.59	10.0	4	3.8	9.0	Y	106	75	128	Y
1,1,2,2-Tetrachloroethane	11.62	10.73	11.11	10.08	10.0	4	16.2	9.0	N	109	71	128	Y
Isopropylbenzene	11.19	10.86	11.47	10.50	10.0	4	10.5	8.0	N	110	84	131	Y
1,2,3-Trichloropropane	9.01	8.58	8.88	7.60	10.0	4	15.9	9.0	N	85	75	131	Y

8-17-99

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%Rec RSD	RSD Limit	OK ?	Avg %Rec	Low Limit	High Limit	OK ?
Bromobenzene	11.56	11.01	11.21	10.55	10.0	4	10.5	7.0	N	111	85	127	Y
n-Propylbenzene	11.48	11.19	11.66	10.90	10.0	4	8.3	7.0	N	113	82	124	Y
2-Chlorotoluene	12.17	11.68	12.06	11.31	10.0	4	9.8	7.0	N	118	86	125	Y
4-Chlorotoluene	11.93	11.36	12.03	11.31	10.0	4	9.4	7.0	N	117	85	128	Y
1,3,5-Trimethylbenzene	11.03	10.65	11.27	10.59	10.0	4	8.1	8.0	N	109	83	133	Y
tert-Butylbenzene	11.18	10.98	11.35	10.82	10.0	4	5.8	8.0	Y	111	82	132	Y
1,2,4-Trimethylbenzene	11.29	11.00	11.43	10.96	10.0	4	5.7	9.0	Y	112	81	133	Y
sec-Butylbenzene	12.57	12.09	12.74	12.00	10.0	4	9.0	8.0	N	124	81	132	Y
1,3-Dichlorobenzene	12.18	11.47	12.00	11.30	10.0	4	10.5	8.0	N	117	84	130	Y
p-Isopropyltoluene	11.76	11.45	12.04	11.39	10.0	4	7.5	9.0	Y	117	77	129	Y
1,4-Dichlorobenzene	11.54	10.77	11.43	11.19	10.0	4	8.5	7.0	N	112	72	132	Y
n-Butylbenzene	11.66	11.18	11.81	11.40	10.0	4	7.0	11.0	Y	115	76	142	Y
1,2-Dichlorobenzene	11.43	11.10	11.41	10.75	10.0	4	8.0	7.0	N	112	83	127	Y
1,2-Dibromo-3-chloropropane	10.01	9.96	10.63	10.36	10.0	4	7.9	11.0	Y	102	68	132	Y
1,2,4-Trichlorobenzene	11.37	11.12	12.00	11.65	10.0	4	9.5	7.0	N	115	79	124	Y
Hexachlorobutadiene	13.17	12.43	13.16	12.79	10.0	4	8.8	10.0	Y	129	74	136	Y
Naphthalene	10.71	11.25	12.40	11.45	10.0	4	17.6	12.0	N	115	60	131	Y
1,2,3-Trichlorobenzene	11.04	11.04	11.80	11.29	10.0	4	9.0	12.0	Y	113	64	138	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria

SOP Reading Record

Name: Xiaoping (Sharon) Gong

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
300-03	4-15-98	624	SG 5/8/98	GW 5-8-98
300-27A	4-14-98	8260B	SG 5/12/98	GW 5-12-98
100-01	4-21-98	TCLP 1311/ZHE	SG 5/12/98	GW 5-12-98
300-30	4-15-98	NYSDEC 95-1	SG 5/12/98	GW 5-12-98
300-39	4-15-98	EPA CLP-VOA	SG 5/18/98	GW 5-18-98

Training and Proficiency Record

Name: Xiaoping (Sharon) Gong

Procedure (Method/AP #)	QA/QC Check*/ Supervisor Comments	Employee Initials/Date	Supervisor Initials/Date
624/300-03	Same as 8260	SG 5/1/98	(initials) 5-1-98
8260B/300-27A	Initial Demo: MS2 Water MS3 Water MS3 Soil	SG 5/1/98	(initials) 5-1-98
OP-V/300-39		SG 5/1/98	(initials) 5-1-98
95-1/300-30		SG 5/1/98	(initials) 5-1-98

* Attach results of QC Check. A QC Check can be an LCS, single blind or double blind proficiency.

Instrument: HP5973 MS#3
Column: J W DB-VRX
0.25 mm X 60 M

GC/MS Low-level Water (25ML)
Initial Demonstration of
Precision Accuracy

Date Analyzed: 2/99
Analyst: S. Gong
Method: 8260B
Purge by: 5035

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%Rec RSD	RSD Limit	OK ?	Avg %Rec	Low Limit	High Limit	OK ?
Dichlorodifluoromethane	2.62	2.65	2.64	2.47	4.0	4	2.1	21.0	Y	65	43	128	Y
Chloromethane	3.41	3.53	3.48	3.35	4.0	4	2.0	15.0	Y	86	63	122	Y
Vinyl chloride	3.59	3.66	3.64	3.63	4.0	4	0.7	12.0	Y	91	62	134	Y
Bromomethane	3.20	3.48	3.51	3.38	4.0	4	3.5	15.0	Y	85	52	141	Y
Chloroethane	3.82	3.86	4.00	3.79	4.0	4	2.3	14.0	Y	97	74	128	Y
Trichlorofluoromethane	3.59	3.47	3.49	3.29	4.0	4	3.1	10.0	Y	87	71	134	Y
Acetone	4.53	4.34	4.35	4.48	4.0	4	2.4	19.0	Y	111	42	155	Y
Acrolein	4.76	4.48	4.21	4.07	4.0	4	7.6	30.0	Y	110	70	130	Y
1,1-Dichloroethene	4.07	4.21	4.06	4.25	4.0	4	2.4	12.0	Y	104	89	135	Y
Acrylonitrile	43.94	44.90	45.32	42.31	40.0	4	3.3	30.0	Y	110	70	130	Y
Methylene chloride	4.05	4.01	4.52	4.26	4.0	4	5.8	7.0	Y	105	82	125	Y
Carbon disulfide	4.13	4.19	4.28	4.12	4.0	4	1.8	10.0	Y	105	74	133	Y
trans-1,2-Dichloroethene	4.11	4.41	4.29	4.17	4.0	4	3.3	11.0	Y	106	84	147	Y
Methyl tert-Butyl ether	4.42	4.43	4.33	4.25	4.0	4	2.1	30.0	Y	109	70	130	Y
1,1-Dichloroethane	4.12	4.16	4.12	3.99	4.0	4	1.9	8.0	Y	102	84	129	Y
Vinyl acetate	3.27	3.09	3.14	2.77	4.0	4	5.3	20.0	Y	77	51	132	Y
2-Butanone	4.01	3.74	4.01	4.09	4.0	4	3.8	12.0	Y	99	62	135	Y
cis-1,2-Dichloroethene	3.97	4.10	4.05	4.02	4.0	4	1.4	10.0	Y	101	70	131	Y
Bromochloromethane	4.09	3.99	3.93	3.93	4.0	4	1.9	8.0	Y	100	81	129	Y
Chloroform	4.00	3.96	3.96	3.77	4.0	4	2.6	7.0	Y	98	84	123	Y
2,2-Dichloropropane	4.28	4.12	4.19	3.94	4.0	4	3.6	9.0	Y	103	81	137	Y
Dibromofluoromethane	10.07	9.71	9.94	9.68	10.0	4	1.9	4.0	Y	99	90	118	Y
1,2-Dichloroethane-d4	10.15	9.93	9.91	9.60	10.0	4	2.3	7.0	Y	99	87	131	Y
1,2-Dichloroethane	4.04	4.06	4.02	3.87	4.0	4	2.2	7.0	Y	100	80	124	Y
1,1,1-Trichloroethane	4.17	4.03	4.03	3.91	4.0	4	2.7	9.0	Y	101	85	137	Y
1,1-Dichloropropene	4.28	4.09	4.19	4.01	4.0	4	2.9	8.0	Y	104	85	131	Y
Carbon tetrachloride	4.14	3.99	4.04	3.93	4.0	4	2.2	8.0	Y	101	88	134	Y
Benzene	4.10	4.14	4.11	4.09	4.0	4	0.5	7.0	Y	103	84	126	Y
Trichloroethene	4.11	4.06	4.02	3.98	4.0	4	1.4	7.0	Y	101	87	131	Y
Dibromomethane	4.09	4.05	4.04	3.97	4.0	4	1.2	7.0	Y	101	85	124	Y
1,2-Dichloropropane	4.20	4.27	4.25	4.04	4.0	4	2.6	6.0	Y	105	86	122	Y
Bromodichloromethane	3.98	3.95	3.93	3.76	4.0	4	2.5	6.0	Y	98	86	123	Y
2-Chloroethylvinyl ether	4.25	4.28	3.88	3.57	4.0	4	8.4	16.0	Y	100	48	143	Y
4-Methyl-2-pentanone	3.36	3.48	3.62	3.49	4.0	4	2.7	12.0	Y	87	62	131	Y
cis-1,3-Dichloropropene	4.14	4.07	4.14	3.97	4.0	4	2.0	10.0	Y	102	76	139	Y
Toluene-d8	10.56	10.30	10.43	10.35	10.0	4	1.1	4.0	Y	104	90	116	Y
Toluene	4.23	4.27	4.23	4.18	4.0	4	0.9	7.0	Y	106	87	126	Y
trans-1,3-Dichloropropene	3.89	3.81	3.86	3.73	4.0	4	1.7	12.0	Y	96	73	146	Y
1,1,2-Trichloroethane	4.09	3.98	4.02	3.94	4.0	4	1.6	8.0	Y	100	80	126	Y
2-Hexanone	5.04	4.95	5.03	5.03	4.0	4	1.0	11.0	Y	125	58	127	Y
1,2-Dibromoethane	4.14	4.10	4.04	4.05	4.0	4	1.2	9.0	Y	102	76	132	Y
1,3-Dichloropropane	4.24	4.15	4.05	4.03	4.0	4	2.4	7.0	Y	103	80	123	Y
Dibromochloromethane	4.03	3.84	3.87	3.68	4.0	4	3.6	7.0	Y	96	79	122	Y
Tetrachloroethene	4.25	4.14	4.05	4.05	4.0	4	2.4	8.0	Y	103	82	132	Y
1-Chlorohexane	4.26	4.19	4.24	4.06	4.0	4	2.2	30.0	Y	105	70	130	Y
1,1,1,2-Tetrachloroethane	4.25	4.12	4.06	4.02	4.0	4	2.5	8.0	Y	103	78	127	Y
Chlorobenzene	4.17	4.13	4.08	4.10	4.0	4	1.0	6.0	Y	103	86	122	Y
Ethylbenzene	4.31	4.30	4.26	4.15	4.0	4	1.8	8.0	Y	106	80	127	Y
(m+p)-Xylene	8.93	8.85	8.89	8.77	8.0	4	0.9	6.0	Y	111	78	128	Y
o-Xylene	4.43	4.53	4.45	4.44	4.0	4	1.1	2.0	Y	112	78	128	Y

2-11-99

Instrument: HP5973 MS#3
Column: J W DB-VRX
0.25 mm X 60 M

GC/MS Low-level Water (25ML)
Initial Demonstration of
Precision Accuracy

Date Analyzed: 2/99
Analyst: S. Gong
Method: 8260B
Purge by: 5035

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%Rec RSD	RSD Limit	OK ?	Avg %Rec	Low Limit	High Limit	OK ?
Styrene	3.91	3.85	3.88	3.82	4.0	4	1.0	7.0	Y	97	79	124	Y
Bromoform	3.80	3.83	3.70	3.55	4.0	4	3.2	9.0	Y	93	75	128	Y
Bromofluorobenzene	10.39	10.00	10.16	10.14	10.0	4	1.6	7.0	Y	102	82	123	Y
1,1,2,2-Tetrachloroethane	4.34	4.26	4.35	4.24	4.0	4	1.4	9.0	Y	107	71	128	Y
Isopropylbenzene	4.35	4.21	4.23	4.23	4.0	4	1.6	8.0	Y	106	84	131	Y
1,2,3-Trichloropropane	4.14	4.15	4.16	4.07	4.0	4	1.0	9.0	Y	103	75	131	Y
Bromobenzene	4.34	4.27	4.21	4.20	4.0	4	1.6	7.0	Y	106	85	127	Y
n-Propylbenzene	4.36	4.25	4.26	4.27	4.0	4	1.3	7.0	Y	107	82	124	Y
2-Chlorotoluene	4.46	4.38	4.40	4.30	4.0	4	1.7	7.0	Y	110	86	125	Y
4-Chlorotoluene	4.50	4.39	4.36	4.39	4.0	4	1.5	7.0	Y	110	85	128	Y
1,3,5-Trimethylbenzene	4.18	4.04	4.06	3.99	4.0	4	2.0	8.0	Y	102	83	133	Y
tert-Butylbenzene	4.28	4.16	4.14	4.09	4.0	4	2.0	8.0	Y	104	82	132	Y
1,2,4-Trimethylbenzene	4.15	4.01	4.01	3.91	4.0	4	2.5	9.0	Y	101	81	133	Y
sec-Butylbenzene	4.39	4.24	4.26	4.23	4.0	4	1.9	8.0	Y	107	81	132	Y
1,3-Dichlorobenzene	4.51	4.34	4.26	4.24	4.0	4	3.1	8.0	Y	108	84	130	Y
p-Isopropyltoluene	4.24	4.11	4.07	4.04	4.0	4	2.2	9.0	Y	103	77	129	Y
1,4-Dichlorobenzene	4.28	4.20	4.18	4.21	4.0	4	1.1	7.0	Y	105	72	133	Y
n-Butylbenzene	4.32	4.15	4.06	4.08	4.0	4	3.0	11.0	Y	104	76	142	Y
1,2-Dichlorobenzene	4.40	4.34	4.30	4.24	4.0	4	1.7	7.0	Y	108	83	127	Y
1,2-Dibromo-3-chloropropane	4.06	4.11	4.19	4.27	4.0	4	2.3	11.0	Y	104	68	132	Y
1,2,4-Trichlorobenzene	4.30	4.27	4.26	4.12	4.0	4	2.0	7.0	Y	106	79	124	Y
Hexachlorobutadiene	4.60	4.27	4.39	4.34	4.0	4	3.6	10.0	Y	110	74	136	Y
Naphthalene	4.37	4.27	4.24	4.29	4.0	4	1.4	12.0	Y	107	60	131	Y
1,2,3-Trichlorobenzene	4.43	4.23	4.18	4.33	4.0	4	2.8	12.0	Y	107	64	138	Y

2-11-99

SOP Reading Record

Name: Daniel J. Pastuf

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
300-03	4-16-96	624	DP/10-21-96	@ 10-21-96
300-33	4-16-98	625	DP/5-1-98	@ 5-7-98
300-12	4-10-98	8270B	DP/5-7-98	@ 5-7-98
300-12A	4-14-98	8270C	DP/5-13-98	@ 5-13-98
300-41	4-16-98	USEPA CLP-SVOA	DP/5-14-98	@ 5-16-98
300-36	4-16-98	NYSDEC 95-2	DP/5-17-98	@ 5-17-98
300-18	3-20-98	3550A	DP/5-16-98	@ 5-16-98
300-15	3-20-98	3520B	DP/5-16-98	@ 5-16-98
300-18A	4-27-98	3550B	DP/5-16-98	@ 5-16-98
300-15A	4-27-98	3520C	DP/5-16-98	@ 5-16-98
300-27A	Rev #2	8260B	DP/8/19/99	@ 8-19-99
100-01	Rev #2	TCLP 311/1311E	DP 8/19/99	@ 8-19-99
300-12A	Rev #2	8270C	DP 8/19/99	@ 8-19-99

Training and Proficiency Record

Name: Daniel J. Pastuf

Procedure (Method/AP #)	QA/QC Check*/ Supervisor Comments	Employee Initials/Date	Supervisor Initials/Date
8270/300-12A	Initial Demo: MS5 Water MS6 Water MS5 Soil MS6 Soil	DJP/4-25-98	DJP/4-29-98
8260/300-27A	Initial Demo: MS2 Water MS3 Soil	DJP/5-1-98	DJP/5-1-98
625/300-33	Initial Demo: Same as 8270	DJP/4-29-98	DJP/4-29-98
624/300-03	Initial Demo: Same as 8260	DJP/5-1-98	DJP/5-1-98
CLP-SV/300-41		DJP 4-25-98	DJP 4-29-98
95-2/300-36		DJP 5/1/98	DJP 5-1-98
CLP-V/300-39		DJP/4-25-98	DJP 4-29-98
95-1/300-30		DJP/5-1-98	DJP 5-1-98

* Attach results of QC Check. A QC Check can be an LCS, single blind or double blind proficiency.

Instrument: HP5972 MS#5
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed: 1/28/99
Method: 8270
Ext. Method: 3520
Analyst: D.J. Pastuf

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	60.8	64.5	59.8	76.1	100.0	4	7.5	12.0	65.3	42	117	Y
N-nitrosodimethylamine	94.1	100.4	92.7	101.6	100.0	4	4.4	10.0	97.2	61	122	Y
2-Fluorophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	15.0	0.0	31	121	N
bis(2-Chloroethyl)ether	67.9	71.2	65.0	70.5	100.0	4	2.8	7.0	68.7	67	111	Y
Phenol-d5	0.0	0.0	0.0	0.0	200.0	4	0.0	12.0	0.0	46	117	N
Aniline	58.4	62.6	57.6	69.4	100.0	4	5.4	10.0	62.0	60	140	Y
Phenol	62.9	66.7	61.5	67.2	100.0	4	2.8	10.0	64.6	60	121	Y
2-Chlorophenol	78.8	82.6	77.4	82.5	100.0	4	2.6	8.0	80.3	66	117	Y
1,3-Dichlorobenzene	82.9	74.0	81.4	86.6	100.0	4	5.3	7.0	81.2	57	105	Y
1,4-Dichlorobenzene	86.0	77.8	83.4	88.4	100.0	4	4.6	8.0	83.9	53	101	Y
1,2-Dichlorobenzene	88.6	80.4	85.6	92.5	100.0	4	5.1	7.0	86.7	59	101	Y
Benzyl alcohol	76.8	81.6	74.6	80.7	100.0	4	3.3	8.0	78.4	69	120	Y
2,2'-oxybis(1-chloropropane)	78.2	82.7	76.8	82.6	100.0	4	3.0	20.0	80.1	60	140	Y
bis(2-Chloroisopropyl)ether	78.2	82.7	76.8	82.6	100.0	4	3.0	12.0	80.1	53	125	Y
2-Methylphenol	69.8	74.9	68.4	73.2	100.0	4	3.0	8.0	71.6	64	113	Y
Hexachloroethane	85.4	75.4	83.4	90.2	100.0	4	6.2	9.0	83.6	47	102	Y
N-Nitroso-di-n-propylamine	79.4	84.4	78.6	82.8	100.0	4	2.7	11.0	81.3	62	130	Y
4-Methylphenol	75.0	79.7	72.7	77.6	100.0	4	3.1	8.0	76.3	64	114	Y
Nitrobenzene-d5	0.0	0.0	0.0	0.0	100.0	4	0.0	14.0	0.0	44	130	N
Nitrobenzene	79.5	83.9	76.8	82.4	100.0	4	3.1	7.0	80.6	71	115	Y
Isophorone	76.8	81.1	74.7	78.1	100.0	4	2.7	7.0	77.7	66	106	Y
2-Nitrophenol	86.1	91.3	84.2	90.2	100.0	4	3.4	7.0	88.0	73	114	Y
2,4-Dimethylphenol	64.3	66.8	62.8	63.7	100.0	4	1.7	10.0	64.4	52	110	Y
Benzoic acid	71.4	69.0	70.9	74.7	100.0	4	2.4	16.0	71.5	20	117	Y
bis(2-Chloroethoxy)methane	76.4	80.8	75.2	79.6	100.0	4	2.6	6.0	78.0	69	104	Y
2,4-Dichlorophenol	95.1	98.9	91.4	97.3	100.0	4	3.2	6.0	95.7	73	111	Y
1,2,4-Trichlorobenzene	94.1	90.8	90.7	96.0	100.0	4	2.6	7.0	92.9	60	105	Y
Naphthalene	87.7	87.5	85.0	89.8	100.0	4	2.0	7.0	87.5	60	103	Y
4-Chloroaniline	82.2	87.5	82.7	87.8	100.0	4	3.0	13.0	85.1	48	125	Y
Hexachlorobutadiene	89.8	84.9	85.9	91.2	100.0	4	3.0	9.0	88.0	58	103	Y
4-Chloro-3-methylphenol	88.2	91.5	85.4	89.4	100.0	4	2.5	8.0	88.6	69	119	Y
2-Methylnaphthalene	94.1	97.9	92.1	97.8	100.0	4	2.9	8.0	95.5	64	111	Y
Hexachlorocyclopentadiene	66.5	70.5	66.3	71.6	100.0	4	2.7	13.0	68.7	27	106	Y
2,4,6-Trichlorophenol	86.1	91.7	84.5	90.6	100.0	4	3.5	4.0	88.2	82	108	Y
2,4,5-Trichlorophenol	88.0	91.9	84.3	91.4	100.0	4	3.5	6.0	88.9	75	113	Y
2-Fluorobiphenyl	0.0	0.0	0.0	0.0	100.0	4	0.0	13.0	0.0	43	122	N
2-Chloronaphthalene	85.3	89.3	83.8	89.4	100.0	4	2.8	8.0	86.9	64	115	Y
2-Nitroaniline	82.6	85.0	81.0	84.7	100.0	4	1.9	12.0	83.3	61	133	Y
Acenaphthylene	83.6	86.7	81.4	87.1	100.0	4	2.7	8.0	84.7	67	112	Y
Dimethyl phthalate	93.5	95.8	92.1	97.1	100.0	4	2.3	14.0	94.6	52	134	Y
2,6-Dinitrotoluene	93.2	97.7	93.9	98.6	100.0	4	2.7	7.0	95.8	79	119	Y
Acenaphthene	91.3	96.4	88.9	94.8	100.0	4	3.4	9.0	92.8	66	117	Y
3-Nitroaniline	89.9	95.8	91.8	95.1	100.0	4	2.8	14.0	93.2	52	138	Y
2,4-Dinitrophenol	99.9	102.0	95.4	100.8	100.0	4	2.9	12.0	99.5	60	132	Y
Dibenzofuran	88.5	92.9	86.1	91.1	100.0	4	3.0	7.0	89.7	73	114	Y
2,4-Dinitrotoluene	90.8	96.0	92.1	93.4	100.0	4	2.2	7.0	93.1	79	118	Y
4-Nitrophenol	109.5	113.4	108.0	110.0	100.0	4	2.3	17.0	110.2	51	153	Y

