00413

GROUNDWATER MONITORING
VALIDATED ANALYTICAL RESULTS FOR THE SECOND QUARTER 1997
OB/OD GROUNDS, SENECA ARMY DEPOT

PREPARED FOR:
U.S. Army Corps of Engineers
Hunstville, Alabama

PREPARED BY:

Parsons Engineering Science, Inc.
Boston, Massachusetts

October 1997

TABLES

Table 1

SENECA ARMY DEPOT ACTIVITY
1997 GROUNDWATER MONITORING PROGRAM
GROUNDWATER ELEVATION DATA
OB/OD Grounds

Monitoring Well	Elevation at Top of Riser (MSL)	Third Quarter 1996			Fourth Quarter 1996			First Quarter 1997			Second Quarter 1997		
		Date	Depth from Top of Riser (ft.)	Elevation of Water Level (ft.)	Date	Depth from Top of Riser (ft.)	Elevation of Water Level (ft.)	Date	Depth from Top of Riser (ft.)	Elevation of Water Level (ft.)	Date	Depth from Top of Riser (ft.)	Elevation of Water Level (ft.)
OB Grounds													
MW-1	634.22	09/23/96	9.49	624.73	12/28/96	7.52	626.7	03/18/97	NA	NA	06/17/97	**Not Measured**	**Not Measured**
MW-4	NA	09/23/96	8.84	NA	12/28/96	7.27	NA	03/18/97	NA	NA	06/17/97	**Not Measured**	**Not Measured**
MW-5	637.99	09/23/96	5.73	632.26	12/28/96	3.07	634.92	03/18/97	NA	NA	06/17/97	**4.61**	**633.38**
MW-6	630.31	09/23/96	6.15	624.16	12/28/96	Not Measured	Not Measured	03/18/97	NA	NA	06/17/97	**5.38**	**624.93**
MW-7	622.94	09/23/96	5.42	617.52	12/28/96	5.42	617.52	03/18/97	NA	NA	06/17/97	**Not Measured**	**Not Measured**
MW-8	638.78	09/23/96	4.85	633.93	12/28/96	3.14	635.64	03/18/97	NA	NA	06/17/97	**5.16**	**633.62**
MW-9	634.95	09/23/96	3.18	631.77	12/28/96	Not Measured	Not Measured	03/18/97	NA	NA	06/17/97	**4.12**	**630.83**
MW-10	638.62	09/23/96	3.96	634.66	12/28/96	2.30	636.32	03/18/97	NA	NA	06/17/97	**4.57**	**634.05**
MW-11	630.65	09/23/96	3.72	626.93	12/28/96	2.85	627.8	03/18/97	NA	NA	06/17/97	**3.47**	**627.18**
MW-12	624.50	09/23/96	2.94	621.56	12/28/96	2.25	622.25	03/18/97	NA	NA	06/17/97	**3.08**	**621.42**
MW-13	627.09	09/23/96	2.88	624.21	12/28/96	2.38	624.71	03/18/97	NA	NA	06/17/97	**3.37**	**623.72**
MW-14	624.51	09/23/96	4.14	620.37	12/28/96	3.15	621.36	03/18/97	NA	NA	06/17/97	**5.16**	**619.35**
MW-15	621.99	09/23/96	3.25	618.74	12/28/96	2.78	619.21	03/18/97	NA	NA	06/17/97	**3.84**	**618.15**
MW-16	622.60	09/23/96	3.56	619.04	12/28/96	2.22	620.38	03/18/97	NA	NA	06/17/97	**4.61**	**617.99**
MW-17	624.53	09/23/96	3.26	621.27	12/28/96	1.73	622.8	03/18/97	NA	NA	06/17/97	**3.00**	**621.53**
MW-18	623.95	09/23/96	3.17	620.78	12/28/96	2.38	621.57	03/18/97	NA	NA	06/17/97	**3.26**	**620.69**
MW-19	636.34	09/23/96	3.78	632.56	12/28/96	2.89	633.45	03/18/97	NA	NA	06/17/97	**5.08**	**631.26**
MW-21	637.88	09/23/96	4.70	633.18	12/28/96	2.89	634.99	03/18/97	NA	NA	06/17/97	**4.91**	**632.97**
MW-22	623.15	09/23/96	Lock Frozen	Lock Frozen	12/28/96	Lock Frozen	Lock Frozen	03/18/97	NA	NA	06/17/97	**Not Measured**	**Not Measured**
MW-23	622.87	09/23/96	4.57	618.3	12/28/96	3.83	619.04	03/18/97	NA	NA	06/17/97	**5.08**	**617.79**
MW-24	627.33	09/23/96	6.00	621.33	12/28/96	4.08	623.25	03/18/97	NA	NA	06/17/97	**5.95**	**621.38**
MW-25	623.80	09/23/96	9.32	614.48	12/28/96	4.38	619.42	03/18/97	NA	NA	06/17/97	**7.65**	**616.15**
MW-26	624.31	09/23/96	7.34	616.97	12/28/96	3.54	620.77	03/18/97	NA	NA	06/17/97	**6.32**	**617.99**
MW-27	625.94	09/23/96	4.36	621.58	12/28/96	3.31	622.63	03/18/97	NA	NA	06/17/97	**4.43**	**621.51**
MW-28	631.90	09/23/96	5.99	625.91	12/28/96	3.77	628.13	03/18/97	NA	NA	06/17/97	**4.87**	**627.03**
MW-29	632.07	09/23/96	6.19	625.88	12/28/96	2.98	629.09	03/18/97	NA	NA	06/17/97	**5.10**	**626.97**
MW-30	628.12	09/23/96	4.29	623.83	12/28/96	3.80	624.32	03/18/97	NA	NA	06/17/97	**4.23**	**623.89**
MW-31	634.57	09/23/96	3.28	631.29	12/28/96	Not Measured	Not Measured	03/18/97	NA	NA	06/17/97	**5.06**	**629.51**
MW-32	634.81	09/23/96	4.31	630.5	12/28/96	2.61	632.2	03/18/97	NA	NA	06/17/97	**4.35**	**630.46**
MW-36	640.55	09/23/96	7.81	632.74	12/28/96	5.81	634.74	03/18/97	NA	NA	06/17/97	**7.18**	**633.37**
MW-37	640.81	09/23/96	Not Measured	Not Measured	12/28/96	5.83	634.98	03/18/97	NA	NA	06/17/97	**6.95**	**633.86**
MW-38	620.67	09/23/96	5.20	615.47	12/28/96	2.71	617.96	03/18/97	NA	NA	06/17/97	**5.17**	**615.5**
MW-39	620.14	09/23/96	5.73	614.41	12/28/96	3.73	616.41	03/18/97	NA	NA	06/17/97	**6.25**	**613.89**
MW-40	620.46	09/23/96	5.85	614.61	12/28/96	3.66	616.8	03/18/97	NA	NA	06/17/97	**6.59**	**613.87**
OD Grounds - SEAD-45 wells													
MW45-1	625.08	09/23/96	7.99	617.09	12/28/96	7.26	617.82	03/18/97	NA	NA	06/17/97	**7.96**	**617.12**
MW45-2	626.76	09/23/96	11.58	615.18	12/28/96	8.95	617.81	03/18/97	NA	NA	06/17/97	**10.02**	**616.74**
MW45-3	626.45	09/23/96	10.49	615.96	12/28/96	7.50	618.95	03/18/97	NA	NA	06/17/97	**7.48**	**618.97**
MW45-4	633.04	09/23/96	7.58	625.46	12/28/96	5.87	627.17	03/18/97	NA	NA	06/17/97	**7.21**	**625.83**