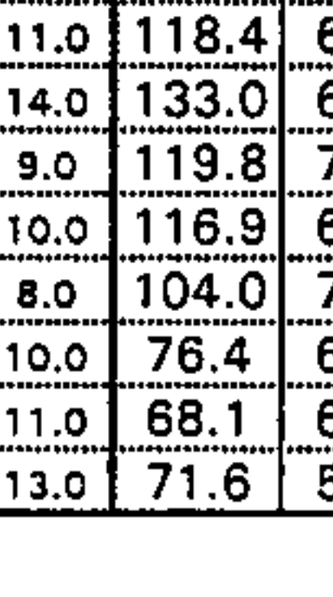
Instrument: HP5972 MS#5
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed: 1/28/99
Method: 8270
Ext. Method: 3520
Analyst: D.J. Pastuf

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	90.7	95.1	89.3	94.6	100.0	4	2.9	8.0	92.4	64	114	Y
4-Chlorophenyl phenyl ether	90.7	94.0	88.6	94.3	100.0	4	2.8	9.0	91.9	67	122	Y
Diethyl phthalate	97.5	99.7	97.0	101.1	100.0	4	1.9	11.0	98.8	61	129	Y
1,2-Diphenylhydrazine	82.5	84.9	80.6	84.7	100.0	4	2.0	10.0	83.2	64	123	Y
4-Nitroaniline	87.8	93.3	90.7	90.7	100.0	4	2.3	8.0	90.6	75	125	Y
2,4,6-Tribromophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	9.0	0.0	58	112	N
4,6-Dinitro-2-methylphenol	100.9	105.1	99.1	100.9	100.0	4	2.5	12.0	101.5	65	137	Y
n-Nitrosodiphenylamine	104.0	106.7	103.3	108.0	100.0	4	2.2	10.0	105.5	76	136	Y
4-Bromophenyl phenyl ether	100.5	104.0	98.7	104.1	100.0	4	2.7	8.0	101.8	74	123	Y
Hexachlorobenzene	106.6	108.5	105.0	109.8	100.0	4	2.1	7.0	107.5	76	120	Y
Pentachlorophenol	110.4	112.0	106.5	111.0	100.0	4	2.4	9.0	110.0	74	126	Y
Phenanthrene	100.9	106.2	100.3	103.7	100.0	4	2.7	7.0	102.8	69	114	Y
Anthracene	98.8	102.3	97.6	100.6	100.0	4	2.1	7.0	99.8	72	116	Y
Di-n-butyl phthalate	115.0	118.7	114.0	115.7	100.0	4	2.0	8.0	115.9	71	120	Y
Carbazole	102.5	106.0	102.1	102.9	100.0	4	1.8	7.0	103.4	67	111	Y
Fluoranthene	107.4	113.4	108.3	108.2	100.0	4	2.7	7.0	109.3	73	116	Y
Benzidine	70.1	67.4	65.9	75.4	100.0	4	4.2	15.0	69.7	36	124	Y
Pyrene	91.0	89.2	89.7	97.1	100.0	4	3.6	9.0	91.8	69	121	Y
Terphenyl-d14	0.0	0.0	0.0	0.0	100.0	4	0.0	17.0	0.0	31	134	N
Butyl benzyl phthalate	104.0	102.4	101.0	109.0	100.0	4	3.5	9.0	104.1	71	128	Y
3,3'-Dichlorobenzidine	78.0	79.8	80.6	74.1	100.0	4	2.9	20.0	78.1	32	150	Y
Benzo[a]anthracene	95.5	97.6	94.5	97.0	100.0	4	1.4	8.0	96.2	72	118	Y
Chrysene	109.4	114.4	109.1	114.1	100.0	4	2.9	12.0	111.8	71	144	Y
bis(2-Ethylhexyl)phthalate	117.4	117.5	117.2	121.5	100.0	4	2.0	11.0	118.4	67	132	Y
Di-n-octyl phthalate	130.3	128.0	146.2	127.5	100.0	4	8.9	14.0	133.0	61	142	Y
Benzo[b]fluoranthene	116.9	122.8	119.6	120.0	100.0	4	2.4	9.0	119.8	70	127	Y
Benzo[k]fluoranthene	118.6	117.6	113.1	118.2	100.0	4	2.5	10.0	116.9	66	126	Y
Benzo[a]pyrene	102.6	105.3	103.5	104.4	100.0	4	1.2	8.0	104.0	71	119	Y
Indeno[1,2,3-cd]pyrene	75.4	74.6	76.0	79.4	100.0	4	2.1	10.0	76.4	64	125	Y
Dibenz[a,h]anthracene	66.8	67.6	67.6	70.3	100.0	4	1.5	11.0	68.1	61	125	Y
Benzo[g,h,i]perylene	71.0	68.4	70.8	76.3	100.0	4	3.3	13.0	71.6	54	132	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.



Instrument: HP5972 MS#5
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/7/98
Method: 8270
Ext. Method: 3550
Analyst: D.J. Pastuf

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	624	666	677	636	1667	4	1.50		39.0			
N-nitrosodimethylamine	980	1025	1058	987	1667	4	2.17	20.0	60.8	60	140	Y
2-Fluorophenol	2201	2226	2267	2178	3334	4	1.14	13.0	66.5	44	119	Y
bis(2-Chloroethyl)ether	1113	1163	1200	1128	1667	4	2.33	8.0	69.0	62	112	Y
Phenol-d5	2402	2429	2446	2388	3334	4	0.78	11.0	72.5	54	120	Y
Aniline	1154	1183	1202	1176	1667	4	1.20		70.7			
Phenol	1170	1199	1219	1179	1667	4	1.30	10.0	71.5	64	122	Y
2-Chlorophenol	1403	1447	1487	1420	1667	4	2.21	7.0	86.3	72	116	Y
1,3-Dichlorobenzene	1283	1348	1398	1314	1667	4	2.96	8.0	80.1	59	109	Y
1,4-Dichlorobenzene	1324	1390	1440	1354	1667	4	3.01	10.0	82.6	57	117	Y
1,2-Dichlorobenzene	1336	1389	1441	1359	1667	4	2.72	10.0	82.9	59	117	Y
Benzyl alcohol	1386	1421	1463	1398	1667	4	2.05	9.0	85.0	68	122	Y
2,2'-oxybis(1-chloropropane)	971	1025	1042	986	1667	4	1.99	14.5	60.3	34	121	Y
bis(2-Chloroisopropyl)ether	972	1026	1041	985	1667	4	1.97	13.0	60.3	51	128	Y
2-Methylphenol	1308	1347	1389	1332	1667	4	2.04	9.0	80.6	66	120	Y
Hexachloroethane	1175	1245	1274	1215	1667	4	2.53	9.0	73.6	61	113	Y
N-Nitroso-di-n-propylamine	1126	1172	1195	1156	1667	4	1.73	10.0	69.7	63	124	Y
4-Methylphenol	1336	1362	1399	1346	1667	4	1.66	9.0	81.6	67	123	Y
Nitrobenzene-d5	1223	1286	1298	1270	1667	4	1.97	15.0	76.1	41	129	Y
Nitrobenzene	1216	1263	1304	1238	1667	4	2.27	9.0	75.3	62	117	Y
Isophorone	1106	1131	1148	1118	1667	4	1.09	7.0	67.5	58	101	Y
2-Nitrophenol	1480	1560	1617	1548	1667	4	3.38	7.0	93.1	70	109	Y
2,4-Dimethylphenol	1413	1421	1434	1364	1667	4	1.83	13.0	84.5	48	125	Y
Benzoic acid	1282	1404	1198	1352	1667	4	5.36	23.0	78.5	10	114	Y
bis(2-Chloroethoxy)methane	1197	1226	1267	1212	1667	4	1.80	7.0	73.5	61	105	Y
2,4-Dichlorophenol	1716	1756	1813	1737	1667	4	2.51	7.0	105.3	71	112	Y
1,2,4-Trichlorobenzene	1598	1692	1728	1646	1667	4	3.38	8.0	100.0	62	110	Y
Naphthalene	1321	1379	1390	1345	1667	4	1.89	11.0	81.5	52	116	Y
4-Chloroaniline	1020	990	971	1102	1667	4	3.48	17.0	61.2	20	104	Y
Hexachlorobutadiene	1678	1795	1872	1766	1667	4	4.81	8.0	106.6	60	109	Y
4-Chloro-3-methylphenol	1503	1534	1555	1527	1667	4	1.28	8.0	91.8	74	119	Y
2-Methylnaphthalene	1519	1567	1595	1558	1667	4	1.90	9.0	93.6	64	116	Y
Hexachlorocyclopentadiene	1251	1402	1409	1294	1667	4	4.74	10.0	80.3	42	102	Y
2,4,6-Trichlorophenol	1807	1886	1915	1872	1667	4	2.75	6.0	112.2	74	109	N
2,4,5-Trichlorophenol	1863	1915	1967	1941	1667	4	2.67	8.0	115.3	75	112	N
2-Fluorobiphenyl	1491	1497	1535	1521	1667	4	1.23	11.0	90.7	52	118	Y
2-Chloronaphthalene	1467	1492	1536	1497	1667	4	1.71	7.0	89.9	68	110	Y
2-Nitroaniline	1407	1459	1470	1456	1667	4	1.69	12.0	86.9	63	138	Y
Acenaphthylene	1412	1441	1464	1434	1667	4	1.28	8.0	86.2	64	113	Y
Dimethyl phthalate	1557	1606	1624	1613	1667	4	1.78	6.0	96.0	76	114	Y
2,6-Dinitrotoluene	1761	1825	1847	1838	1667	4	2.35	7.0	109.0	77	116	Y
Acenaphthene	1442	1464	1497	1461	1667	4	1.38	8.0	87.9	68	113	Y
3-Nitroaniline	1126	1160	1148	1287	1667	4	4.34	13.0	70.8	33	111	Y
2,4-Dinitrophenol	1482	1574	1443	1424	1667	4	4.01	13.0	88.8	29	107	Y
Dibenzofuran	1630	1677	1693	1667	1667	4	1.61	8.0	100.0	70	118	Y
2,4-Dinitrotoluene	1623	1688	1727	1703	1667	4	2.66	7.0	101.1	76	116	Y
4-Nitrophenol	1656	1705	1723	1721	1667	4	1.87	14.0	102.0	61	147	Y

Instrument: HP5972 MS#5
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/7/98
Method: 8270
Ext. Method: 3550
Analyst: D.J. Pastuf

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	1472	1505	1519	1494	1667	4	1.18	9.0	89.8	63	115	Y
4-Chlorophenyl phenyl ether	1689	1762	1785	1754	1667	4	2.47	9.0	104.8	67	123	Y
Diethyl phthalate	1481	1536	1559	1533	1667	4	1.99	8.0	91.6	73	121	Y
1,2-Diphenylhydrazine	1140	1173	1190	1176	1667	4	1.26	4.0	70.2	75	102	N
4-Nitroaniline	1613	1651	1645	1653	1667	4	1.13	12.0	98.4	55	128	Y
2,4,6-Tribromophenol	4628	4742	4761	4745	3334	4	1.84	15.0	141.5	27	116	N
4,6-Dinitro-2-methylphenol	1564	1596	1519	1543	1667	4	1.97	16.0	93.3	26	120	Y
n-Nitrosodiphenylamine	1601	1641	1639	1614	1667	4	1.16	7.0	97.4	78	120	Y
4-Bromophenyl phenyl ether	1828	1886	1923	1893	1667	4	2.37	7.0	112.9	75	118	Y
Hexachlorobenzene	1910	1968	2003	1979	1667	4	2.37	7.0	117.9	75	116	N
Pentachlorophenol	1537	1571	1570	1523	1667	4	1.44	9.0	93.0	53	105	Y
Phenanthrene	1484	1503	1516	1507	1667	4	0.79	7.0	90.1	69	112	Y
Anthracene	1538	1559	1563	1562	1667	4	0.72	8.0	93.3	68	116	Y
Di-n-butyl phthalate	1357	1364	1389	1384	1667	4	0.93	8.0	82.4	74	121	Y
Carbazole	1534	1537	1543	1535	1667	4	0.24	8.0	92.2	63	111	Y
Fluoranthene	1629	1648	1651	1651	1667	4	0.65	7.0	98.7	71	115	Y
Benzidine	1454	1417	1515	1094	1667	4	11.3	20.0	82.2	60	140	Y
Pyrene	1478	1515	1511	1512	1667	4	1.05	9.0	90.2	68	121	Y
Terphenyl-d14	1464	1495	1480	1491	1667	4	0.83	15.0	88.9	49	136	Y
Butyl benzyl phthalate	1316	1340	1354	1345	1667	4	0.99	9.0	80.3	71	125	Y
3,3'-Dichlorobenzidine	1058	1074	1033	1217	1667	4	4.95	16.0	65.7	26	120	Y
Benzo[a]anthracene	1596	1625	1638	1637	1667	4	1.18	8.0	97.4	71	118	Y
Chrysene	1547	1585	1592	1586	1667	4	1.23	13.0	94.6	70	148	Y
bis(2-Ethylhexyl)phthalate	1299	1319	1328	1322	1667	4	0.75	9.0	79.0	72	128	Y
Di-n-octyl phthalate	1237	1245	1264	1275	1667	4	1.04	14.0	75.3	59	141	Y
Benzo[b]fluoranthene	1743	1787	1825	1778	1667	4	2.02	10.0	107.0	68	129	Y
Benzo[k]fluoranthene	1740	1732	1756	1823	1667	4	2.48	10.0	105.8	64	126	Y
Benzo[a]pyrene	1807	1830	1851	1871	1667	4	1.64	7.0	110.4	72	115	Y
Indeno[1,2,3-cd]pyrene	1479	1551	1553	1574	1667	4	2.50	10.0	92.3	61	122	Y
Dibenz[a,h]anthracene	1571	1645	1644	1677	1667	4	2.69	11.0	98.0	59	125	Y
Benzo[g,h,i]perylene	1365	1458	1447	1464	1667	4	2.77	13.0	86.0	51	126	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed:1/27/99
Method: 8270
Ext. Method: 3520
Analyst: D.J. Pastuf

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	55.0	56.9	51.6	63.2	100.0	4	4.9	12.0	56.7	42	117	Y
N-nitrosodimethylamine	84.9	89.6	80.7	85.5	100.0	4	3.7	10.0	85.2	61	122	Y
2-Fluorophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	15.0	0.0	31	121	N
bis(2-Chloroethyl)ether	87.9	89.2	81.6	85.8	100.0	4	3.3	7.0	86.1	67	111	Y
Phenol-d5	0.0	0.0	0.0	0.0	200.0	4	0.0	12.0	0.0	46	117	N
Aniline	77.8	80.3	73.5	85.9	100.0	4	5.2	10.0	79.4	60	140	Y
Phenol	85.3	87.2	81.0	84.3	100.0	4	2.6	10.0	84.4	60	121	Y
2-Chlorophenol	89.9	92.0	84.4	88.6	100.0	4	3.2	8.0	88.7	66	117	Y
1,3-Dichlorobenzene	88.6	79.0	85.4	90.0	100.0	4	4.9	7.0	85.8	57	105	Y
1,4-Dichlorobenzene	92.8	82.0	89.0	93.6	100.0	4	5.3	8.0	89.3	53	101	Y
1,2-Dichlorobenzene	91.9	83.2	88.2	92.0	100.0	4	4.1	7.0	88.8	59	101	Y
Benzyl alcohol	92.2	92.0	83.3	88.0	100.0	4	4.2	8.0	88.9	69	120	Y
2,2'-oxybis(1-chloropropane)	115.5	114.9	107.3	112.8	100.0	4	3.7	20.0	112.6	60	140	Y
bis(2-Chloroisopropyl)ether	115.5	114.9	107.3	112.8	100.0	4	3.8	12.0	112.6	53	125	Y
2-Methylphenol	91.3	91.8	84.9	88.3	100.0	4	3.2	8.0	89.1	64	113	Y
Hexachloroethane	97.0	84.2	91.7	97.2	100.0	4	6.1	9.0	92.5	47	102	Y
N-Nitroso-di-n-propylamine	97.4	96.5	87.5	91.5	100.0	4	4.6	11.0	93.2	62	130	Y
4-Methylphenol	90.8	91.9	84.2	87.9	100.0	4	3.4	8.0	88.7	64	114	Y
Nitrobenzene-d5	0.0	0.0	0.0	0.0	100.0	4	0.0	14.0	0.0	44	130	N
Nitrobenzene	95.3	101.4	94.1	99.4	100.0	4	3.4	7.0	97.6	71	115	Y
Isophorone	95.0	95.7	87.9	92.3	100.0	4	3.5	7.0	92.7	66	106	Y
2-Nitrophenol	98.2	102.1	94.4	99.9	100.0	4	3.3	7.0	98.7	73	114	Y
2,4-Dimethylphenol	74.9	78.7	73.8	73.1	100.0	4	2.5	10.0	75.1	52	110	Y
Benzoic acid	47.3	41.3	37.0	40.7	100.0	4	4.2	16.0	41.6	20	117	Y
bis(2-Chloroethoxy)methane	100.5	104.1	96.5	100.8	100.0	4	3.1	6.0	100.5	69	104	Y
2,4-Dichlorophenol	93.1	97.2	89.3	94.8	100.0	4	3.3	6.0	93.6	73	111	Y
1,2,4-Trichlorobenzene	93.4	92.3	92.3	98.0	100.0	4	2.7	7.0	94.0	60	105	Y
Naphthalene	91.0	91.7	89.5	94.5	100.0	4	2.1	7.0	91.7	60	103	Y
4-Chloroaniline	88.3	90.5	85.4	90.7	100.0	4	2.5	13.0	88.7	48	125	Y
Hexachlorobutadiene	86.9	83.6	86.2	92.1	100.0	4	3.5	9.0	87.2	58	103	Y
4-Chloro-3-methylphenol	92.9	93.1	84.9	89.2	100.0	4	3.9	8.0	90.0	69	119	Y
2-Methylnaphthalene	91.5	94.4	88.1	92.9	100.0	4	2.7	8.0	91.7	64	111	Y
Hexachlorocyclopentadiene	68.0	73.9	70.0	75.3	100.0	4	3.4	13.0	71.8	27	106	Y
2,4,6-Trichlorophenol	88.7	91.7	85.0	90.9	100.0	4	3.0	4.0	89.1	82	108	Y
2,4,5-Trichlorophenol	87.2	91.0	84.5	88.2	100.0	4	2.7	6.0	87.7	75	113	Y
2-Fluorobiphenyl	0.0	0.0	0.0	0.0	100.0	4	0.0	13.0	0.0	43	122	N
2-Chloronaphthalene	92.0	98.0	92.5	98.4	100.0	4	3.5	8.0	95.2	64	115	Y
2-Nitroaniline	109.0	112.8	105.0	109.9	100.0	4	3.2	12.0	109.2	61	133	Y
Acenaphthylene	88.3	93.4	86.7	91.6	100.0	4	3.0	8.0	90.0	67	112	Y
Dimethyl phthalate	98.4	97.2	91.4	95.4	100.0	4	3.1	14.0	95.6	52	134	Y
2,6-Dinitrotoluene	108.2	104.8	97.9	102.8	100.0	4	4.3	7.0	103.4	79	119	Y
Acenaphthene	92.6	98.2	93.6	97.4	100.0	4	2.8	9.0	95.5	66	117	Y
3-Nitroaniline	104.9	102.7	96.6	100.5	100.0	4	3.5	14.0	101.2	52	138	Y
2,4-Dinitrophenol	108.5	98.6	90.3	94.3	100.0	4	7.8	12.0	97.9	60	132	Y
Dibenzofuran	89.8	94.2	88.6	92.9	100.0	4	2.6	7.0	91.4	73	114	Y
2,4-Dinitrotoluene	98.3	94.2	88.3	91.9	100.0	4	4.2	7.0	93.2	79	118	Y
4-Nitrophenol	94.5	88.8	84.6	88.7	100.0	4	4.1	17.0	89.2	51	153	Y

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed:1/27/99
Method: 8270
Ext. Method: 3520
Analyst: D.J. Pastuf

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	93.3	98.3	93.4	95.9	100.0	4	2.4	8.0	95.2	64	114	Y
4-Chlorophenyl phenyl ether	92.2	97.2	91.8	95.6	100.0	4	2.7	9.0	94.2	67	122	Y
Diethyl phthalate	96.8	92.8	88.4	92.4	100.0	4	3.4	11.0	92.6	61	129	Y
1,2-Diphenylhydrazine	89.5	92.4	86.8	89.9	100.0	4	2.3	10.0	89.6	64	123	Y
4-Nitroaniline	99.7	96.3	90.5	94.0	100.0	4	3.9	8.0	95.1	75	125	Y
2,4,6-Tribromophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	9.0	0.0	58	112	N
4,6-Dinitro-2-methylphenol	111.0	106.6	100.9	103.6	100.0	4	4.3	12.0	105.5	65	137	Y
n-Nitrosodiphenylamine	103.1	111.2	108.1	110.2	100.0	4	3.6	10.0	108.2	76	136	Y
4-Bromophenyl phenyl ether	96.3	102.7	98.4	102.8	100.0	4	3.2	8.0	100.0	74	123	Y
Hexachlorobenzene	100.4	106.7	103.9	106.4	100.0	4	2.9	7.0	104.3	76	120	Y
Pentachlorophenol	75.8	69.0	63.7	64.7	100.0	4	5.5	9.0	68.3	74	126	N
Phenanthrene	96.8	103.8	100.2	102.3	100.0	4	3.0	7.0	100.8	69	114	Y
Anthracene	96.2	102.0	98.7	100.5	100.0	4	2.5	7.0	99.3	72	116	Y
Di-n-butyl phthalate	104.7	103.1	97.0	100.3	100.0	4	3.4	8.0	101.3	71	120	Y
Carbazole	98.4	100.5	96.1	97.2	100.0	4	1.9	7.0	98.1	67	111	Y
Fluoranthene	98.8	99.2	93.0	95.9	100.0	4	2.9	7.0	96.7	73	116	Y
Benzidine	97.6	94.9	93.5	106.7	100.0	4	5.9	15.0	98.2	36	124	Y
Pyrene	99.2	111.4	113.5	112.7	100.0	4	6.7	9.0	109.2	69	121	Y
Terphenyl-d14	0.0	0.0	0.0	0.0	100.0	4	0.0	17.0	0.0	31	134	N
Butyl benzyl phthalate	105.8	106.1	101.4	104.6	100.0	4	2.2	9.0	104.5	71	128	Y
3,3'-Dichlorobenzidine	83.3	73.1	74.8	73.7	100.0	4	4.8	20.0	76.2	32	150	Y
Benzo[a]anthracene	95.7	101.3	99.7	100.1	100.0	4	2.4	8.0	99.2	72	118	Y
Chrysene	115.3	119.8	116.5	117.8	100.0	4	1.9	12.0	117.4	71	144	Y
bis(2-Ethylhexyl)phthalate	99.6	101.2	98.3	101.0	100.0	4	1.4	11.0	100.0	67	132	Y
Di-n-octyl phthalate	99.2	92.8	87.3	92.1	100.0	4	4.9	14.0	92.9	61	142	Y
Benzo[b]fluoranthene	108.3	109.0	105.2	105.1	100.0	4	2.0	9.0	106.9	70	127	Y
Benzo[k]fluoranthene	106.1	107.0	104.5	106.4	100.0	4	1.0	10.0	106.0	66	126	Y
Benzo[a]pyrene	101.0	102.3	100.2	101.1	100.0	4	0.9	8.0	101.2	71	119	Y
Indeno[1,2,3-cd]pyrene	80.7	95.1	97.9	101.5	100.0	4	9.1	10.0	93.8	64	125	Y
Dibenz[a,h]anthracene	76.2	87.9	91.0	94.8	100.0	4	8.0	11.0	87.5	61	125	Y
Benzo[g,h,i]perylene	77.0	97.5	102.7	105.9	100.0	4	13.0	13.0	95.8	54	132	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/9/98
Method: 8270
Ext. Method: 3550
Analyst: D.J. Pastuf

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	866	948	964	872	1667	4	3.04		54.7			
N-nitrosodimethylamine	1629	1735	1776	1653	1667	4	4.12	20.0	101.9	60	140	Y
2-Fluorophenol	3051	3089	3193	3113	3334	4	1.81	13.0	93.3	44	119	Y
bis(2-Chloroethyl)ether	1571	1652	1697	1630	1667	4	3.14	8.0	98.2	62	112	Y
Phenol-d5	3320	3357	3459	3453	3334	4	2.09	11.0	101.9	54	120	Y
Aniline	1477	1527	1556	1568	1667	4	2.43		91.9			
Phenol	1631	1674	1746	1711	1667	4	2.96	10.0	101.4	64	122	Y
2-Chlorophenol	1630	1673	1713	1707	1667	4	2.29	7.0	100.8	72	116	Y
1,3-Dichlorobenzene	1348	1428	1474	1392	1667	4	3.21	8.0	84.6	59	109	Y
1,4-Dichlorobenzene	1386	1471	1511	1419	1667	4	3.31	10.0	86.8	57	117	Y
1,2-Dichlorobenzene	1408	1478	1542	1453	1667	4	3.36	10.0	88.2	59	117	Y
Benzyl alcohol	1756	1783	1878	1825	1667	4	3.19	9.0	108.6	68	122	Y
2,2'-oxybis(1-chloropropane)	1496	1552	1593	1555	1667	4	2.40	14.5	92.9	34	121	Y
bis(2-Chloroisopropyl)ether	1496	1558	1593	1556	1667	4	2.42	13.0	93.0	51	128	Y
2-Methylphenol	1650	1667	1744	1695	1667	4	2.47	9.0	101.3	66	120	Y
Hexachloroethane	1458	1542	1595	1497	1667	4	3.55	9.0	91.3	61	113	Y
N-Nitroso-di-n-propylamine	1554	1587	1667	1649	1667	4	3.17	10.0	96.9	63	124	Y
4-Methylphenol	1649	1657	1742	1707	1667	4	2.64	9.0	101.3	67	123	Y
Nitrobenzene-d5	1558	1602	1652	1618	1667	4	2.35	15.0	96.4	41	129	Y
Nitrobenzene	1514	1598	1650	1584	1667	4	3.38	9.0	95.2	62	117	Y
Isophorone	1436	1462	1517	1461	1667	4	2.05	7.0	88.1	58	101	Y
2-Nitrophenol	1545	1639	1696	1637	1667	4	3.76	7.0	97.7	70	109	Y
2,4-Dimethylphenol	1553	1540	1584	1509	1667	4	1.86	13.0	92.8	48	125	Y
Benzoic acid	1447	1560	1438	1665	1667	4	6.42	23.0	91.6	10	114	Y
bis(2-Chloroethoxy)methane	1606	1658	1715	1658	1667	4	2.68	7.0	99.5	61	105	Y
2,4-Dichlorophenol	1663	1664	1763	1704	1667	4	2.84	7.0	101.9	71	112	Y
1,2,4-Trichlorobenzene	1451	1514	1573	1495	1667	4	3.02	8.0	90.5	62	110	Y
Naphthalene	1383	1444	1509	1432	1667	4	3.11	11.0	86.5	52	116	Y
4-Chloroaniline	1094	1062	1078	1214	1667	4	4.15	17.0	66.7	20	104	Y
Hexachlorobutadiene	1512	1614	1649	1565	1667	4	3.59	8.0	95.1	60	109	Y
4-Chloro-3-methylphenol	1709	1739	1798	1763	1667	4	2.27	8.0	105.1	74	119	Y
2-Methylnaphthalene	1508	1560	1624	1552	1667	4	2.86	9.0	93.6	64	116	Y
Hexachlorocyclopentadiene	1149	1315	1285	1159	1667	4	5.11	10.0	73.6	42	102	Y
2,4,6-Trichlorophenol	1620	1668	1697	1681	1667	4	1.98	6.0	100.0	74	109	Y
2,4,5-Trichlorophenol	1655	1712	1743	1718	1667	4	2.23	6.0	102.4	75	112	Y
2-Fluorobiphenyl	1499	1538	1558	1525	1667	4	1.49	11.0	91.8	52	118	Y
2-Chloronaphthalene	1455	1511	1526	1490	1667	4	1.84	7.0	89.7	68	110	Y
2-Nitroaniline	1785	1854	1898	1873	1667	4	2.91	12.0	111.1	63	138	Y
Acenaphthylene	1460	1496	1538	1482	1667	4	1.98	8.0	89.6	64	113	Y
Dimethyl phthalate	1652	1694	1718	1686	1667	4	1.65	6.0	101.2	76	114	Y
2,6-Dinitrotoluene	1736	1797	1830	1813	1667	4	2.45	7.0	107.6	77	116	Y
Acenaphthene	1496	1529	1581	1535	1667	4	2.09	8.0	92.1	68	113	Y
3-Nitroaniline	1288	1302	1296	1421	1667	4	3.78	13.0	79.6	33	111	Y
2,4-Dinitrophenol	1420	1425	1317	1385	1667	4	2.99	13.0	83.2	29	107	Y
Dibenzofuran	1587	1639	1674	1622	1667	4	2.18	8.0	97.8	70	118	Y
2,4-Dinitrotoluene	1711	1762	1769	1766	1667	4	1.65	7.0	105.1	76	116	Y
4-Nitrophenol	1783	1861	1879	1860	1667	4	2.56	14.0	110.7	61	147	Y

7/14/98

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/9/98
Method: 8270
Ext. Method: 3550
Analyst: D.J. Pastuf

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	1488	1524	1556	1522	1667	4	1.65	9.0	91.3	63	115	Y
4-Chlorophenyl phenyl ether	1597	1642	1668	1635	1667	4	1.78	9.0	98.1	67	123	Y
Diethyl phthalate	1701	1746	1773	1753	1667	4	1.81	8.0	104.6	73	121	Y
1,2-Diphenylhydrazine	1509	1554	1572	1548	1667	4	1.60	4.0	92.7	75	102	Y
4-Nitroaniline	1756	1781	1793	1773	1667	4	0.92	12.0	106.5	55	128	Y
2,4,6-Tribromophenol	3345	3387	3404	3386	3334	4	0.75	15.0	101.4	27	116	Y
4,6-Dinitro-2-methylphenol	1622	1611	1577	1625	1667	4	1.33	16.0	96.5	26	120	Y
n-Nitrosodiphenylamine	1733	1762	1777	1783	1667	4	1.33	7.0	105.8	78	120	Y
4-Bromophenyl phenyl ether	1608	1655	1663	1656	1667	4	1.52	7.0	98.7	75	118	Y
Hexachlorobenzene	1578	1586	1622	1596	1667	4	1.17	7.0	95.7	75	116	Y
Pentachlorophenol	1663	1610	1621	1612	1667	4	1.48	9.0	97.6	53	105	Y
Phenanthrene	1500	1522	1558	1531	1667	4	1.45	7.0	91.7	69	112	Y
Anthracene	1559	1584	1622	1591	1667	4	1.55	8.0	95.3	68	116	Y
Di-n-butyl phthalate	1726	1762	1778	1771	1667	4	1.38	8.0	105.5	74	121	Y
Carbazole	1621	1655	1673	1652	1667	4	1.29	8.0	99.0	63	111	Y
Fluoranthene	1573	1600	1628	1589	1667	4	1.41	7.0	95.8	71	115	Y
Benzidine	1355	1258	1356	813	1667	4	15.5	20.0	71.7	60	140	Y
Pyrene	1588	1601	1617	1639	1667	4	1.32	9.0	96.7	68	121	Y
Terphenyl-d14	1502	1509	1489	1542	1667	4	1.36	15.0	90.6	49	136	Y
Butyl benzyl phthalate	1826	1846	1877	1902	1667	4	2.01	9.0	111.8	71	125	Y
3,3'-Dichlorobenzidine	1202	1207	1146	1291	1667	4	3.59	16.0	72.7	26	120	Y
Benzo[a]anthracene	1577	1595	1617	1605	1667	4	1.03	8.0	95.9	71	118	Y
Chrysene	1564	1581	1607	1580	1667	4	1.05	13.0	95.0	70	148	Y
bis(2-Ethylhexyl)phthalate	1888	1914	1933	1979	1667	4	2.31	9.0	115.7	72	128	Y
Di-n-octyl phthalate	2316	2394	2361	2549	1667	4	6.08	14.0	144.3	59	141	N
Benzo[b]fluoranthene	1802	1901	1900	1908	1667	4	3.03	10.0	112.7	68	129	Y
Benzo[k]fluoranthene	1814	1778	1770	1900	1667	4	3.55	10.0	108.9	64	126	Y
Benzo[a]pyrene	1816	1846	1847	1872	1667	4	1.38	7.0	110.7	72	115	Y
Indeno[1,2,3-cd]pyrene	1262	1291	1364	1289	1667	4	2.60	10.0	78.1	61	122	Y
Dibenz[a,h]anthracene	1312	1345	1419	1346	1667	4	2.71	11.0	81.3	59	125	Y
Benzo[g,h,i]perylene	1166	1196	1278	1186	1667	4	2.97	13.0	72.4	51	126	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.

SOP Reading Record

Name: Mark E. Giordano

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
300-33	4-16-98	625	@ 5-8-98	@ 5-8-98
300-12	4-10-98	8270B	@ 5-8-98	@ 5-8-98
300-12A	4-14-98	8270C	@ 5-13-98	@ 5-13-98
300-41	4-16-98	USEPA CLP-SVOA	@ 5-15-98	@ 5-15-98
300-36	4-16-98	NYSDEC 95-2	@ 5-20-98	@ 5-20-98
300-18	3-2098	3550A	@ 5-16-98	@ 5-16-98
300-15	3-20-98	3520B	@ 5-14-98	@ 5-14-98
300-18A	4-27-98	3550B	@ 5-14-98	@ 5-14-98
300-15A	4-27-98	3520C	@ 5-14-98	@ 5-14-98
300-12A	2	8270C	@ 6-21-99	@ 6-21-99

Training and Proficiency Record

Name: Mark E. Giordano

Procedure (Method/AP #)	QA/QC Check*/ Supervisor Comments	Employee Initials/Date	Supervisor Initials/Date
8270/300-12A	Initial Demo: MS5 Water MS6 Water MS5 Soil MS6 Soil	MG 4-29-98	MG 4-29-98
8260/300-27A	Initial Demo: MS2 Water	MG 5-1-98	MG 5-1-98
625/300-33	Initial Demo: Same as 8270	MG 4-29-98	MG 4-29-98
624/300-03	Initial Demo: Same as 8260	MG 5-1-98	MG 5-1-98
CLP-SV/300-41		MG 4-29-98	MG 4-29-98
95-2/300-36		MG 5-1-98	MG 5-1-98

* Attach results of QC Check. A QC Check can be an LCS, single blind or double blind proficiency.

Instrument: HP5972 MS#5
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed:1/28/99
Method: 8270
Ext. Method: 3520
Analyst: M.E. Giordano

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	65.4	72.1	65.7	66.9	100.0	4	3.1	12.0	67.5	42	117	Y
N-nitrosodimethylamine	99.6	112.8	100.0	102.7	100.0	4	6.2	10.0	103.8	61	122	Y
2-Fluorophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	15.0	0.0	31	121	N
bis(2-Chloroethyl)ether	66.6	72.4	65.5	68.2	100.0	4	3.1	7.0	68.2	67	111	Y
Phenol-d5	0.0	0.0	0.0	0.0	200.0	4	0.0	12.0	0.0	46	117	N
Aniline	54.8	60.6	56.6	68.1	100.0	4	5.9	10.0	60.0	60	140	Y
Phenol	62.6	67.4	61.6	62.0	100.0	4	2.7	10.0	63.4	60	121	Y
2-Chlorophenol	78.8	85.6	76.3	78.1	100.0	4	4.1	8.0	79.7	66	117	Y
1,3-Dichlorobenzene	82.5	75.8	80.3	75.4	100.0	4	3.5	7.0	78.5	57	105	Y
1,4-Dichlorobenzene	86.3	79.0	84.5	80.5	100.0	4	3.4	8.0	82.6	53	101	Y
1,2-Dichlorobenzene	89.1	83.1	86.5	81.2	100.0	4	3.5	7.0	85.0	59	101	Y
Benzyl alcohol	77.2	82.7	75.3	77.5	100.0	4	3.2	8.0	78.2	69	120	Y
2,2'-oxybis(1-chloropropane)	79.6	85.2	77.2	79.3	100.0	4	3.4	20.0	80.3	60	140	Y
bis(2-Chloroisopropyl)ether	79.6	85.2	77.2	79.3	100.0	4	3.4	12.0	80.3	53	125	Y
2-Methylphenol	70.7	76.4	67.9	69.7	100.0	4	3.7	8.0	71.2	64	113	Y
Hexachloroethane	87.0	76.5	84.6	77.5	100.0	4	5.2	9.0	81.4	47	102	Y
N-Nitroso-di-n-propylamine	80.7	87.8	78.6	80.9	100.0	4	4.0	11.0	82.0	62	130	Y
4-Methylphenol	74.9	82.3	73.6	75.2	100.0	4	3.9	8.0	76.5	64	114	Y
Nitrobenzene-d5	0.0	0.0	0.0	0.0	100.0	4	0.0	14.0	0.0	44	130	N
Nitrobenzene	80.6	83.0	77.8	81.3	100.0	4	2.2	7.0	80.7	71	115	Y
Isophorone	76.7	80.1	74.9	78.4	100.0	4	2.2	7.0	77.5	66	106	Y
2-Nitrophenol	86.6	92.1	84.6	88.4	100.0	4	3.2	7.0	87.9	73	114	Y
2,4-Dimethylphenol	60.5	66.4	61.2	63.3	100.0	4	2.6	10.0	62.9	52	110	Y
Benzoic acid	50.4	47.7	47.0	69.9	100.0	4	10.8	16.0	53.7	20	117	Y
bis(2-Chloroethoxy)methane	74.8	81.9	74.9	79.0	100.0	4	3.5	6.0	77.6	69	104	Y
2,4-Dichlorophenol	95.4	102.3	91.6	96.7	100.0	4	4.4	6.0	96.5	73	111	Y
1,2,4-Trichlorobenzene	93.4	93.0	90.9	92.1	100.0	4	1.1	7.0	92.3	60	105	Y
Naphthalene	87.7	88.6	85.6	89.7	100.0	4	1.7	7.0	87.9	60	103	Y
4-Chloroaniline	81.8	88.3	82.3	86.3	100.0	4	3.1	13.0	84.7	48	125	Y
Hexachlorobutadiene	89.1	85.3	86.0	87.1	100.0	4	1.7	9.0	86.9	58	103	Y
4-Chloro-3-methylphenol	91.1	94.1	85.1	92.2	100.0	4	3.9	8.0	90.6	69	119	Y
2-Methylnaphthalene	96.8	100.4	93.5	97.4	100.0	4	2.8	8.0	97.0	64	111	Y
Hexachlorocyclopentadiene	61.9	66.8	63.9	65.6	100.0	4	2.1	13.0	64.5	27	106	Y
2,4,6-Trichlorophenol	85.8	88.9	84.6	86.5	100.0	4	1.8	4.0	86.5	82	108	Y
2,4,5-Trichlorophenol	85.7	90.2	83.2	86.3	100.0	4	2.9	6.0	86.3	75	113	Y
2-Fluorobiphenyl	0.0	0.0	0.0	0.0	100.0	4	0.0	13.0	0.0	43	122	N
2-Chloronaphthalene	82.8	88.7	83.7	86.7	100.0	4	2.7	8.0	85.5	64	115	Y
2-Nitroaniline	80.6	85.1	79.6	83.0	100.0	4	2.4	12.0	82.1	61	133	Y
Acenaphthylene	82.0	87.8	81.1	84.0	100.0	4	3.0	8.0	83.7	67	112	Y
Dimethyl phthalate	91.6	95.8	91.5	93.6	100.0	4	2.0	14.0	93.1	52	134	Y
2,6-Dinitrotoluene	94.0	97.9	91.8	95.8	100.0	4	2.6	7.0	94.9	79	119	Y
Acenaphthene	90.7	95.2	90.8	93.7	100.0	4	2.2	9.0	92.6	66	117	Y
3-Nitroaniline	90.7	94.8	91.5	91.9	100.0	4	1.8	14.0	92.2	52	138	Y
2,4-Dinitrophenol	98.3	103.2	96.3	96.9	100.0	4	3.1	12.0	98.7	60	132	Y
Dibenzofuran	87.7	91.9	86.9	89.1	100.0	4	2.2	7.0	88.9	73	114	Y
2,4-Dinitrotoluene	91.2	94.8	90.1	91.7	100.0	4	2.0	7.0	91.9	79	118	Y
4-Nitrophenol	111.7	114.2	109.7	108.6	100.0	4	2.5	17.0	111.0	51	153	Y

7-4-99 23

Instrument: HP5972 MS#5
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed: 1/28/99
Method: 8270
Ext. Method: 3520
Analyst: M.E. Giordano

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	91.5	95.6	89.1	92.4	100.0	4	2.7	8.0	92.1	64	1.14	Y
4-Chlorophenyl phenyl ether	89.4	93.9	88.1	90.2	100.0	4	2.5	9.0	90.4	67	122	Y
Diethyl phthalate	97.5	100.8	98.2	98.8	100.0	4	1.4	11.0	98.8	61	129	Y
1,2-Diphenylhydrazine	81.1	84.5	80.7	82.2	100.0	4	1.7	10.0	82.1	64	123	Y
4-Nitroaniline	88.2	92.8	86.3	88.2	100.0	4	2.8	8.0	88.9	75	125	Y
2,4,6-Tribromophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	9.0	0.0	58	112	N
4,6-Dinitro-2-methylphenol	101.1	102.6	101.8	101.5	100.0	4	0.6	12.0	101.7	65	137	Y
n-Nitrosodiphenylamine	103.4	105.5	104.1	106.1	100.0	4	1.2	10.0	104.8	76	136	Y
4-Bromophenyl phenyl ether	97.9	101.7	99.2	103.0	100.0	4	2.3	8.0	100.5	74	123	Y
Hexachlorobenzene	102.8	107.6	104.7	105.3	100.0	4	2.0	7.0	105.1	76	120	Y
Pentachlorophenol	108.9	111.0	107.1	107.7	100.0	4	1.7	9.0	108.7	74	126	Y
Phenanthrene	101.0	105.3	101.7	102.7	100.0	4	1.9	7.0	102.7	69	114	Y
Anthracene	97.9	102.4	99.3	99.4	100.0	4	1.9	7.0	99.8	72	116	Y
Di-n-butyl phthalate	116.5	118.8	116.4	116.9	100.0	4	1.1	8.0	117.1	71	120	Y
Carbazole	102.7	106.2	102.7	103.8	100.0	4	1.6	7.0	103.9	67	111	Y
Fluoranthene	109.8	114.9	109.9	108.9	100.0	4	2.7	7.0	110.9	73	116	Y
Benzidine	63.0	61.7	60.2	62.7	100.0	4	1.2	15.0	61.9	36	124	Y
Pyrene	86.9	88.2	90.9	93.5	100.0	4	2.9	9.0	89.9	69	121	Y
Terphenyl-d14	0.0	0.0	0.0	0.0	100.0	4	0.0	17.0	0.0	31	134	N
Butyl benzyl phthalate	102.2	102.6	103.5	106.1	100.0	4	1.8	9.0	103.6	71	128	Y
3,3'-Dichlorobenzidine	80.9	78.3	77.4	74.7	100.0	4	2.6	20.0	77.8	32	150	Y
Benzo[a]anthracene	95.0	95.6	93.1	95.1	100.0	4	1.1	8.0	94.7	72	118	Y
Chrysene	109.6	111.7	109.7	113.0	100.0	4	1.7	12.0	111.0	71	144	Y
bis(2-Ethylhexyl)phthalate	115.5	117.7	118.0	120.2	100.0	4	1.9	11.0	117.8	67	132	Y
Di-n-octyl phthalate	119.2	131.4	139.5	147.5	100.0	4	12.1	14.0	134.4	61	142	Y
Benzo[b]fluoranthene	127.2	129.0	115.2	130.2	100.0	4	6.9	9.0	125.4	70	127	Y
Benzo[k]fluoranthene	128.4	126.8	114.7	124.8	100.0	4	6.2	10.0	123.7	66	126	Y
Benzo[a]pyrene	107.4	108.8	102.6	107.5	100.0	4	2.7	8.0	106.6	71	119	Y
Indeno[1,2,3-cd]pyrene	68.7	67.1	80.3	68.1	100.0	4	6.2	10.0	71.0	64	125	Y
Dibenz[a,h]anthracene	61.8	60.3	71.5	60.8	100.0	4	5.3	11.0	63.6	61	125	Y
Benzo[g,h,i]perylene	63.7	61.3	74.3	64.5	100.0	4	5.7	13.0	65.9	54	132	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.

Instrument: HP5972 MS#5
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/2/98
Method: 8270
Ext. Method: 3550
Analyst: M.E. Giordano

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	713	759	790	751	1667	4	1.89		45.2			
N-nitrosodimethylamine	1210	1197	1288	1226	1667	4	2.41	20.0	73.8	60	140	Y
2-Fluorophenol	2499	2515	2599	2477	3334	4	1.60	13.0	75.7	44	119	Y
bis(2-Chloroethyl)ether	1335	1351	1393	1318	1667	4	1.93	8.0	80.9	62	112	Y
Phenol-d5	2775	2738	2842	2748	3334	4	1.41	11.0	83.2	54	120	Y
Aniline	1430	1397	1454	1399	1667	4	1.64		85.2			
Phenol	1361	1372	1438	1384	1667	4	2.06	10.0	83.3	64	122	Y
2-Chlorophenol	1532	1525	1601	1530	1667	4	2.16	7.0	92.8	72	116	Y
1,3-Dichlorobenzene	1317	1369	1417	1340	1667	4	2.59	8.0	81.6	59	109	Y
1,4-Dichlorobenzene	1359	1420	1470	1405	1667	4	2.74	10.0	84.8	57	117	Y
1,2-Dichlorobenzene	1392	1430	1473	1401	1667	4	2.20	10.0	85.4	59	117	Y
Benzyl alcohol	1566	1555	1625	1570	1667	4	1.87	9.0	94.7	68	122	Y
2,2'-oxybis(1-chloropropane)	1333	1327	1361	1298	1667	4	1.57	14.5	79.8	34	121	Y
bis(2-Chloroisopropyl)ether	1332	1326	1362	1298	1667	4	1.58	13.0	79.7	51	128	Y
2-Methylphenol	1521	1467	1561	1501	1667	4	2.35	9.0	90.7	66	120	Y
Hexachloroethane	1315	1366	1386	1313	1667	4	2.22	9.0	80.7	61	113	Y
N-Nitroso-di-n-propylamine	1408	1376	1423	1364	1667	4	1.64	10.0	83.5	63	124	Y
4-Methylphenol	1543	1519	1599	1524	1667	4	2.20	9.0	92.7	67	123	Y
Nitrobenzene-d5	1333	1406	1422	1382	1667	4	2.32	15.0	83.1	41	129	Y
Nitrobenzene	1308	1393	1446	1357	1667	4	3.49	9.0	82.5	62	117	Y
Isophorone	1218	1237	1277	1231	1667	4	1.54	7.0	74.4	58	101	Y
2-Nitrophenol	1467	1554	1603	1557	1667	4	3.39	7.0	92.7	70	109	Y
2,4-Dimethylphenol	1525	1530	1581	1506	1667	4	1.91	13.0	92.1	48	125	Y
Benzoic acid	1235	1337	1088	1362	1667	4	7.47	23.0	75.3	10	114	Y
bis(2-Chloroethoxy)methane	1326	1382	1425	1355	1667	4	2.53	7.0	82.3	61	105	Y
2,4-Dichlorophenol	1652	1690	1725	1687	1667	4	1.78	7.0	101.3	71	112	Y
1,2,4-Trichlorobenzene	1475	1572	1596	1539	1667	4	3.14	8.0	92.7	62	110	Y
Naphthalene	1327	1433	1463	1391	1667	4	3.53	11.0	84.2	52	116	Y
4-Chloroaniline	1150	1125	1187	1160	1667	4	1.52	17.0	69.3	20	104	Y
Hexachlorobutadiene	1486	1571	1586	1546	1667	4	2.65	8.0	92.8	60	109	Y
4-Chloro-3-methylphenol	1553	1607	1610	1593	1667	4	1.59	8.0	95.4	74	119	Y
2-Methylnaphthalene	1507	1566	1616	1568	1667	4	2.68	9.0	93.8	64	116	Y
Hexachlorocyclopentadiene	1139	1266	1255	1159	1667	4	3.89	10.0	72.3	42	102	Y
2,4,6-Trichlorophenol	1736	1733	1773	1752	1667	4	1.10	6.0	104.9	74	109	Y
2,4,5-Trichlorophenol	1763	1787	1800	1819	1667	4	1.40	6.0	107.5	75	112	Y
2-Fluorobiphenyl	1485	1500	1540	1509	1667	4	1.40	11.0	90.5	52	118	Y
2-Chloronaphthalene	1467	1499	1568	1520	1667	4	2.53	7.0	90.8	68	110	Y
2-Nitroaniline	1621	1673	1714	1684	1667	4	2.32	12.0	100.4	63	138	Y
Acenaphthylene	1448	1485	1539	1486	1667	4	2.24	8.0	89.3	64	113	Y
Dimethyl phthalate	1573	1582	1607	1588	1667	4	0.86	6.0	95.2	76	114	Y
2,6-Dinitrotoluene	1740	1764	1805	1806	1667	4	1.95	7.0	106.7	77	116	Y
Acenaphthene	1488	1525	1577	1519	1667	4	2.21	8.0	91.6	68	113	Y
3-Nitroaniline	1314	1291	1307	1316	1667	4	0.69	13.0	78.4	33	111	Y
2,4-Dinitrophenol	1192	1215	1113	1259	1667	4	3.68	13.0	71.7	29	107	Y
Dibenzofuran	1634	1661	1705	1668	1667	4	1.76	8.0	100.0	70	118	Y
2,4-Dinitrotoluene	1620	1632	1657	1669	1667	4	1.36	7.0	98.7	76	116	Y
4-Nitrophenol	1673	1684	1719	1748	1667	4	2.06	14.0	102.3	61	147	Y

Instrument: HP5972 MS#5
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/2/98
Method: 8270
Ext. Method: 3550
Analyst: M.E. Giordano

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	1518	1556	1593	1539	1667	4	1.90	9.0	93.1	63	115	Y
4-Chlorophenyl phenyl ether	1697	1677	1700	1683	1667	4	0.67	9.0	101.3	67	123	Y
Diethyl phthalate	1557	1578	1586	1576	1667	4	0.74	8.0	94.4	73	121	Y
1,2-Diphenylhydrazine	1317	1371	1390	1348	1667	4	1.87	4.0	81.4	75	102	Y
4-Nitroaniline	1698	1724	1762	1737	1667	4	1.61	12.0	103.8	55	128	Y
2,4,6-Tribromophenol	4468	4237	4207	4385	3334	4	3.70	15.0	129.7	27	116	N
4,6-Dinitro-2-methylphenol	1393	1410	1348	1429	1667	4	2.08	16.0	83.7	26	120	Y
n-Nitrosodiphenylamine	1687	1742	1760	1756	1667	4	2.03	7.0	104.2	78	120	Y
4-Bromophenyl phenyl ether	1797	1774	1760	1791	1667	4	0.99	7.0	106.8	75	118	Y
Hexachlorobenzene	1836	1811	1816	1844	1667	4	0.96	7.0	109.6	75	116	Y
Pentachlorophenol	1436	1402	1395	1440	1667	4	1.39	9.0	85.1	53	105	Y
Phenanthrene	1527	1574	1609	1581	1667	4	2.06	7.0	94.3	69	112	Y
Anthracene	1599	1655	1686	1647	1667	4	2.16	8.0	98.8	68	116	Y
Di-n-butyl phthalate	1517	1557	1562	1527	1667	4	1.33	8.0	92.4	74	121	Y
Carbazole	1606	1682	1706	1676	1667	4	2.58	8.0	100.0	63	111	Y
Fluoranthene	1608	1680	1706	1690	1667	4	2.59	7.0	100.2	71	115	Y
Benzidine	2023	2073	2226	1647	1667	4	14.7	20.0	119.5	60	140	Y
Pyrene	1592	1599	1620	1628	1667	4	1.03	9.0	96.6	68	121	Y
Terphenyl-d14	1574	1508	1507	1558	1667	4	2.08	15.0	92.2	49	136	Y
Butyl benzyl phthalate	1558	1577	1585	1586	1667	4	0.76	9.0	94.6	71	125	Y
3,3'-Dichlorobenzidine	1087	1084	1082	1125	1667	4	1.25	16.0	65.6	26	120	Y
Benzo[a]anthracene	1633	1680	1702	1697	1667	4	1.88	8.0	100.6	71	118	Y
Chrysene	1583	1644	1662	1649	1667	4	2.10	13.0	98.1	70	148	Y
bis(2-Ethylhexyl)phthalate	1540	1570	1592	1565	1667	4	1.28	9.0	94.0	72	128	Y
Di-n-octyl phthalate	1612	1495	1487	1617	1667	4	4.27	14.0	93.1	59	141	Y
Benzo[b]fluoranthene	1863	1815	1848	1884	1667	4	1.72	10.0	111.1	68	129	Y
Benzo[k]fluoranthene	1850	1834	1802	1936	1667	4	3.45	10.0	111.3	64	126	Y
Benzo[a]pyrene	1846	1872	1893	1925	1667	4	2.02	7.0	113.0	72	115	Y
Indeno[1,2,3-cd]pyrene	1270	1462	1544	1467	1667	4	7.01	10.0	86.1	61	122	Y
Dibenz[a,h]anthracene	1303	1511	1598	1528	1667	4	7.63	11.0	89.1	59	125	Y
Benzo[g,h,i]perylene	1198	1392	1478	1395	1667	4	7.14	13.0	81.9	51	126	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed:1/27/99
Method: 8270
Ext. Method: 3520
Analyst: M.E. Giordano

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	54.9	56.4	51.5	62.7	100.0	4	4.7	12.0	56.4	42	117	Y
N-nitrosodimethylamine	83.7	87.7	80.1	85.2	100.0	4	3.2	10.0	84.2	61	122	Y
2-Fluorophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	15.0	0.0	31	121	N
bis(2-Chloroethyl)ether	85.4	88.6	82.4	85.9	100.0	4	2.6	7.0	85.6	67	111	Y
Phenol-d5	0.0	0.0	0.0	0.0	200.0	4	0.0	12.0	0.0	46	117	N
Aniline	76.0	79.7	73.8	86.0	100.0	4	5.3	10.0	78.9	60	140	Y
Phenol	84.3	86.7	80.8	85.3	100.0	4	2.5	10.0	84.3	60	121	Y
2-Chlorophenol	87.4	90.9	84.0	89.1	100.0	4	3.0	8.0	87.8	66	117	Y
1,3-Dichlorobenzene	88.4	78.7	84.8	89.8	100.0	4	4.9	7.0	85.4	57	105	Y
1,4-Dichlorobenzene	93.0	82.8	88.0	94.2	100.0	4	5.2	8.0	89.5	53	101	Y
1,2-Dichlorobenzene	91.3	83.5	87.4	93.2	100.0	4	4.3	7.0	88.8	59	101	Y
Benzyl alcohol	87.2	92.4	84.0	89.1	100.0	4	3.5	8.0	88.2	69	120	Y
2,2'-oxybis(1-chloropropane)	110.9	114.9	106.8	113.0	100.0	4	3.5	20.0	111.4	60	140	Y
bis(2-Chloroisopropyl)ether	110.9	114.9	106.8	113.0	100.0	4	3.5	12.0	111.4	53	125	Y
2-Methylphenol	87.2	92.0	83.6	88.9	100.0	4	3.5	8.0	87.9	64	113	Y
Hexachloroethane	95.8	83.1	90.5	96.4	100.0	4	6.1	9.0	91.5	47	102	Y
N-Nitroso-di-n-propylamine	91.2	96.1	87.9	93.7	100.0	4	3.5	11.0	92.2	62	130	Y
4-Methylphenol	87.4	91.8	84.3	88.4	100.0	4	3.1	8.0	88.0	64	114	Y
Nitrobenzene-d5	0.0	0.0	0.0	0.0	100.0	4	0.0	14.0	0.0	44	130	N
Nitrobenzene	95.7	101.3	94.9	100.4	100.0	4	3.2	7.0	98.1	71	115	Y
Isophorone	91.5	95.1	89.3	94.4	100.0	4	2.7	7.0	92.6	66	106	Y
2-Nitrophenol	96.6	102.9	95.1	100.5	100.0	4	3.6	7.0	98.8	73	114	Y
2,4-Dimethylphenol	72.5	76.1	73.0	73.4	100.0	4	1.6	10.0	73.7	52	110	Y
Benzoic acid	42.9	43.4	41.8	46.4	100.0	4	2.0	16.0	43.6	20	117	Y
bis(2-Chloroethoxy)methane	98.3	104.1	97.4	102.4	100.0	4	3.2	6.0	100.5	69	104	Y
2,4-Dichlorophenol	91.8	96.5	90.1	95.4	100.0	4	3.0	6.0	93.5	73	111	Y
1,2,4-Trichlorobenzene	95.0	92.8	92.0	98.4	100.0	4	2.9	7.0	94.5	60	105	Y
Naphthalene	92.2	92.4	90.2	95.5	100.0	4	2.2	7.0	92.6	60	103	Y
4-Chloroaniline	86.3	91.3	86.2	92.2	100.0	4	3.2	13.0	89.0	48	125	Y
Hexachlorobutadiene	88.4	85.4	86.8	93.1	100.0	4	3.3	9.0	88.4	58	103	Y
4-Chloro-3-methylphenol	88.2	91.8	86.0	89.7	100.0	4	2.5	8.0	88.9	69	119	Y
2-Methylnaphthalene	90.6	94.1	88.7	94.3	100.0	4	2.7	8.0	91.9	64	111	Y
Hexachlorocyclopentadiene	65.2	68.6	64.0	71.2	100.0	4	3.3	13.0	67.3	27	106	Y
2,4,6-Trichlorophenol	87.2	90.1	84.9	90.2	100.0	4	2.6	4.0	88.1	82	108	Y
2,4,5-Trichlorophenol	87.1	88.3	83.6	88.1	100.0	4	2.2	6.0	86.8	75	113	Y
2-Fluorobiphenyl	0.0	0.0	0.0	0.0	100.0	4	0.0	13.0	0.0	43	122	N
2-Chloronaphthalene	94.7	97.5	91.8	97.6	100.0	4	2.7	8.0	95.4	64	115	Y
2-Nitroaniline	108.6	109.9	106.6	109.8	100.0	4	1.5	12.0	108.7	61	133	Y
Acenaphthylene	89.5	92.2	87.8	92.4	100.0	4	2.2	8.0	90.5	67	112	Y
Dimethyl phthalate	94.7	95.0	92.6	96.8	100.0	4	1.7	14.0	94.8	52	134	Y
2,6-Dinitrotoluene	101.9	103.4	99.5	103.8	100.0	4	1.9	7.0	102.2	79	119	Y
Acenaphthene	96.2	98.0	93.1	97.9	100.0	4	2.3	9.0	96.3	66	117	Y
3-Nitroaniline	99.3	101.0	99.2	102.5	100.0	4	1.6	14.0	100.5	52	138	Y
2,4-Dinitrophenol	94.4	95.8	92.9	96.9	100.0	4	1.7	12.0	95.0	60	132	Y
Dibenzofuran	91.5	93.2	89.0	93.1	100.0	4	2.0	7.0	91.7	73	114	Y
2,4-Dinitrotoluene	92.0	92.4	90.5	92.9	100.0	4	1.0	7.0	92.0	79	118	Y
4-Nitrophenol	89.6	90.2	88.9	91.5	100.0	4	1.1	17.0	90.1	51	153	Y

REV 1

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 25mm

GC/MS Semi-Volatile Water
Initial Demonstration

Date Analyzed:1/27/99
Method: 8270
Ext. Method: 3520
Analyst: M.E. Giordano

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	96.1	97.9	94.5	97.7	100.0	4	1.6	8.0	96.6	64	114	Y
4-Chlorophenyl phenyl ether	94.8	96.0	92.9	96.5	100.0	4	1.6	9.0	95.0	67	122	Y
Diethyl phthalate	92.0	92.2	90.8	92.9	100.0	4	0.9	11.0	92.0	61	129	Y
1,2-Diphenylhydrazine	89.8	90.4	88.1	90.6	100.0	4	1.1	10.0	89.7	64	123	Y
4-Nitroaniline	96.8	97.5	95.8	97.9	100.0	4	0.9	8.0	97.0	75	125	Y
2,4,6-Tribromophenol	0.0	0.0	0.0	0.0	200.0	4	0.0	9.0	0.0	58	112	N
4,6-Dinitro-2-methylphenol	102.5	106.9	102.5	105.8	100.0	4	2.3	12.0	104.4	65	137	Y
n-Nitrosodiphenylamine	107.2	112.1	108.1	109.8	100.0	4	2.2	10.0	109.3	76	136	Y
4-Bromophenyl phenyl ether	99.4	103.2	99.6	101.4	100.0	4	1.8	8.0	100.9	74	123	Y
Hexachlorobenzene	103.9	108.0	103.8	105.9	100.0	4	2.0	7.0	105.4	76	120	Y
Pentachlorophenol	63.4	66.5	61.7	65.4	100.0	4	2.1	9.0	64.2	74	126	N
Phenanthrene	100.5	104.7	101.8	101.9	100.0	4	1.8	7.0	102.2	69	114	Y
Anthracene	98.9	103.0	100.3	101.0	100.0	4	1.7	7.0	100.8	72	116	Y
Di-n-butyl phthalate	100.9	103.0	100.6	101.2	100.0	4	1.0	8.0	101.4	71	120	Y
Carbazole	98.3	101.5	98.6	99.7	100.0	4	1.4	7.0	99.5	67	111	Y
Fluoranthene	96.3	99.9	97.6	98.5	100.0	4	1.5	7.0	98.1	73	116	Y
Benzidine	99.4	99.0	95.0	107.1	100.0	4	5.1	15.0	100.1	36	124	Y
Pyrene	107.4	110.8	107.5	108.4	100.0	4	1.6	9.0	108.5	69	121	Y
Terphenyl-d14	0.0	0.0	0.0	0.0	100.0	4	0.0	17.0	0.0	31	134	N
Butyl benzyl phthalate	104.1	104.7	102.0	104.9	100.0	4	1.3	9.0	103.9	71	128	Y
3,3'-Dichlorobenzidine	79.7	75.9	78.8	75.4	100.0	4	2.1	20.0	77.5	32	150	Y
Benzo[a]anthracene	100.5	102.6	100.1	101.1	100.0	4	1.1	8.0	101.1	72	118	Y
Chrysene	117.6	120.0	116.8	118.0	100.0	4	1.3	12.0	118.1	71	144	Y
bis(2-Ethylhexyl)phthalate	103.4	102.0	102.8	103.3	100.0	4	0.6	11.0	102.9	67	132	Y
Di-n-octyl phthalate	94.8	94.6	92.6	96.3	100.0	4	1.5	14.0	94.6	61	142	Y
Benzo[b]fluoranthene	107.7	108.5	105.8	109.5	100.0	4	1.6	9.0	107.9	70	127	Y
Benzo[k]fluoranthene	105.3	110.3	104.6	107.7	100.0	4	2.6	10.0	107.0	66	126	Y
Benzo[a]pyrene	101.3	104.8	101.0	103.0	100.0	4	1.7	8.0	102.5	71	119	Y
Indeno[1,2,3-cd]pyrene	104.3	103.6	102.4	102.7	100.0	4	0.9	10.0	103.2	64	125	Y
Dibenz[a,h]anthracene	99.2	98.2	97.3	97.3	100.0	4	0.9	11.0	98.0	61	125	Y
Benzo[g,h,i]perylene	106.8	105.5	105.0	103.9	100.0	4	1.2	13.0	105.3	54	132	Y

* Laboratory generated limits for accuracy and precision were used as acceptance criteria.

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/10/98
Method: 8270
Ext. Method: 3550
Analyst: M.E. Giordano

Analyte	LCS #1	LCS #2	LCS #3	LCS #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Pyridine	809	894	902	851	1667	4	2.58		51.8			
N-nitrosodimethylamine	1346	1472	1531	1422	1667	4	4.70	20.0	86.6	60	140	Y
2-Fluorophenol	2721	2860	2957	2803	3334	4	2.97	13.0	85.0	44	119	Y
bis(2-Chloroethyl)ether	1381	1490	1543	1433	1667	4	4.20	8.0	87.7	62	112	Y
Phenol-d5	2947	3104	3192	3042	3334	4	3.09	11.0	92.1	54	120	Y
Aniline	1333	1432	1472	1407	1667	4	3.51		84.6			
Phenol	1452	1536	1611	1521	1667	4	3.90	10.0	91.8	64	122	Y
2-Chlorophenol	1486	1594	1664	1555	1667	4	4.47	7.0	94.5	72	116	Y
1,3-Dichlorobenzene	1328	1423	1465	1375	1667	4	3.56	8.0	83.8	59	109	Y
1,4-Dichlorobenzene	1380	1474	1525	1420	1667	4	3.79	10.0	87.0	57	117	Y
1,2-Dichlorobenzene	1376	1480	1543	1437	1667	4	4.23	10.0	87.5	59	117	Y
Benzyl alcohol	1584	1678	1759	1638	1667	4	4.42	9.0	99.9	68	122	Y
2,2'-oxybis(1-chloropropane)	1347	1436	1507	1411	1667	4	3.97	14.5	85.5	34	121	Y
bis(2-Chloroisopropyl)ether	1348	1436	1507	1410	1667	4	3.96	13.0	85.5	51	128	Y
2-Methylphenol	1513	1585	1656	1556	1667	4	3.60	9.0	94.6	66	120	Y
Hexachloroethane	1364	1461	1509	1420	1667	4	3.67	9.0	86.3	61	113	Y
N-Nitroso-di-n-propylamine	1383	1489	1561	1461	1667	4	4.42	10.0	88.4	63	124	Y
4-Methylphenol	1510	1598	1679	1567	1667	4	4.23	9.0	95.3	67	123	Y
Nitrobenzene-d5	1415	1474	1504	1481	1667	4	2.27	15.0	88.1	41	129	Y
Nitrobenzene	1372	1468	1516	1451	1667	4	3.58	9.0	87.1	62	117	Y
Isophorone	1257	1309	1358	1295	1667	4	2.52	7.0	78.3	58	101	Y
2-Nitrophenol	1459	1552	1627	1560	1667	4	4.15	7.0	93.0	70	109	Y
2,4-Dimethylphenol	1382	1390	1408	1339	1667	4	1.74	13.0	82.8	48	125	Y
Benzoic acid	1307	1517	1393	1571	1667	4	7.16	23.0	86.8	10	114	Y
bis(2-Chloroethoxy)methane	1399	1455	1499	1426	1667	4	2.59	7.0	86.7	61	105	Y
2,4-Dichlorophenol	1523	1568	1643	1564	1667	4	3.00	7.0	94.4	71	112	Y
1,2,4-Trichlorobenzene	1417	1494	1519	1462	1667	4	2.65	8.0	88.4	62	110	Y
Naphthalene	1415	1471	1512	1443	1667	4	2.49	11.0	87.6	52	116	Y
4-Chloroaniline	998	992	973	1109	1667	4	3.69	17.0	61.1	20	104	Y
Hexachlorobutadiene	1368	1422	1444	1396	1667	4	1.97	8.0	84.4	60	109	Y
4-Chloro-3-methylphenol	1582	1640	1672	1610	1667	4	2.32	8.0	97.5	74	119	Y
2-Methylnaphthalene	1518	1546	1611	1531	1667	4	2.47	9.0	93.1	64	116	Y
Hexachlorocyclopentadiene	1268	1351	1336	1243	1667	4	3.14	10.0	78.0	42	102	Y
2,4,6-Trichlorophenol	1593	1608	1642	1626	1667	4	1.27	8.0	97.0	74	109	Y
2,4,5-Trichlorophenol	1622	1664	1686	1665	1667	4	1.60	8.0	99.5	75	112	Y
2-Fluorobiphenyl	1506	1498	1527	1498	1667	4	0.81	11.0	90.4	52	118	Y
2-Chloronaphthalene	1512	1531	1568	1536	1667	4	1.38	7.0	92.2	68	110	Y
2-Nitroaniline	1745	1790	1805	1784	1667	4	1.54	12.0	106.8	63	138	Y
Acenaphthylene	1512	1521	1550	1527	1667	4	0.97	8.0	91.6	64	113	Y
Dimethyl phthalate	1540	1557	1580	1549	1667	4	1.02	6.0	93.4	76	114	Y
2,6-Dinitrotoluene	1596	1644	1658	1642	1667	4	1.61	7.0	98.1	77	116	Y
Acenaphthene	1542	1558	1576	1541	1667	4	0.98	8.0	93.2	68	113	Y
3-Nitroaniline	1163	1169	1175	1300	1667	4	3.92	13.0	72.1	33	111	Y
2,4-Dinitrophenol	1313	1365	1303	1361	1667	4	1.93	13.0	80.1	29	107	Y
Dibenzofuran	1626	1642	1667	1644	1667	4	1.02	8.0	98.7	70	118	Y
2,4-Dinitrotoluene	1601	1635	1671	1651	1667	4	1.78	7.0	98.3	76	116	Y
4-Nitrophenol	1789	1818	1875	1855	1667	4	2.28	14.0	110.0	61	147	Y

Instrument: HP5972 MS#6
Column: DB-5MS
30M x 0.25mm

GC/MS Semi-Volatile Soil
Initial Demonstration

Date Analyzed: 7/10/98
Method: 8270
Ext. Method: 3550
Analyst: M.E. Giordano

Analyte	Ref #1	Ref #2	Ref #3	Ref #4	Conc. (ppb)	n	%REC SD	SD Limit	Avg %Rec	Low Limit	High Limit	OK ?
Fluorene	1495	1507	1533	1509	1667	4	0.95	9.0	90.6	63	115	Y
4-Chlorophenyl phenyl ether	1506	1491	1514	1501	1667	4	0.57	9.0	90.2	67	123	Y
Diethyl phthalate	1529	1545	1568	1547	1667	4	0.97	8.0	92.8	73	121	Y
1,2-Diphenylhydrazine	1458	1470	1499	1479	1667	4	1.04	4.0	88.6	75	102	Y
4-Nitroaniline	1660	1679	1710	1674	1667	4	1.26	12.0	100.8	55	128	Y
2,4,6-Tribromophenol	3099	3101	3047	3087	3334	4	0.76	15.0	92.5	27	116	Y
4,6-Dinitro-2-methylphenol	1538	1597	1562	1592	1667	4	1.67	16.0	94.3	26	120	Y
n-Nitrosodiphenylamine	1700	1727	1744	1732	1667	4	1.12	7.0	103.5	78	120	Y
4-Bromophenyl phenyl ether	1548	1552	1571	1545	1667	4	0.70	7.0	93.2	75	118	Y
Hexachlorobenzene	1561	1579	1584	1580	1667	4	0.62	7.0	94.5	75	116	Y
Pentachlorophenol	1451	1519	1512	1502	1667	4	1.86	9.0	89.7	53	105	Y
Phenanthrene	1539	1546	1563	1559	1667	4	0.69	7.0	93.1	69	112	Y
Anthracene	1609	1614	1624	1619	1667	4	0.38	8.0	97.0	68	116	Y
Di-n-butyl phthalate	1511	1501	1522	1501	1667	4	0.61	8.0	90.5	74	121	Y
Carbazole	1656	1650	1673	1656	1667	4	0.59	8.0	99.5	63	111	Y
Fluoranthene	1535	1529	1538	1529	1667	4	0.27	7.0	92.0	71	115	Y
Benzidine	942	890	883	529	1667	4	11.4	20.0	48.7	60	140	N
Pyrene	1670	1703	1746	1739	1667	4	2.10	9.0	102.8	68	121	Y
Terphenyl-d14	1477	1489	1506	1518	1667	4	1.08	15.0	89.8	49	136	Y
Butyl benzyl phthalate	1615	1634	1681	1677	1667	4	1.94	9.0	99.1	71	125	Y
3,3'-Dichlorobenzidine	1181	1151	1139	1279	1667	4	3.82	16.0	71.2	26	120	Y
Benzo[a]anthracene	1585	1612	1634	1631	1667	4	1.35	8.0	96.9	71	118	Y
Chrysene	1567	1601	1629	1619	1667	4	1.63	13.0	96.2	70	148	Y
bis(2-Ethylhexyl)phthalate	1562	1560	1614	1598	1667	4	1.62	9.0	95.0	72	128	Y
Di-n-octyl phthalate	1759	1842	1905	1911	1667	4	4.26	14.0	111.2	59	141	Y
Benzo[b]fluoranthene	1760	1858	1796	1820	1667	4	2.47	10.0	108.5	68	129	Y
Benzo[k]fluoranthene	1679	1746	1836	1827	1667	4	4.43	10.0	106.3	64	126	Y
Benzo[a]pyrene	1819	1876	1876	1896	1667	4	1.98	7.0	112.0	72	115	Y
Indeno[1,2,3-cd]pyrene	1779	1715	1619	1662	1667	4	4.14	10.0	101.6	61	122	Y
Dibenz[a,h]anthracene	1820	1767	1666	1714	1667	4	3.97	11.0	104.5	59	125	Y
Benzo[g,h,i]perylene	1769	1686	1572	1611	1667	4	5.23	13.0	99.6	51	126	Y

• Laboratory generated limits for accuracy and precision were used as acceptance criteria

Semi-Volatile GC/MS Standard Prep Log

* Record Solvent lot, Vendor

I.D. #	Date	Parameter	Weights/ Volumes	Solvent & Final Vol.*	Final Conc.	Source of Standard	Prep'd By
42	8-2-99	RRO.AN 25 ppm	25ul	1ml DCM	25ppm	4931 / 100 ppm	MP
4943	X 8-2-99	80 ppm	80ul	EMS / L39067	80ppm	4931 / 100 ppm	
4944		40 ppm	50ul		40ppm	4943 / 80 ppm	
4945		10 ppm	25ul		10ppm	4944 / 40 ppm	
4946		60 ppm	60ul		60ppm	4931 / 100 ppm	
4947	8-3-99 X 2-3-00	Atlantic Mixe p-Toluidine o-Toluidine 2,4-Dimethylaniline 3,3'-Dimethylbenzidine 3,3'-Dimethoxybenzidine	400ul each	4ml DCM EMS / L39067	100ppm	4915 / 1000 ppm 4914 / 1000 ppm 4917 / 1000 ppm 4916 / 1000 ppm 4918 / 1000 ppm	BP
4948	8-3-99	Atlantic 25 ppm	250ul	1ml DCM	25ppm	4947 / 100 ppm	
4949	X 9-3-99	80 ppm	800ul	EMS / L39067	80ppm	4947 / 100 ppm	
4950		40 ppm	500ul		40ppm	4949 / 80 ppm	
4951		10 ppm	250ul		10ppm	4950 / 40 ppm	
4952		60 ppm	600ul		60ppm	4947 / 100 ppm	
4953	8-3-99	25 ppm	25ul	1ml DCM	25ppm	4922 / 100 ppm	
954	X 9-3-99	80 ppm	80ul	EMS / L39067	80ppm	↓	
4955		60 ppm	60ul		60ppm		
4956		40 ppm	50ul		40ppm	4954 / 80 ppm	
4957		30 ppm			30ppm	4955 / 60 ppm	BP
4958		20 ppm			20ppm	4956 / 40 ppm	
4959		10 ppm			10ppm	4958 / 20 ppm	
4960		5 ppm			5ppm	4959 / 10 ppm	
4961		2.5 ppm			2.5ppm	4960 / 5 ppm	
4962	8-4-99 X 9-4-99	25 ppm	25ul	1ml DCM EMS / L39067	25ppm	4922 / 100 ppm	MP
4963	8-8-99 X 9-8-99	DFTPP	25ul	1ml DCM EMS / L39067	25ppm	4924 / 1000 ppm	MP
4964	8-8-99 X 7/00	Stock Rec'd Int STD Sol'n	5ml	-	2000 ppm	EC5 / SV1015	MP
4965	8-8-99 X 2-8-00	Int STD Sol'n	Cracked	-	2000 ppm	4964 / 2000 ppm	MP
4966	8-9-99 Y 5/00	BN Matrix Spike	Rec'd	5mL DCM	5000 ng/mL	BNMSH #208-145B	BC
4967	8-9-99 X 12/00	AE Matrix Spike	Rec'd	5mL MA	10000 ng/mL	SASH #229-41A	BC

Volatile GC/MS Standard Prep Log

I.D. #	Date	Parameter	Weights/ Volumes	Solvent & Final Vol.	Final Conc.	Source of Standard	Prep'd By
V4622	8-2-99 x 9-2-99	Gases Ref	Cracked	1.0ml	1000ppm	V4607 / 1000 ppm	S
V4623	8-2-99 x 8-16-99	M's Ref: 2CEVE CS2 VA Acrolein Acrylonitrile Gases mix	100 ul 100 ul 100 ul 100 ul 100.8 ul 200 ul	2.0ml MeOH L# BU737	100 ppm 1000ppm 100 ppm	V4616 / 2000ppm V4621 / 2000ppm V4620 / 2000ppm V4617 / 2000ppm V4326 / 1983ppm V4622 / 100 ppm	S
V4624	8-3-99 x 10-3-99	2CEVE Ref	0.1895G	10ml MeOH L# BU737	18571ppm	V3690 / 98%	S
V4625	8-3-99 x 9-3-99	2CEVE Ref	215.4ul	2.0ml MeOH L# BU737	2000 ppm	V4624 / 18571ppm	S
V4626	8-3-99 x 8-17-99	2CEVE Ref	100 ul	2.0ml MeOH L# BU737	100 ppm	V4625 / 2000ppm	S
V4627	8-6-99 x 11-6-99	CLP – Ref. Targets (32) mix	cracked	1 ml	2000 ppm	V4621 / 2000 ppm	S
V4628	8-6-99 x 8-20-99	CLP Ref: Target mix Gases	25 ul 50 ul	2.0ml MeOH L# BU737	25 ppm	V4627 / 2000 ppm V4622 / 1000 ppm	S
V4629	8-6-99 x 8-13-99	CLP - Cal: CLP Targets CLP Surr	200 ul 80 ul	2.0ml MeOH L# BU737	100 ppm	V4573 / 1000 ppm V4572 / 2500ppm	S
V4630	8-7-99 x 10-7-99	2CEVE Cal	0.2056G	10ml MeOH L# BU737	20149 ppm	V3690 / 98%	S
V4631	8-7-99 x 9-7-99	2CEVE Cal	198.5ul	2.0ml MeOH L# BU737	2000 ppm	V4630 / 20149ppm	S
V4632	8-7-99 x 10-7-99	VA Cal	0.2236G	10ml MeOH L# BU737	22360 ppm	V3560 / 99%	S
V4633	8-7-99 x 9-7-99	VA Cal	178.9 ul	2.0ml MeOH L# BU737	2000 ppm	V4632 / 22360ppm	S
V4634	8-7-99 x 9-7-99	Acrolein Cal	272.7 ul	2.0ml MeOH L# BU737	2000 ppm	V4553 / 14669 ppm	S

8260B, AP300-27A, Rev #2 8-17-99
8270C, AP300-12A, Rev #2 8-17-99 } Revisions in italics

7.3.6 (8270) 7.4.6 (8260B)

The %RSD for each analyte should be less than 15% for each compound. If any compound has a %RSD > 15%, construct a linear regression curve and calculate *the* correlation coefficient (r) for that compound. The correlation coefficient (r) must be $\geq$ 0.99 for each compound (the coefficient of determination(COD) or r^2 must be $\geq$ 0.98). If the linear regression does not meet this criteria, then the second order (Quadratic) regression curve must be constructed and the coefficient of determination(COD) must be $\geq$ 0.99. *Construction of the linear or quadratic regression curve plots are performed using the quantitation software tools provided for calculating the plots. In the initial calibration database the method of quantitation for each compound must be choosen (average RF, linear, or quadratic) based on guidelines above. This is achieved by selecting the appropriate choice within the quantitation software method. When a linear or quadratic plot is choosen for quantitation the plot may not be forced through the origin and equal weighting must be used for data points. The printout of the plot displays the COD (r^2) for a linear plot, however the quadratic printout does not display the COD and therefore it must be handwritten on the plot (the value is displayed in the quantitation database for the specific compound). Care must be taken to print plots without including the CCC-level. A detailed discusion of the mathematical formulations for linear and quadratic equations can be found in Method 8000B. The accuracy of the quantitation software calculations has been certified by the software vendor.*

7.4.6.1 The characteristic ion (m/z) used for quantitation (primary) and secondary determination ions used should be used as listed in the method. Alternatives to method ions may be used and should be employed when coelution of quantitation ions creates quantitation or integration difficulties.

SOP Reading Record

Name: CANG TRAN

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
400-15	4	ICP ATOMIC EMISSION - 6010A	CT 4/1/98	MT 4-1-98
400-15A	1	ICP ATOMIC EMISSION - 6010B	CT 4/1/98	MT 4-1-98
400-21	4	COLD VAPOR MERCURY - 7470A & 7471A	CT 4/1/98	MT 4-1-98
400-65	2	ICP Atomic Emission - USEPA Superfund CLP	CT 5/14/98	MT 5-15-98
400-12	5	ICP Atomic Emission - NYSASP Superfund CLP	CT 5/14/98	MT 5-15-98
400-18	5	Cold Vapor Mercury - NYSASP superfund CLP	CT 5/14/98	MT 5-15-98
400-68	2	Cold Vapor Mercury - EPA Superfund CLP	CT 5/14/98	MT 5-15-98
400-15A	2	ICP Atomic Emission - 6010B	CT 8/18/99	MT 8-18-99
400-21	5	Cold Vapor Mercury - 7470A & 7471A	CT 8/18/99	MT 8-18-99
400-06	6	Furnace Atomic Absorption (SW846)	CT 8/18/99	MT 8-18-99

O'Brien & Gere Laboratories, Inc.

Trace Metals Initial Demonstration Accuracy and Precision Summary Form

Analyst: C. Tran
Method 7470A
Matrix: Water
Instrument: PE-3100 CVAA

Analyte	date analyzed	rep1	rep2	rep3	rep4	%r rep1	%r rep2	%r rep3	%r rep4	test conc.	AVG	AVG %	LIMITS low	LIMITS high	PASS	STD DEV	STD DEV limits	PASS
Mercury	3/5,11/99	0.0049	0.00498	0.005	0.00553	98	99.6	100	110.6	0.005	0.00510	102.050	77.000	120.000	Y	5.765	15.000	Y

O'Brien & Gere Laboratories, Inc.

Trace Metals Initial Demonstration Accuracy and Precision Summary Form

Analyst: C. Tran
Prep Method 3020A
Matrix: Water
Instrument: PE-5100 GFAA

Analyte	Method	date analyzed	rep1	rep2	rep3	rep4	%r rep1	%r rep2	%r rep3	%r rep4	test conc.	AVG	AVG %	LIMITS low	LIMITS high	PASS	STD DEV	STD DEV limits	PASS
Arsenic	7060A	8/17/99	0.01942	0.01971	0.02129	0.02101	97.1	98.55	106.45	105.05	0.02	0.020	101.788	74.000	120.000	Y	4.649	15.000	Y
Cadmium	7131A	8/17/99	0.02018	0.02042	0.02011	0.02056	100.9	102.1	100.55	102.8	0.02	0.020	101.588	80.000	122.000	Y	1.046	15.000	Y
Lead	7421A	8/16/99	0.02245	0.02316	0.02359	0.02345	112.25	115.8	117.95	117.25	0.02	0.023	115.813	74.000	124.000	Y	2.538	15.000	Y

O'Brien & Gere Laboratories, Inc.

ICAP-61E Analysis Run log

Date 8/3/99 Lab Method ICP Page 1 of 3

Standard #	Sample ID	QC batch	DF	Method	Comments
	Profile	1.0 ppm As			Vernier set: 434 time: 9:00 AM
	Blank	calibration blank		200.7/6010B	
5B_S	STD1	calibration standard			
57_S	STD2	calibration standard			
4_S	STD3	calibration standard			
	STD3				To verify ±5%
36-S	ICV1				
37_S	ICV2				
4_S (1:2)	IPC/CCV				
	ICB				
571_S	CRI - INITIAL				
	PRDL				
67_S	PRDL				
571_S(1:2)	PRDL (AS)				
77_S	ICSA_INITIAL				
7P_S	ICSAB_INITIAL				
	PB0PQ299W1	OP0299W1 DIGIX			
	LOP0299W1				
	SPB0729991			6010B	SPK
	M8222		1:2		S
4_S(1:2)	CCV1				
	CCB1				
	TPB0730991	OP0299W1 DIGIX			TCLP
	M8550		1:5		
	M8551				
	M8227				
	M7502			200.7	
	M7503				
	M7504				
	M7505				

Analyst: Cang Tran Date: 8/10/99

Reviewer: M. Tullo Date: 8-10-99

O'Brien & Gere Laboratories, Inc.

ICAP-61E Analysis Run log

Date 8/3/99 Lab Method ICP

Standard #	Sample ID	QC batch	DF	Method	Comments
	M7506	080299W1 Dig1x		200.7	
	M8435	"		6010B	
	CCV2			200.7	
	CCB2			"	
	M8440	080299W1 Dig1x		"	Na > LR / DO NOT USE
	M8441	"		"	Ca, K > LR / DO NOT USE
	M8440	"	1:20	"	For all elements
	M8441	"	"	"	"
	M8441D	"	"	"	"
	M8441MS	"	"	"	"
	M8441MSD	"	"	"	"
	M8441A	"	"	"	"
	M8441L	"	1:100	"	"
	BLK (F)	"		"	"
	CCV3			"	"
	CCB3			"	"
	BLK (F)	080299W1 Dig1x		"	"
	BLK (F)	"		"	"
	BLK (B)	"		"	"
	BLK (B)	"		"	"
	BLK (B)	"		"	"
	PB0730995	0730995 Dig100x		6010B	
	LCS730995	"		"	
	M7507	"		"	Ca > LR / DO NOT USE
	M7508	"		"	"
	M7509	"		"	
	CCV4			"	
	CCB4			"	
	M7510	073099.5 Dig100x		"	
	M7511	"		"	
	M7512	"		"	
	M7513	"		"	

Analyst: Cang Tran

O'Brien & Gere Laboratories, Inc.

ICAP-61E Analysis Run log

Date 8/3/99 Lab Method ICP

Standard #	Sample ID	QC batch	DF	Method	Comments
	M751U	0730995, DIG100K		6010B	
	M7516	↓			
	M7517				
	M7642				
	M7643				
	M7644				
	CCV5				
	CCB5				
	M7645	0730995, DIG100K			
	M7646	↓			
	M7647				
	M7648				
	M7649				
	M7649D				
	M7649MS				
	M7649MSD				
	M7649A				
	M7649L	↓	1:5		
	CCV6				
	CCB6				
	M7507	0730995, DIG100K	1:2		For all elements
	M7508	↓	↓		↓
	CRI_FINAL				
	ICSA_FINAL				
	ICSAB_FINAL				
	CCV7				
	CCB7				

Analyst: Cang Tran

Method: ICP Sample Name: M8440 Operator: CT
Run Time: 08/03/99 11:59:29
Comment: 2581.016.517 Do Not use / Na > LR
Mode: CONC Corr. Factor: 1 CT 8/4/99

Elem	Ag3280	Al3082	B_2496	Ba4934	Be3130	Ca	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00067	-.0191	5.6392	k.00119	-.00047	.8696	-.00245
SDev	.00080	.0026	.0272	.00004	.00002	.0065	.00013
%RSD	119.79	13.78	.48293	3.4641	4.2674	.7432	5.2521
#1	.00022	-.0186	5.6113	k.00116	-.00045	.8631	-.00248
#2	.00160	-.0167	5.6657	k.00124	-.00046	.8761	-.00231
#3	.00019	-.0219	5.6406	k.00116	-.00049	.8695	-.00256

Elem	Co2286	Cr	Cu3247	Fe	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.01893	-.01060	.00274	.00483	363.2	-.0791	-.00180
SDev	.00025	.00035	.00036	.00032	.5	.0058	.00003
%RSD	1.3070	3.2890	13.148	6.6962	.1256	7.287	1.8626
#1	-.01892	-.01087	.00234	.00486	363.0	-.0856	-.00181
#2	-.01869	-.01020	.00305	.00513	363.8	-.0771	-.00177
#3	-.01919	-.01071	.00283	.00449	362.9	-.0746	-.00184

Elem	Mo2020	Na	Ni2316	Sn1899	Sr4215	Ti3349	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00149	C.0000	.01105	-.03882	.00651	-.00342	.00028
SDev	.00140	.0000	.00087	.00163	.00003	.00012	.00041
%RSD	93.935	.0000	7.8947	4.1926	.52065	3.5437	146.13
#1	.00052	C.0000	.01037	-.03724	.00648	-.00335	.00007
#2	.00310	C.0000	.01203	-.03872	.00654	-.00335	.00076
#3	.00086	C.0000	.01074	-.04049	.00649	-.00356	.00002

Elem	Zn2138	As1890	Tl1908	Pb	Se1960	Sb2068	2203/1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01892	.00015	-.05230	.00168	-.00095	.00207	.00267
SDev	.00006	.00076	.00244	.00085	.00082	.00145	.00050
%RSD	.34247	501.05	4.6716	50.316	86.634	70.109	18.843
#1	.01899	-.00041	-.05486	.00226	-.00179	.00131	.00325
#2	.01892	.00102	-.05000	.00207	-.00090	.00115	.00236
#3	.01886	-.00015	-.05204	.00071	-.00015	.00374	.00240

Elem	2203/2	1960/1	1960/2	2068/1	2068/2
Units	ppm	ppm	ppm	ppm	ppm
Avge	.00118	.00343	-.00313	.00117	.00251
SDev	.00114	.00217	.00129	.00224	.00160
%RSD	96.597	63.196	41.204	191.37	63.778
#1	.00177	.00364	-.00450	-.00130	.00262
#2	.00192	.00116	-.00194	.00173	.00086
#3	-.00013	.00548	-.00296	.00309	.00406

Method: ICP Sample Name: M8441 Operator: CT
Run Time: 08/03/99 12:03:16
Comment: 2581.016.517
Mode: CONC Corr. Factor: 1

Do not use / K, Ca ? CT 8/4/99

Elem	Ag3280	Al3082	B _2496	Ba4934	Be3130	Ca	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00033	1.314	2.9767	.22191	.00209	84.39	.10480
SDev	.00028	.003	.0018	.00017	.00001	.07	.00051
%RSD	83.729	.2167	.05894	.07857	.36102	.0805	.48493
#1	.00001	1.315	2.9778	.22185	.00209	84.34	.10429
#2	.00045	1.316	2.9776	.22211	.00209	84.37	.10481
#3	.00053	1.311	2.9747	.22177	.00210	84.47	.10530

Elem	Co2286	Cr	Cu3247	Fe	K _7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.03773	.05339	.00555	.03027	2506.	1.669	.00787
SDev	.00075	.00042	.00074	.00034	8.	.013	.00003
%RSD	1.9847	.78374	13.410	1.1281	.3041	.7693	.42236
#1	.03694	.05298	.00636	.02996	2514.	1.654	.00783
#2	.03785	.05335	.00538	.03022	2505.	1.674	.00787
#3	.03842	.05382	.00490	.03064	2499.	1.678	.00790

Elem	Mo2020	Na	Ni2316	Sn1899	Sr4215	Ti3349	V _2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01580	393.7	.00103	.12298	8.6777	.23490	.00001
SDev	.00145	6.4	.00080	.00078	.0049	.00037	.00003
%RSD	9.1508	1.617	78.095	.63669	.05697	.15846	196.82
#1	.01654	400.6	.00066	.12269	8.6763	.23450	-.00000
#2	.01671	392.5	.00195	.12239	8.6832	.23523	.00005
#3	.01413	388.0	.00048	.12387	8.6736	.23497	-.00000

Elem	Zn2138	As1890	Tl1908	Pb	Se1960	Sb2068	2203/1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.73620	.00842	.10467	-.03267	-.00694	.00474	-.03702
SDev	.00167	.00214	.00036	.00284	.00098	.00098	.00701
%RSD	.22715	25.362	.34217	8.6808	14.048	20.755	18.935
#1	.73428	.00921	.10483	-.03582	-.00626	.00411	-.02985
#2	.73736	.01005	.10426	-.03032	-.00806	.00424	-.03736
#3	.73695	.00600	.10493	-.03187	-.00651	.00587	-.04385

Elem	2203/2	1960/1	1960/2	2068/1	2068/2
Units	ppm	ppm	ppm	ppm	ppm
Avge	-.03049	.00316	-.01199	-.00445	.00933
SDev	.00721	.00307	.00299	.00388	.00084
%RSD	23.632	97.005	24.934	87.119	9.0556
#1	-.03880	.00071	-.00974	-.00825	.01027
#2	-.02680	.00660	-.01538	-.00462	.00866
#3	-.02588	.00218	-.01084	-.00049	.00905

Method: ICP Sample Name: M7507 Operator: CT
Run Time: 08/03/99 14:28:43
Comment: 2581.016.517
Mode: CONC Corr. Factor: 100

Do not use/Ca > LR
CT 8/4/99

Elem	Ag3280	Al3082	B_2496	Ba4934	Be3130	Ca	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.12009	3987.	18.939	94.527	.36997	253800.	.03430
SDev	.04977	39.	.240	.852	.00456	2705.	.00727
%RSD	41.446	.9755	1.2680	.90160	1.2318	1.066	21.188
#1	-.14611	4020.	19.151	95.223	.37425	256000.	.04253
#2	-.06270	3998.	18.987	94.781	.37047	254500.	.03160
#3	-.15147	3944.	18.678	93.576	.36518	250800.	.02876

Elem	Co2286	Cr	Cu3247	Fe	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	6.0082	8.2234	9.0096	5567.6	3590.	11070.	322.72
SDev	.0924	.0718	.1314	52.7	35.	107.	3.26
%RSD	1.5375	.87259	1.4588	.94573	.9864	.9646	1.0109
#1	6.0486	8.2785	9.1318	5614.1	3620.	11160.	325.75
#2	6.0736	8.2496	9.0266	5578.1	3599.	11090.	323.15
#3	5.9026	8.1423	8.8705	5510.4	3551.	10950.	319.27

Elem	Mo2020	Na	Ni2316	Sn1899	Sr4215	Ti3349	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.51656	246.6	14.176	2.2824	210.21	30.135	10.598
SDev	.31918	2.8	.161	.1012	1.87	.259	.097
%RSD	61.790	1.138	1.1378	4.4343	.88986	.85985	.91441
#1	.84401	249.1	14.219	2.2594	211.82	30.353	10.680
#2	.49932	247.1	14.312	2.1946	210.66	30.204	10.622
#3	.20634	243.5	13.998	2.3931	208.16	29.848	10.491

Elem	Zn2138	As1890	Tl1908	Pb	Se1960	Sb2068	2203/1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	11.218	6.7362	.82423	4.3087	.03659	.25428	4.3717
SDev	.109	.1826	.23045	.0832	.23007	.12240	.3399
%RSD	.97219	2.7100	27.959	1.9316	628.71	48.136	7.7752
#1	11.304	6.9415	.99169	4.2934	-.09561	.28868	4.6217
#2	11.255	6.6747	.91959	4.3985	.30225	.11836	3.9846
#3	11.095	6.5923	.56141	4.2342	-.09686	.35580	4.5088

Elem	2203/2	1960/1	1960/2	2068/1	2068/2
Units	ppm	ppm	ppm	ppm	ppm
Avge	4.2772	-.08628	.09794	.29597	.18352
SDev	.2844	.30864	.45391	.39622	.32501
%RSD	6.6496	357.73	463.47	133.87	177.10
#1	4.1295	.26766	-.27697	.18207	.34191
#2	4.6051	-.29933	.60259	.73667	-.19033
#3	4.0971	-.22716	-.03181	-.03083	.39897

Addendum to Standard Operating Procedure for:
Title: Organochlorine Pesticides - Method 8081A
AP#100-55A
Rev#2

13.2 Integration

Normally, the Turbochrom process method will automatically integrate peaks accurately. The integration parameters in the process file should be optimized to provide accurate and consistent integration of chromatographic peaks that have normal baselines. Due to the complex nature of many ECD chromatograms, using a single integration algorithm in the Turbochrom process method will, not uncommonly, be insufficient to ensure accurate integration. In cases where the baseline and/or peak shape is not consistent with the calibration, manual integration is performed. Chapter 18 of the "Turbochrom Workstation User's Guide" outlines in great detail the criteria used by the acquisition software to determine peak start/end times, peak separation, baseline placement, and also the manual integration options.

13.2.1 Manual Integration

Each raw data file is processed into a result file using the methods that define the integration parameters and the identification of peaks. The analyst then reviews the chromatogram and determines whether manual integration is necessary or not. The analyst's changes to the integration parameters should attempt, as closely as possible, to reproduce the integration conditions found in the calibration. Ideally, for a well resolved peak, the start of a peak will be at the point where the baseline begins to slope upward and end at the point where it returns to the baseline or the start of a new peak, resulting in peaks with the best symmetry possible, and manual integration can be used to ensure this.

The manual changes can include, but are not limited to: redrawing of the baseline due to negative peaks or matrix interference, redefining peak start and end times, and/or forcing (or unforcing) exponential skims. The manually processed chromatogram will note these manual events on the plot of the chromatogram (The manual events are summarized in chapter 7 of the "Turbochrom Workstation User's Guide"). For example, the mark (M+) will identify a manually integrated peak start and (M-) will mark a manually integrated peak end. The Turbochrom software will draw the baseline between the two points. In a case where a large peak has a smaller, unresolved "shoulder" peak, Start Peak (S) will force a split between the shoulder and the parent peak, thus identifying the smaller peak.

Upon request, both the automatically processed result file and any manually processed result file can be provided with a data report; however, all reported results are determined from the manually processed result file, if any.

Approved By: _____ Date: 8-19-99
Technical Review

Approved By: _____ Date: 8-19-99
Laboratory Management

Approved By: _____ Date: 8-19-99
QA/QC Section

SOP Reading Record

Name: Mark YATES

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
100-55	1	8081 update II	MY 5/13/98	AC 5/15/98
100-40	0	8150B Herbicides	MY 5/13/98	AC 5/15/98
100-21	1	Petroleum Products by GC FID	MY 5/13/98	AC 5/15/98
100-33	2	NYSDEC CLP method 95-3	MW 5/13/98	AC 5/15/98
100-24	2	USEPA CLP	MW 5/13/98	AC 5/15/98
100-06	2	EDB and DBCP	MW 5/13/98	AC 5/15/98
100-36	1	Method 608	MW 5/13/98	AC 5/15/98
100-46	1	8151	[illegible] 7/6/98	AC 7/6/98
100-55A	1	8081A	[illegible]	AC 7/6/98
100-55B	1	8082	[illegible] 98	AC 7/6/98

Training and Proficiency Record

Name: MARK YATES

	Procedure (Method/AP #)	QA/QC Check*/ Supervisor Comments	Employee Initials/Date	Supervisor Initials/Date
8081 -	100.55-1	L032498W2	MCY 5/6/98	AC 5/7/98
8150B	100-40-0	L012098H1	MCY 5/6/98	AC 5/7/98
FID Pet.	100.21-1	L0102985I	MCY 5/6/98	AC 5/7/98
95-3	100-33-2	NYSDOH ELAP CLP Prof. Jun 1996	MCY 5/6/98	AC 5/7/98
USEPA CLP	100.24-2		MCY 5/6/98	
504	100-06-2	L031798W5	MCY 5/6/98	AC 8/19/99
608	100-36-0	L022598W2	MCY 5/6/98	AC 5/7/98
8151	100.46	L042198H1	MCY 5/6/98	AC 5/7/98
8081A	100-55A	L012698W1	MCY 5/6/98	AC 5/7/98
8082	100-55B	L031398S2	MCY 5/6/98	AC 5/7/98

* Attach results of QC Check. A QC Check can be an LCS, single blind or double blind proficiency.

GC - SEMIVOLATILES

PRECISION & ACCURACY STUDY

MKY

Instrument: HP5890-90
Column: DB-608
Serial Number: 6231713
Date Installed: 1/12/98

Date Analyzed: 7/07/98
Method: 608/8081

Analyte	Run #1	Run #2	Run #3	Run #4	Conc. (ppb)	Ave.	Average % Rec.	STDev.
ALPHA-BHC	.486	.491	.492	.478	0.5	.487	97.4	.00640
LINDANE	.525	.529	.533	.519	0.5	.527	105	.00597
HEPTACHLOR	.442	.445	.453	.439	0.5	.445	89.0	.00602
ENDOSULFAN I	.458	.461	.463	.448	0.5	.458	91.6	.00666
DIELDRIN	.463	.467	.472	.455	0.5	.464	92.8	.00718
ENDRIN	.535	.540	.548	.530	0.5	.538	108	.00768
4-4-DDD	.495	.500	.505	.486	0.5	.497	99.4	.00810
4-4-DDT	.468	.480	.483	.456	0.5	.472	94.4	.0123
METHOXYCHLOR	.463	.479	.483	.441	0.5	.467	93.4	.0191
B-BHC	.452	.455	.459	.445	0.5	.453	90.6	.00591
D-BHC	.464	.466	.471	.458	0.5	.465	93.0	.00538
ALDRIN	.469	.473	.480	.464	0.5	.472	94.4	.00676
HEPTACHLOR EPOXIDE	.452	.450	.454	.445	0.5	.450	90.0	.00386
G-CHLORDANE	.446	.448	.452	.437	0.5	.446	89.2	.00634
A-CHLORDANE	.446	.445	.450	.434	0.5	.444	88.8	.00685
4-4-DDE	.485	.489	.495	.476	0.5	.486	97.2	.00797
ENDOSULFAN II	.464	.469	.473	.455	0.5	.465	93.0	.00776
ENDRIN ALDEHYDE	.452	.454	.462	.446	0.5	.454	90.8	.00661
ENDOSULFAN SULFATE	.687	.598	.587	.619	0.5	.623	125	.0448
ENDRIN KETONE	.506	.515	.516	.492	0.5	.507	101	.0111
TECHNICAL CHLORDANE					5.000			
TOXAPHENE	4.89	4.69	5.14	4.90	5.000	4.905	98.0000	.1841
AROCLOR 1016	1.91	1.97	2.01	1.87	2.000	1.940	97.0000	.0622
AROCLOR 1260	1.91	1.97	2.00	1.87	2.000	1.963	98.0000	.0377

1) Water P&A is based on a 1 L sample size and a 10ml extract volume.

GC - SEMIVOLATILES

PRECISION & ACCURACY STUDY

MC4

Instrument: HP5890-90
Column: DB-608
Serial Number: 6231713
Date Installed: 1/12/98

Date Analyzed: 07/06/98
Method: 608/8081

Analyte	Run #1	Run #2	Run #3	Run #4	Conc. (ppm)	Avg.	Average % Rec.	STDev.
ALPHA-BHC	.0160	.0159	.0170	.0168	0.0167	.0164	98.2	.000558
LINDANE	.0170	.0169	.0181	.0179	0.0167	.0175	105	.000613
HEPTACHLOR	.0136	.0139	.0148	.0147	0.0167	.0142	85.0	.000613
ENDOSULFAN I	.0149	.0148	.0158	.0156	0.0167	.0153	91.6	.000499
DIELDRIN	.0151	.0150	.0161	.0159	0.0167	.0155	92.8	.000556
ENDRIN	.0174	.0174	.0188	.0185	0.0167	.0180	108	.000732
4-4-DDD	.0158	.0159	.0172	.0169	0.0167	.0165	98.8	.000706
4-4-DDT	.0152	.0154	.0167	.0165	0.0167	.0160	95.8	.000759
METHOXYCHLOR	.0150	.0156	.0172	.0166	0.0167	.0161	96.4	.000987
B-BHC	.0147	.0147	.0156	.0154	0.0167	.0151	90.4	.000469
D-BHC	.0150	.0148	.0159	.0157	0.0167	.0154	92.2	.000532
ALDRIN	.0156	.0146	.0159	.0160	0.0167	.0155	92.8	.000640
HEPTACHLOR EPOXIDE	.0146	.0145	.0155	.0153	0.0167	.0150	89.8	.000499
G-CHLORDANE	.0148	.0146	.0157	.0154	0.0167	.0151	90.4	.000512
A-CHLORDANE	.0147	.0148	.0155	.0153	0.0167	.0150	89.8	.000443
4-4-DDE	.0159	.0159	.0171	.0168	0.0167	.0164	98.2	.000618
ENDOSULFAN II	.0153	.0152	.0163	.0160	0.0167	.0157	94.0	.000535
ENDRIN ALDEHYDE	.0112	.0126	.0135	.0129	0.0167	.0126	75.4	.000975
ENDOSULFAN SULFATE	.0160	.0159	.0171	.0167	0.0167	.0164	98.2	.000574
ENDRIN KETONE	.0166	.0166	.0177	.0174	0.0167	.0171	102	.000592
TECHNICAL CHLORDANE					0.167			
TOXAPHENE	.1661	.1674	.1730	.1717	0.167	.1703	102	.02520
AROCLOR 1016	.06740	.06710	.06652	.06558	0.0667	.06660	99	.000797
AROCLOR 1260	.06769	.06796	.06733	.06552	0.0667	.06712	101	.00110

2) Soil P&A is based on a 30g sample size and a 10ml extract volume.

GC - SEMIVOLATILES

PRECISION & ACCURACY STUDY

MCY

Instrument: HP5890-90
Column: DB-1701
Serial Number: 7482925
Date Installed: 1/12/98

Date Analyzed: 07/07/98
Method: 608/8081

Analyte	Run #1	Run #2	Run #3	Run #4	Conc. (ppb)	Avg.	Average % Rec.	STDev.
ALPHA-BHC	.513	.529	.526	.513	0.5	.520	104.1	.00833
LINDANE	.501	.517	.514	.508	0.5	.510	102.0	.00681
HEPTACHLOR	.485	.493	.501	.503	0.5	.495	99.1	.00797
ENDOSULFAN I	.491	.502	.503	.496	0.5	.498	99.6	.00581
DIELDRIN	.501	.519	.518	.505	0.5	.511	102.1	.00896
ENDRIN	.566	.588	.588	.577	0.5	.580	116.0	.01045
4-4-DDD	.512	.532	.532	.519	0.5	.524	104.8	.00989
4-4-DDT	.492	.509	.502	.484	0.5	.497	99.4	.01103
METHOXYCHLOR	.546	.558	.554	.538	0.5	.549	109.8	.00873
B-BHC	.477	.492	.492	.481	0.5	.485	97.1	.00773
D-BHC	.484	.500	.499	.491	0.5	.493	98.7	.00742
ALDRIN	.510	.526	.531	.522	0.5	.522	104.4	.00889
HEPTACHLOR EPOXIDE	.477	.492	.495	.483	0.5	.487	97.4	.00842
G-CHLORDANE	.504	.517	.519	.510	0.5	.512	102.5	.00675
A-CHLORDANE	.491	.505	.504	.494	0.5	.499	99.7	.00723
4-4-DDE	.529	.547	.546	.532	0.5	.539	107.7	.00944
ENDOSULFAN II	.500	.516	.515	.501	0.5	.508	101.6	.00880
ENDRIN ALDEHYDE	.477	.491	.492	.482	0.5	.486	97.1	.00720
ENDOSULFAN SULFATE	.524	.541	.538	.524	0.5	.532	106.3	.00920
ENDRIN KETONE	.538	.557	.553	.535	0.5	.546	109.2	.01059
TECHNICAL CHLORDANE	.000	.000	.000	.000	5.000	.000	.0	.00000
TOXAPHENE	4.71	4.52	4.90	4.74	5.000	4.715	94.3	.15466
AROCLOR 1016	2.14	2.21	2.23	2.09	2.000	2.167	108.3	.06651
AROCLOR 1260	2.21	2.30	2.29	2.16	2.000	2.241	112.0	.06837

1) Water P&A is based on a l L sample size and a 10ml extract volume.
2) Solid P&A is based on a 30g sample size and a 10ml extract volume.

GC - SEMIVOLATILES

PRECISION & ACCURACY STUDY

MCY

Instrument: HP5890-90
Column: DB-1701
Serial Number: 748925
Date Installed: 1/12/98

Date Analyzed: 07/06/98
Method: 608/8081

Analyte	Run #1	Run #2	Run #3	Run #4	Conc. (ppm)	Avg.	Average % Rec.	STDev.
ALPHA-BHC	.0157	.0158	.0166	.0164	0.0167	.0161	96.4	.000457
LINDANE	.0165	.0165	.0176	.0174	0.0167	.0170	101.7	.000573
HEPTACHLOR	.0156	.0156	.0167	.0164	0.0167	.0161	96.3	.000548
ENDOSULFAN I	.0161	.1609	.0172	.0168	0.0167	.0526	315.9	.072093
DIELDRIN	.0165	.0161	.0175	.0172	0.0167	.0168	100.6	.000605
ENDRIN	.0187	.0189	.0203	.0197	0.0167	.0194	116.3	.000744
4-4-DDD	.0168	.0168	.0181	.0176	0.0167	.0173	103.7	.000643
4-4-DDT	.0161	.0162	.0174	.0170	0.0167	.0166	99.7	.000617
METHOXYCHLOR	.0175	.0178	.0191	.0187	0.0167	.0183	109.4	.000743
B-BHC	.0158	.0157	.0168	.0165	0.0167	.0162	97.0	.000535
D-BHC	.0158	.0157	.0169	.0166	0.0167	.0163	97.4	.000579
ALDRIN	.0170	.0170	.0181	.0178	0.0167	.0175	104.6	.000584
HEPTACHLOR EPOXIDE	.0156	.0157	.0167	.0163	0.0167	.0161	96.2	.000519
G-CHLORDANE	.0164	.0164	.0175	.0172	0.0167	.0169	101.1	.000550
A-CHLORDANE	.0161	.0161	.0172	.0168	0.0167	.0166	99.3	.000543
4-4-DDE	.0175	.0175	.0188	.0183	0.0167	.0180	107.8	.000658
ENDOSULFAN II	.0165	.0165	.0176	.0172	0.0167	.0169	101.4	.000560
ENDRIN ALDEHYDE	.0135	.0141	.0149	.0145	0.0167	.0142	85.3	.000607
ENDOSULFAN SULFATE	.0172	.0172	.0184	.0180	0.0167	.0177	105.9	.000617
ENDRIN KETONE	.0178	.0179	.0190	.0186	0.0167	.0183	109.7	.000607
TECHNICAL CHLORDANE					0.167	.0000	.0	#DIV/0!
TOXAPHENE	.1603	.1583	.1617	.1685	0.167	.1622	97.1	.004426
AROCLOR 1016	.07124	.07155	.07147	.07074	0.0667	.0713	106.8	.000365
AROCLOR 1260	.07220	.07135	.07147	.07042	0.0667	.0714	107.0	.000731

2) Soil P&A is based on a 30g sample size and a 10ml extract volume.

SOP Reading Record

Name: Dave Schumacher

I have read and understand the following SOPs:

AP #	Rev. #	SOP Title	Employee Initials/Date	Supervisor Initials/Date
100-55	1	8081 update II	DMS 5-14-98	CE 5/15/98
100-40	0	8150B Herbicides	DMS 5-14-98	CE 5/15/98
100-21	1	Petroleum Products by GC FID	DMS 5-14-98	CE 5/15/98
100-33	2	NYSDEP CLP method 95-3	DMD 7-6-98	CE 7-6-98
100-24	2	USEPA CLP	DMD 7-6-98	CE 7-6-98
100-06	2	EDB and DBCP	DMD 7-6-98	CE 7-6-98
100-34	1	METHOD 608	DMS 5-14-98	CE 5/15/98
100-46	1	8151	DMD 7-6-98	CE 7-6-98
100-55A	1	8081A	DMS 5-13-98	CE 5/15/98
100-55B	1	8082	DMS 5-13-98	CE 5/15/98
500-01	3	601/602	DMD 1-6-99	CE 1-7-99
500-24	1	8021B	DMD 1-6-99	CE 1-7-99
500-07	1	502.2	DMD 1-6-99	CE 1-7-99
500-27	0	8021A-STARS	DMD 1-6-99	CE 1-7-99

Training and Proficiency Record

Name: David M Saint-Amour

Procedure (Method/AP #)	QA/QC Check*/ Supervisor Comments	Employee Initials/Date	Supervisor Initials/Date
8082 / 100-55D	L042498P1	DMS/4-28-98	AC 5-5-98
8081A/100-55A	L012298S5	DMS/4-28-98	AC 5-5-98
608 / 100-36	L030998W1	DMS/4-28-98	AC 5-5-98
Pest PCB Cont. Eval / 100-09A			
Pest PCB Ionic. / 100-42A			
PCB Oil Extr. / 100-49			
PCB Wipe Extr. / 100-52			
GC/MS Cont. Ext / 300-15A			
GC/MS Sonic. / 300-18A			
8021A-STARS / 500-27	L122998W3	RMO/1-6-99	AC 1-7-99
8021B / 500-24	L121898W1	RMO/1-6-99	AC 1-7-99
601/602 / 500-04	L102298W1	RMO/1-6-99	AC 1-7-99
5032 / 500-07	L102398W2	RMO/10-99	AC 1-7-99

* Attach results of QC Check. A QC Check can be an LCS, single blind or double blind proficiency.

GC - SEMIVOLATILES

PRECISION & ACCURACY STUDY

Instrument: HP5890-90
Column: DB-1701
Serial Number: 7482925
Date Installed: 1/12/98

Analyst: DMS
Date Analyzed: 08/03-04/99
Method: 8081

Analyte	Run #1	Run #2	Run #3	Run #4	Conc. (ppm) (2)	Avg.	Average % Rec.	STDev.
ALPHA-BHC	.019	.018	.019	.019	0.0167	.019	113.0	.00046
B-BHC	.016	.016	.016	.017	0.0167	.016	96.6	.00035
D-BHC	.017	.016	.017	.018	0.0167	.017	103.1	.00066
LINDANE	.018	.018	.018	.018	0.0167	.018	107.5	.00035
HEPTACHLOR	.017	.017	.017	.017	0.0167	.017	102.1	.00029
ALDRIN	.018	.017	.017	.018	0.0167	.017	103.3	.00035
HEPTACHLOR EPOXIDE	.016	.015	.016	.016	0.0167	.016	94.0	.00036
ENDOSULFAN I	.017	.016	.016	.017	0.0167	.016	97.5	.00032
DIELDRIN	.018	.017	.017	.018	0.0167	.017	104.0	.00046
4-4-DDE	.019	.018	.018	.019	0.0167	.018	108.7	.00041
ENDRIN	.021	.020	.020	.021	0.0167	.020	121.6	.00042
ENDOSULFAN II	.017	.017	.017	.017	0.0167	.017	101.3	.00026
4-4-DDD	.017	.017	.017	.017	0.0167	.017	102.1	.00035
ENDOSULFAN SULFATE	.018	.017	.018	.018	0.0167	.018	107.5	.00038
4-4-DDT	.018	.017	.018	.018	0.0167	.018	105.1	.00025
METHOXYCHLOR	.019	.018	.019	.020	0.0167	.019	114.4	.00088
ENDRIN ALDEHYDE	.015	.013	.015	.015	0.0167	.014	85.2	.00096
ENDRIN KETONE	.019	.018	.019	.019	0.0167	.019	112.6	.00036
A-CHLORDANE	.017	.016	.016	.017	0.0167	.016	97.3	.00037
G-CHLORDANE	.017	.017	.016	.017	0.0167	.017	100.0	.00036

1) Water P&A is based on a I L sample size and a 10ml extract volume.
2) Solid P&A is based on a 30g sample size and a 10ml extract volume.

GC SEMIVOLATILES STANDARDS LOG

I.D#	PREP DATE	EXP DATE	PARAMETER	WEIGHTS &VOLUMES	SOLVENTS &VOLUMES	CONC. (UNITS)	STANDARD SOURCE	MADE BY	CHECK DATE	CHECK STD ID#	P/F	CKD BY
P6431	8-11-99	2-11-00	AR1016-1 AR1260-1 TCMX / DCBP	125µl of 100µg/ml 125µl of 100µg/ml 250µl of 2µg/ml	25ml hexane (Lot#H487 N06E19)	0.50 µg/ml 0.50 ↓ .02/.02 ↓	~~P625+P632~~ P6371 P6401	DMS				
P6432	8-11-99	8-11-00	AR1016	comm. prep.	1ml in hexane	100µg/ml	Ultra Scientific Lot # L-1467	DMS				
P6433	8-11-99	2-11-00	AR1254-1 TCMX/DCBP	125µl of 100µg/ml 250µl of 2µg/ml	25ml hexane (Lot#H487 N06E19)	0.50 µg/ml .02/.02 ↓	P6306 P6401	DMS				
P6434	8-11-99	2-11-00	AR1254-2 TCMX/PCBP	75µl of 100µg/ml 250µl of 2µg/ml	25ml hexane (Lot#H487 N06E19)	0.30 µg/ml 02/.02 ↓	P6306 P6401	DMS				
P6435	8-11-99	2-11-00	~~CLP~~ CHLOR-3 chlordane TCMX/DCBP	50ml 250ul	25ml hexane N06E19	ug/ml .20 .02/.02	P6299 P6401	②				
P6436	8-12-99	2-12-00	PIBLK TCMX/DCBP	500µl of ~~8/6P~~ 2.0/2.0 µg/ml	50ml hexane (Lot# H487 N06E19)	.02/02 µg/ml	P6401	DMS				
P6437	8-16-99	2-16-00	TCMX/DCBP surr soln	100µl of 200/200 µg/ml	10ml hexane (Lot# H487 N06E19)	20/2.0 µg/ml	P6400	DMS				

Addendum to Standard Operating Procedure for:
Title: Organochlorine Pesticides - Method 8081A
AP#100-55A
Rev#2

10.6 In is not the intent to utilize expired standards for routine analysis. There may be special circumstances that may perpetuate a need to use an expired standard, such as an informational or qualitative study. Expired standards that are not discarded will be segregated from the current standards in a specially labeled container in the standards refrigerator/freezer.

Approved By: _____
Technical Review

Date: 8-18-99

Approved By: _____
Laboratory Management

Date: 8-19-99

Approved By: _____
QA/QC Section

Date: 8-19-99

O'Brien & Gere Laboratories, Inc.

M E M O R A N D U M

To: Staff

From: DR Hill

Re Camp Stanley Storage Project

Date: August 16, 1999

File: Parsons ES

cc:

The purpose of this memo is to identify and communicate specific requirements for Parsons Engineering Science AFCEE projects. In a recent audit, the findings included the need to highlight areas where particular attention should be directed. We have itemized the procedures to follow when such projects are received. The following list of issues is brought to the analyst's attention.

1. Sample Receiving-If samples received are not properly preserved, contact Project Management immediately prior to any adjustment.

2. Project Management-For any non-compliant issue related to sample receipt, Project Management will not institute any corrective action until approved by Parsons ES.

3. Every AFCEE sample cooler must be opened in the hood.

4. When handling AFCEE samples it is imperative that when finished with the sample it must be returned to secure cold storage.

5. Volatile Analysis-From time to time, VOA samples exhibit the presence of air bubbles prior to analysis. In those specific cases the analyst must note the approximate bubble size and record it on the injection log.

6. Analysts are responsible for the review of data. Case narratives, raw data sheets and any other documentation must be reviewed, initialed and dated prior to submission to the client.

7. All active and analyzed VOA samples will be stored in the Sample Receiving refrigerator.

8. The majority of our services is in support of highly visible projects and requires a significant level of documentation and custody. We must maintain a high level of

security and request that all exits remain closed at all times. When deliveries are made to the loading dock area, an O'Brien & Gere employee must be present while the door(s) are opened. Once secured the employee may return to his/her workstation.

Should you have any comment please direct them to the Section Leader, Project Management or Senior Management. Thank you for your cooperation.

O'Brien & Gere Laboratories, Inc.

M E M O R A N D U M

To: MJ, JCH

From: M Petterelli

Re: Sample Management SOP revision

Date: August 18, 1999

File: Misc.

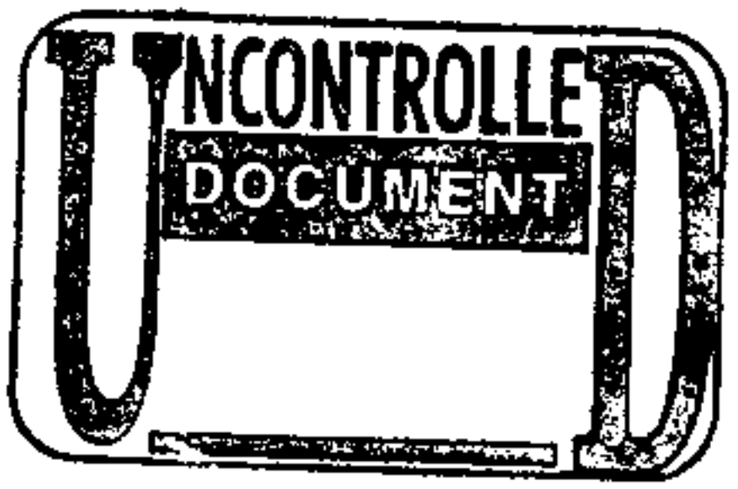
cc: DRH, TAA, MS, BP

The purpose of this Memo is to communicate a clarification to our Sample Management SOP (AP#800-15) that is effective August 20th, 1999 and will be incorporated into the aforementioned SOP upon its' next revision. More specifically, the following language will be inserted after the first sentence in Section 8 (Sample Storage and Disposal):

"Suspected or highly contaminated samples are immediately inserted into a zip locked bag and placed into a secondary cooler to minimize the potential for contamination. This cooler is then clearly labeled "May Contain Highly Contaminated Samples" and transferred to the walk-in cooler where its' specific location is documented. The appropriate Program Manager is immediately notified."

MNP/c:/wordperfect/smsopr.mem

STANDARD OPERATING PROCEDURE



Title: LIMS Software Testing and Validation

AP # 800-22 Effective Date 08/19/99

Rev #0 Page 1 of 3

Prepared By: _____

Approved By: _____
Technical Review

Date: 8/19/99

Approved By: _____
Laboratory Management

Date: 8/19/99

Approved By: _____
QA/QC Section

Date: 8/19/99

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1 Introduction

Data in the laboratory is generated from a variety of sources. This data must be manipulated to generate a consistent reporting format for the clients served. The Oracle database software was selected to accomplish task. Customization of the system was required to achieve the goal of efficient reporting of large volumes of analytical data. Raw data entering the LIMS, either through manual effort or computer generated files from an instrument workstation, are formatted by the LIMS into a final form that is reported to the client. Manipulated data reflects dilutions, dry weight conversion, sample size, rounding, significant digits and client specific reporting conventions. Any enhancements or modifications to the system are initiated via the LIMS Modification Request forms.

The manipulation of raw data makes it mandatory that results are checked or an algorithm verified to confirm that the LIMS programs are performing their correct function.

2 Responsibility

2.1 LIMS final testing is done by the laboratory section. Laboratory section leaders are responsible for verifying that LIMS results are accurate and valid. This is done by a manual calculation and comparing it to the result generated by the LIMS. In case of a discrepancy where the LIMS has miscalculated or misrepresented the result a LIMS modification request must be initiated(SOP# 800-23).

2.2 Project managers are responsible for informing section leaders of any and all client or regulatory requirements so that section leaders are fully informed in order to make a correct assessment of final results reported by the LIMS. Program administration require enhancements to include different QA/QC criteria, data qualifiers, disk deliverables and the like. Following acknowledgement from system administrator the project manager reviews the changes by signing and dating the confirmation space on the LIMS Modification Request form.

2.3 In the case of errors resulting from LIMS miscalculations of valid data transferred from instrument software a LIMS modification request must be initiated by either by a section leader, a bench chemist, or a project manager and after the LIMS modification all instrument data must be rerun to verify that the LIMS is calculating properly.

2.4 Any data used in testing the LIMS programs should be kept and used as a later check on the software after any additional modifications may have been made. Data should be kept in the form of ASCII files or database tables within the LIMS. The LIMS database administrator is responsible for this type of testing.

2.5 In the case of the LIMS using stored routines for calculations a test table should be maintained to re-check calculations. Re-checking is to be done whenever modifications to the LIMS involve stored routines. The LIMS database administrator is responsible for creating and maintaining such test tables. An example would be testing of the LIMS routine for determining significant digits. A test table is a database table used to store data that is retrieved to test LIMS programs.

2.6 Where vendor specific software is utilized to process raw data, section chemists have contacted the vendor to receive documentation verifying the calculations. Current vendors include Hewlett Packard, Lachat, Perkin Elmer, Phillips, Wards, Canberra, Enviroforms,

and Thermo Jarrell Ash.

3 References

None.

4 Attachments

LIMS Modification Request Form.

Attachment 1

LIMS MODIFICATION REQUEST

Requested by:_____ **Date:**_____ **Approved by:**_____ **Date:**_____

Contact _____ **for additional information.**

Modification for (circle choices):

Volatiles-GC	**Semivola-GC**	**Metals**	**GC/MS-SV**	**Wet Chem**	**Radiochem**
Asbestos	**QA/QC**	**Air Force**	**Extraction**	**Metals Prep**	**GC/MS-V**

Modification:

Comments:

Corrective Action:

Date completed: _____ **Initials:** _____ **Confirmation: Date:** _____ **Initials:** _____

Example attached? (circle choice): YES NO

Modification tested? (circle choice): YES NO

OBG Labs Hood Evaluations
SUMMARY
Saunders Wilson, CIH, CSP OBG ENGINEERS

Hood	Date	Length Inches	Width Inches	Aver top FPM	Aver Bot FPM	Average FPM	Criteria FPM	Meets?	Volume CFM	Criteria CFM	Meets?
WC1	06/05/98	84	30.5	152	61	106	80	Yes	1892	1423	Yes
WC2	11/11/98	84	29.75	94	84	89	80	Yes	1548	1388	Yes
WC3	06/05/98	60	29.5	193	51	122	80	Yes	1498	983	Yes
WC4	11/11/98	108	32.75	94		94	80	Yes	2315	1965	Yes
SR1	06/05/98	84	30.5	169	60	115	80	Yes	2037	1423	Yes
MTLP1	06/05/98	84	31	124	83	103	80	Yes	1869	1447	Yes
MTLP2	06/05/98	84	31	104	78	91	80	Yes	1643	1447	Yes
VOL1	06/05/98	84	30.25	118	48	83	80	Yes	1456	1412	Yes
SEMI1	06/05/98	84	30.25	92	82	87	80	Yes	1529	1412	Yes
SEMI2	11/11/98	60	31	232	108	170	80	Yes	2196	1033	Yes
EXT1	**12/30/98**	**108**	**30**	**102**	**49**	**76**	**80**	**No**	**1701**	**1800**	**No**
EXT2	**12/30/98**	**108**	**30**	**89**	**34**	**62**	**80**	**No**	**1384**	**1800**	**No**
EXT3	12/30/98	108	30	159	26	93	80	Yes	2081	1800	Yes
EXT4	12/30/98	108	30	165	17	91	80	Yes	2048	1800	Yes
EXT5	**12/30/98**	**108**	**30**	**95**	**56**	**76**	**80**	**No**	**1699**	**1800**	**No**
EXT6	12/30/98	108	8	328		328	80	Yes	1965	480	Yes
EXT7	12/30/98	108	30	199	34	117	80	Yes	2621	1800	Yes
EXT8	12/30/98	108	30	147	79	113	80	Yes	2543	1800	Yes
EXT1	06/05/98	108	30	127	33	80	80	Yes	1800	1800	Yes
PILOT	06/05/98	108	31	123	87	105	80	Yes	2441	1860	Yes
			MAX	328	108	328	Total	20	2621	Total	20
			MIN	89	17	62	No	3	1384	No	3

Sample Reading 1 –

Face Velocity Criteria per ANSI: Velocity between 80 and 120 fpm
Volume Capacity Criteria is Volume to average 80 FPM through face.

OBG Labs Hood Evaluations
June 4, 5, 1998
Saunders Wilson, CIH, CSP OBG ENGINEERS

Hood	Length Inches	Width Inches	Aver top FPM	Aver Bot FPM	Average FPM	Criteria FPM	Meets?	Volume CFM	Criteria CFM	Meets?

WC1	84	30.5	152	61	106	80	Yes	1892	1423	Yes
WC2	84	29.75	91	59	**75**	80	**No**	**1302**	1388	**No**
WC3	60	29.5	193	51	122	80	Yes	1498	983	Yes
WC4	108	32.75	60	44	**52**	80	**No**	**1274**	1965	**No**
SR1	84	30.5	169	60	115	80	Yes	2037	1423	Yes
MTLP1	84	31	124	83	103	80	Yes	1869	1447	Yes
MTLP2	84	31	104	78	91	80	Yes	1643	1447	Yes
VOL1	84	30.25	118	48	83	80	Yes	1456	1412	Yes
SEMI1	84	30.25	92	82	87	80	Yes	1529	1412	Yes
SEMI2	60	31	103	50	**76**	80	**No**	**985**	1033	**No**
EXT1	108	5.5	138		138	80	Yes	571	330	Yes
EXT2	108	23	**35**		**35**	80	**No**	**604**	1380	**No**
EXT3	108	4	77		**77**	80	**No**	**230**	240	**No**
EXT4	108	30	**237**	53	145	80	Yes	3263	1800	Yes
EXT5	108	30	86	72	**79**	80	**No**	**1772**	1800	**No**
EXT6	108	30	86	16	**51**	80	**No**	**1144**	1800	**No**
EXT7	108	30	111	**6**	**59**	80	**No**	**1316**	1800	**No**
EXT8	108	29.25	143	**95**	119	80	Yes	2605	1755	Yes
EXT1	108	30	127	33	80	80	Yes	1800	1800	Yes
PILOT	108	31	123	87	105	80	Yes	2441	1860	Yes
		MAX	237	95	145	Total	20	3263	Total	20
		MIN	35	6	35	No	8	230	No	8

Face Velocity Criteria per ANSI: Velocity between 80 and 120 fpm
Volume Capacity Criteria is Volume to average 80 FPM through face.

Hood	Top	Bottom		Hood	Top	Bottom	
WC1	FPM	FPM		SR1	FPM	FPM	
Aver	151.6667	61	106.3333	Aver	169	60	114.5
	200	55			120	65	
	100	55			145	55	
	100	60			140	60	
	80	60			220	65	
	180	68			220	55	
	250	68					
WC2	FPM	FPM		MTLP1	FPM	FPM	
Aver	90.83333	59.16667	75	Aver	124.1667	82.5	103.3333
	100	60			130	130	
	95	65			110	115	

		95	70			75	80
		95	70			200	50
		80	60			110	70
		80	30			120	50
WC3	FPM	FPM			MTLP2	FPM	FPM	
Aver	192.5	51.25	121.875		Aver	104.1667	77.5	90.83333
	170	30				140	90	
	220	50				95	95	
	210	70				100	50	
	170	55				110	60	
						95	130	
						85	40	
WC4	FPM	FPM			VOL1	FPM	FPM	
Aver	60	43.75	51.875		Aver	117.5	47.5	82.5
	75	60				120	65	
	85	75				120	30	
	0	0				130	30	
	80	40				90	25	
						125	85	
						120	50	
Hood	Top	Bottom			Hood	Top	Bottom	
SemiV1	FPM	FPM			PILOT	FPM	FPM	
Aver	91.66667	81.66667	86.66667		Aver	123	87	105
	110	90				115	100	
	100	110				120	95	
	110	105				130	100	
	65	50				115	140	
	75	70				135	0	
	90	65						
SemiV2	FPM	FPM			EXT1-2	FPM	FPM	
Aver	102.5	50	76.25		Aver	126.6667	33.33333	80
	120	50				60	30	
	120	70				180	20	
	90	50				80	20	
	80	30				90	20	
						180	60	
						170	50	
Hood	Top	Bottom			Hood	Top	Bottom	

EXT1	FPM	FPM	
Aver	138.3333		138.3333
	180		
	100		
	120		
	180		
	180		
	70		

EXT2	FPM	FPM	
Aver	35		35
	30		
	20		
	50		
	40		

EXT3	FPM	FPM	
Aver	76.66667		76.66667
	100		
	50		
	40		
	90		
	100		
	80		

EXT4	FPM	FPM	
Aver	236.6667	53.33333	145
	200	60	
	200	70	
	250	40	
	290	50	
	250	60	
	230	40	

EXT5	FPM	FPM	
Aver	85.83333	71.66667	78.75
	115	100	
	75	80	
	65	70	
	80	70	
	130	70	
	50	40	

EXT6	FPM	FPM	
Aver	85.83333	15.83333	50.83333
	90	20	
	60	10	
	120	10	
	70	10	
	90	10	
	85	35	

EXT7	FPM	FPM	
Aver	111	6	58.5
	150	30	
	110	0	
	110	0	
	65	0	
	120	0	

EXT8	FPM	FPM	
Aver	142.5	95	118.75
	135	55	
	140	100	
	135	115	
	125	110	
	145	105	
	175	85	

OBG Labs Hood Evaluations
November 11, 1998
Saunders Wilson, CIH, CSP OBG ENGINEERS

Hood	Length Inches	Width Inches	Aver top FPM	Aver Bot FPM	Average FPM	Criteria FPM	Meets?	Volume CFM	Criteria CFM	Meets?

WC2	84	29.75	94	84	89	80	Yes	1548	1388	Yes
WC4	108	32.75	94		94	80	Yes	2315	1965	Yes
SEMI2	60	31	232	108	170	80	Yes	2196	1033	Yes
EXT2	108	23	**35**		**35**	80	**No**	**604**	1380	**No**
EXT3 *	108	4	77		**77**	80	**No**	**230**	240	**No**
EXT5	108	30	96	94	95	80	Yes	2138	1800	Yes
EXT6	108	30	86	16	**51**	80	**No**	**1144**	1800	**No**
EXT7 *	108	30	111	**6**	**59**	80	**No**	**1316**	1800	**No**
		MAX	232	108	170	Total	1	2315	Total	8
		MIN	35	6	35	No	8	230	No	4

Face Velocity Criteria per ANSI: Velocity between 80 and 120 fpm
Volume Capacity Criteria is Volume to average 80 FPM through face.

*** This is the June data. Air flow through these hoods appeared to be reversed.**

Hood	Top	Bottom	
WC1	FPM	FPM	
Aver	151.6667	61	106.3333
	200	55	
	100	55	
	100	60	
	80	60	
	180	68	
	250	68	

Hood	Top	Bottom	
SR1	FPM	FPM	
Aver	169	60	114.5
	120	65	
	145	55	
	140	60	
	220	65	
	220	55	

WC2	FPM	FPM	
Aver	94	84.4	89.2
	105	87	
	110	80	
	70	80	
	75	75	
	110	100	

MTLP1	FPM	FPM	
Aver	124.1667	82.5	103.3333
	130	130	
	110	115	
	75	80	
	200	50	
	110	70	
	120	50	

WC3	FPM	FPM	
Aver	192.5	51.25	121.875
	170	30	
	220	50	

MTLP2	FPM	FPM	
Aver	104.1667	77.5	90.83333
	140	90	
	95	95	

	210	70	
	170	55	

	100	50	
	110	60	
	95	130	
	85	40	

WC4	FPM	FPM	
Aver	94.25		94.25
	100		
	105		
	100		
	72		
	150		

VOL1	FPM	FPM	
Aver	117.5	47.5	82.5
	120	65	
	120	30	
	130	30	
	90	25	
	125	85	
	120	50	

Hood	Top	Bottom	
SemiV1	FPM	FPM	
Aver	91.66667	81.66667	86.66667
	110	90	
	100	110	
	110	105	
	65	50	
	75	70	
	90	65	

Hood	Top	Bottom	
PILOT	FPM	FPM	
Aver	123	87	105
	115	100	
	120	95	
	130	100	
	115	140	
	135	0	

SemiV2	FPM	FPM	
Aver	231.6667	108.3333	170
	220	110	
	275	110	
	200	105	

EXT1-2	FPM	FPM	
Aver	126.6667	33.33333	80
	60	30	
	180	20	
	80	20	
	90	20	
	180	60	
	170	50	

Hood	Top	Bottom	
EXT1	FPM	FPM	
Aver	138.3333		138.3333
	180		
	100		
	120		
	180		
	180		
	70		

Hood	Top	Bottom	
EXT5	FPM	FPM	
Aver	96	94	95
	125	110	
	70	100	
	120	100	
	75	90	
	90	70	

EXT2	FPM	FPM	
Aver	35		35
	30		
	20		
	50		
	40		

EXT3	FPM	FPM	
Aver	76.66667		76.66667
	100		
	50		
	40		
	90		
	100		
	80		

EXT4	FPM	FPM	
Aver	236.6667	53.33333	145
	200	60	
	200	70	
	250	40	
	290	50	
	250	60	
	230	40	

EXT6	FPM	FPM	
Aver	85.83333	15.83333	50.83333
	90	20	
	60	10	
	120	10	
	70	10	
	90	10	
	85	35	

EXT7	FPM	FPM	
Aver	111	6	58.5
	150	30	
	110	0	
	110	0	
	65	0	
	120	0	

EXT8	FPM	FPM	
Aver	142.5	95	118.75
	135	55	
	140	100	
	135	115	
	125	110	
	145	105	
	175	85	

OBG Labs Hood Evaluations
December 30, 1998
Saunders Wilson, CIH, CSP OBG ENGINEERS

Hood	Length Inches	Width Inches	Aver top FPM	Aver Bot FPM	Average FPM	Criteria FPM	Meets?	Volume CFM	Criteria CFM	Meets?
EXT1	108	30	102	49	**76**	80	**No**	1701	1800	**No**
EXT2	108	30	89	34	**62**	80	**No**	1384	1800	**No**
EXT3	108	30	159	26	93	80	Yes	2081	1800	Yes
EXT4	108	30	165	17	91	80	Yes	2048	1800	Yes
EXT5	108	30	95	56	**76**	80	**No**	1699	1800	**No**
EXT6	108	8	328		328	80	Yes	1965	480	Yes
EXT7	108	30	199	34	117	80	Yes	2621	1800	Yes
EXT8	108	30	147	79	113	80	Yes	2543	1800	Yes

270 10 150 40

OBG Labs Hood Evaluations
March 3, 1999
Saunders Wilson, CIH, CSP OBG ENGINEERS

Hood	Length Inches	Width Inches	Aver top FPM	Aver Bot FPM	Average FPM	Criteria FPM	Meets?	Volume CFM	Criteria CFM	Meets?
EXT1	108	30	129	67	98	80	Yes	2203	1800	Yes
EXT2	108	30	137	55	96	80	Yes	2160	1800	Yes
EXT3	108	30	159	26	93	80	Yes	2081	1800	Yes
EXT4	108	30	165	17	91	80	Yes	2048	1800	Yes
EXT5	108	30	58	53	56	80	**No**	1249	1800	**No**
EXT6	108	8	128	93	111	80	Yes	663	480	Yes
EXT7	108	30	199	34	117	80	Yes	2621	1800	Yes
EXT8	108	30	147	79	113	80	Yes	2543	1800	Yes
		MAX	199	93	117	Total	8	2621	Total	8
		MIN	58	17	56	No	1	663	No	1

Face Velocity Criteria per ANSI: Velocity between 80 and 120 fpm
Volume Capacity Criteria is Volume to average 80 FPM through face.
Only Hoods 1,2,5 and 6 were evaluated. Data for hoods 3,4,7 and 8 is from December 1998.

March 6, 1999 O'Brien & Gere Laboratories Hood Evaluations

Hood	Top	Bottom	
EXT1	FPM	FPM	
Aver	128.8	67	97.9
	174	100	
	180	50	
	100	60	
	100	50	
	90	75	

Hood	Top	Bottom	
EXT5	FPM	FPM	
Aver	58	53	55.5
	70	55	
	70	55	
	60	55	
	40	50	
	50	50	

EXT2	FPM	FPM	
Aver	137	55	96
	170	55	
	160	55	

EXT6	FPM	FPM	
Aver	128	93	110.5
	130	60	
	130	80	

		165	55			130	110	
		95	55			115	95	
		95	55			135	120	
EXT3	FPM	FPM			EXT7	FPM	FPM	
Aver		159	26	92.5	Aver	199	34	116.5
		120	40			150	10	
		270	30			230	30	
		95	30			290	50	
		60	0			250	70	
		250	30			75	10	
EXT4	FPM	FPM			EXT8	FPM	FPM	
Aver		165	17	91	Aver	147	79	113
		220	45			180	50	
		75	10			155	140	
		180	10			150	100	
		80	10			100	65	
		270	10			150	40	

MAX	328	56	328	Total	8	2621	Total	8
MIN	89	17	62	No	3	1384	No	3

Face Velocity Criteria per ANSI: Velocity between 80 and 120 fpm
Volume Capacity Criteria is Volume to average 80 FPM through face.

Hood	Top	Bottom	
EXT1	FPM	FPM	
Aver	102.2	49	75.6
	61	65	
	200	60	
	50	50	
	100	50	
	100	20	

Hood	Top	Bottom	
EXT5	FPM	FPM	
Aver	95	56	75.5
	120	60	
	130	100	
	100	90	
	95	20	
	30	10	

EXT2	FPM	FPM	
Aver	89	34	61.5
	85	30	
	30	30	
	200	30	
	110	60	
	20	20	

EXT6	FPM	FPM	
Aver	327.5		327.5
	490		
	300		
	300		
	220		

EXT3	FPM	FPM	
Aver	159	26	92.5
	120	40	
	270	30	
	95	30	
	60	0	
	250	30	

EXT7	FPM	FPM	
Aver	199	34	116.5
	150	10	
	230	30	
	290	50	
	250	70	
	75	10	

EXT4	FPM	FPM	
Aver	165	17	91
	220	45	
	75	10	
	180	10	
	80	10	

EXT8	FPM	FPM	
Aver	147	79	113
	180	50	
	155	140	
	150	100	
	100	65	

March 6, 1999 O'Brien & Gere Laboratories Hood Evaluations

Hood EXT1	Top FPM	Bottom FPM	
Aver	128.8	67	97.9
	174	100	
	180	50	
	100	60	
	100	50	
	90	75	

Hood EXT5	Top FPM	Bottom FPM	
Aver	58	53	55.5
	70	55	
	70	55	
	60	55	
	40	50	
	50	50	

EXT2	FPM	FPM	
Aver	137	55	96
	170	55	
	160	55	
	165	55	
	95	55	
	95	55	

EXT6	FPM	FPM	
Aver	128	93	110.5
	130	60	
	130	80	
	130	110	
	115	95	
	135	120	

EXT3	FPM	FPM	
Aver	159	26	92.5
	120	40	
	270	30	
	95	30	
	60	0	
	250	30	

EXT7	FPM	FPM	
Aver	199	34	116.5
	150	10	
	230	30	
	290	50	
	250	70	
	75	10	

EXT4	FPM	FPM	
Aver	165	17	91
	220	45	
	75	10	
	180	10	
	80	10	
	270	10	

EXT8	FPM	FPM	
Aver	147	79	113
	180	50	
	155	140	
	150	100	
	100	65	
	150	40	

OBG Labs Hood Evaluations
March 3, 1999
Saunders Wilson, CIH, CSP OBG ENGINEERS

Hood	Length Inches	Width Inches	Aver top FPM	Aver Bot FPM	Average FPM	Criteria FPM	Meets?	Volume CFM	Criteria CFM	Meets?
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EXT2	108	30	137	55	96	80	Yes	2160	1800	Yes
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EXT7	108	30	199	34	117	80	Yes	2621	1800	Yes
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Volume Capacity Criteria is Volume to average 80 FPM through face.
Only Hoods 1,2,5 and 6 were evaluated. Data for hoods 3,4,7 and 8 is from December 1998.

O'BRIEN & GERE
LABORATORIES, INC.

Mail Invoice to:
5000 Brittonfield Parkway
Suite 300, PO Box 4942
Syracuse, NY 13221
Telephone: (315) 437-0200
Fax: (315) 463-7554

PURCHASE ORDER NO. A 979

ORDER DATE 8/20/99

ORDERED BY Mef

TO Krackeler

SHIP TO

INSTRUCTIONS

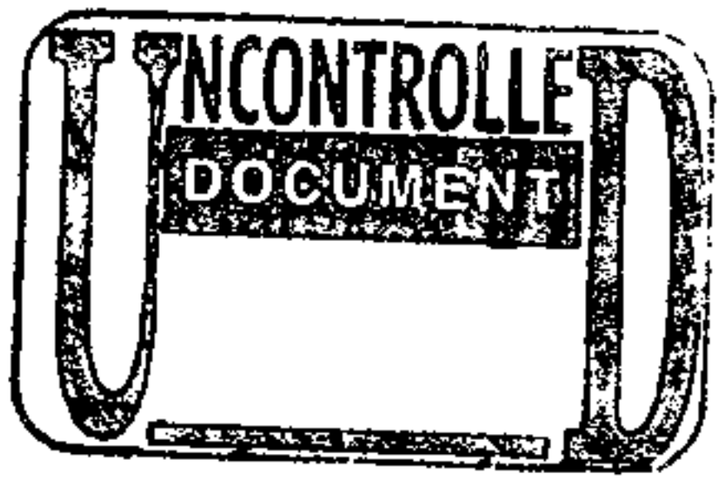
1. PURCHASE ORDER NUMBER MUST APPEAR ON ALL PACKAGES, INVOICES, AND CORRESPONDENCE.
2. IF PRICE, TERMS, REQUIRED SHIPPING DATE, OR OTHER CONDITIONS ARE NOT ACCEPTABLE NOTIFY OBG LABORATORIES IMMEDIATELY.

PROJECT NAME		PROJECT NO.	
SHIP VIA	F.O.B.	TERMS	SALES TAX EXEMPTION TAX EXEMPT NO.

QTY.	ITEM	DESCRIPTION	DATE REQUIRED	PRICE
	13	min/max 1202.710 4 + ERPCO * Model# 1202.710 Called vendor - delivery 5-7 business days. Dwheel 8-20-99	4253	

VENDOR SIGNATURE _____

STANDARD OPERATING PROCEDURE



Title: Corrective Actions

AP #800-06 Effective Date 08/19/99

Rev #0 Page 1 of 4

Prepared By: Joseph C Hosen

Approved By: Joseph C Hosen
Technical Review

Date: 8/19/99

Approved By: M.L. Postelli
Laboratory Management

Date: 8/19/99

Approved By: Joseph C. Hosen
QA/QC Section

Date: 8/19/99

1 Scope and Application

Corrective actions are procedures or steps taken in response to QC data not meeting acceptance criteria, procedures not followed properly, client-specified requirements not met, or regulatory guidance not followed or met. QC samples must meet established criteria. If they fail to meet these criteria, corrective actions are taken. Steps for Corrective action procedures are discussed below and are in Attachment 2. Corrective actions are also discussed in the QAP.

2 Responsibility

The need for corrective action may arise at anypoint and may be identified by any individual associated with the laboratory. Individuals and their responsibilities in the corrective action process are defined below in 3.0.

3 Procedure/Requirements

The analyst who is responsible for running the samples is the first to assess the quality of the data. If a problem is detected, the section supervisor is immediately notified and the excursion documented onto a Corrective Action Log Form(Attachment 1). Conversely, if there are no excursions, the analyst will document that there were none on the Corrective Action Log. The quality of the data is checked by the Production Supervisor, followed by the QA/QC Coordinator, the Project Supervisor and the Administrative Officer. If samples need to be reanalyzed or reextracted, the Production Supervisor is first consulted, the Project Supervisor is notified, and the procedure is rescheduled. The analyst will compare the new result with the old one and note any differences. The results are then discussed with the Production Supervisor. If the new results meet the QC criteria, the results are then reported. If QC criteria still are not met, the results are reviewed with the Project Supervisor and the QA/QC Coordinator. The review process should not exceed twenty-four hours. The Production Supervisor, Project Supervisor, QA/QC Coordinator and Administrative Officer may recommend corrective actions. Corrective actions that are recommended during the review process and carried out are documented onto a Corrective Action Log . The client is notified by the Project Supervisor of the QC deficiency and any resulting corrective actions. The decision is then made to accept the data or to resample. Decisions and/or instructions by the client are documented by the Project Supervisor. The decision-making process varies depending on the type of project and the ultimate use of the data. A periodic follow up to corrective actions will be performed by the QA/QC Coordinator and will be documented on the Corrective Action Log..

4 References

Not Applicable

5 Attachments

Attachment 1 Corrective Action Log

Attachment 2 Corrective Actions Table

Attachment 1

CORRECTIVE ACTION LOG
TRACE METALS

Analyst: _____ Instrument: _____

Date of Analysis: _____ Method: _____

PROJECT NUMBER(S)/BATCH NUMBER(S)	EXCURSIONS	AFFECTED SAMPLES	CRITERIA COMPARISON	REASON/CORRECTIVE ACTION

Reviewed by:

_____ _____
Section Supervisor Date

_____ _____
QA/QC Officer Date

_____ _____
Project Supervisor Date

Corrective Actions

QC Activity	Acceptance Criteria	Corrective Action
Initial Calibration	Must be within limits set by the method and/or project	Prepare new standards Recalibrate instrument
Calibration Check Standard	Must be within limits set by the method and/or project	Rerun standard Prepare new standard Recalibrate instrument
Matrix Spike	Must be within laboratory QC limits or method limits and/or project	Investigate problem, document and qualify data
Lab Duplicate	Must be within laboratory QC limits or method limits and/or project	Investigate problem, document and qualify data
Method Blank	Must be less than the reporting limit	Investigate problem and reanalyze or reextract
Laboratory Control Sample	Must be within laboratory QC limits or method limits and/or project	Investigate problem and reanalyze or reextract
Surrogate Recoveries	Must be within laboratory QC limits or method limits and/or project	Investigate problem and reanalyze or reextract
Internal Standards	Must be +100% or -50% of the initial calibration and/or greater than 10% of the continuing calibration response	Investigate problem and reanalyze or reextract
Result over highest std.	Results must be within the range of the instrument	Dilute and reanalyze
P.E. Samples	Results must be within preestablished limits	Investigate problem and document corrective action
Field Duplicate	Must be within limits specified by the client	Document
Field Blank	Must be less than the detection limit	Document

O'Brien & Gere Engineers, Inc. (O'Brien & Gere) is in the process of reviewing and preparing suggested modifications to the health and safety program for O'Brien & Gere Laboratories Inc. (O'Brien & Gere Labs). That effort is being directed by Mr. Saunders Wilson. Mr. Wilson is a Certified Industrial Hygienist and a Certified Safety Professional. He has prepared a Chemical Hygiene Plan for the Research Laboratories at Carrier Corporation, DeWitt, NY and is currently preparing Job Safety Analyses for GE Engine Services. He is familiar with the requirements of 29 CFR 1910.1450, 29 CFR 1910.1200 and 29 CFR 1910.1000 and will provide O'Brien & Gere Labs suggestions on the applicability of these standards to O'Brien & Gere Labs' operations.

The proposed Table of Contents and Introduction for the suggested Chemical Hygiene Plan is attached.

TABLE OF CONTENTS

I. INTRODUCTION

O'Brien & Gere Laboratories (OBG Labs) is committed to providing a safe and healthful work environment for all of its employees through compliance with the Occupational Safety and Health Administration (OSHA) Laboratory Chemical Hygiene Standard (29 CFR 1910.1450). Certain laboratory activities and procedures require the use of chemicals which have potentially hazardous properties. It is important that OBG Labs employees are aware of the identity and potentially hazardous properties of such chemicals. Thus, this Laboratory Chemical Management Plan (LCMP) has been established to meet the components of the OSHA requirements instituted by OBG Labs.

The purpose of this manual is to outline the general policies and guidelines associated with health and safety for employees working in the following section of OBG Labs: Shipping and Receiving, Extraction, Organics, Metals, Asbestos, Wet Chemistry, and Radiochemistry. This program includes provisions for regular safety inspections, training sessions, safe disposal of waste chemicals, and regular monitoring of environmental controls, such as ventilation systems and safety equipment.

Safety and health in the laboratory can only be achieved through good judgement exercised by informed, conscientious employees who have learned to work with and to accept the responsibility of working with hazardous materials. It is the responsibility of every employee to implement the training provided and to understand the proper methods for safely handling the hazardous materials with which he or she may come into contact.

Good laboratory practice requires mandatory safety rules and programs. These rules and/or codes reflect the hazards that are present and are based on information provided by employees and management.

An additional, formal, amendable document has been developed to provide guidance to OBG Labs workers so that they can perform their work safely. Each employee has the responsibility to read and understand this document. Should questions arise during the reading of this document or while performing one's tasks, the document directs employees to consult their supervisor or the Chemical Management Officer immediately.