TABLE 2

SENECA ARMY DEPOT ACTIVITY
OB GROUNDS SECOND QUARTER 1997 MONITORING PROGRAM
INDICATOR ANALYSIS RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	DATE SAMPLED	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97
	ES ID	OB074	OB075	OB076	OB077	OB079	OB080	OB081	OB082
	WELL ID	**MW12A**	**MW12B**	**MW12C**	**MW12D**	**MW13A**	**MW13B**	**MW13C**	**MW13D**
	LAB ID	334057	334058	334059	322960	334065	334062	334064	334063
PARAMETER	**UNITS**								
pH	standard units	7.37	7.36	7.36	7.33	7.01	7.04	7.01	7.02
Conductivity	umhos/cm	785	782	782	784	821	826	827	827
Total Organic Carbon	mg/L	1.3	1.3	1.3	1.4	1.5	1.5	1.6	1.6
Total Organic Halides	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Note: MW-14 not sampled due to damaged riser

TABLE 2

SENECA ARMY DEPOT ACTIVITY
OB GROUNDS SECOND QUARTER 1997 MONITORING PROGRAM
INDICATOR ANALYSIS RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	DATE SAMPLED	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97	06/19/97
	ES ID	---	---	---	---	OBO89	OB090	OBO91	OBO92
	WELL ID	**MW14A**	**MW14B**	**MW14C**	**MW14D**	**MW27A**	**MW27B**	**MW27C**	**MW27D**
	LAB ID	---	---	---	---	334069	334070	334071	334072
PARAMETER	**UNITS**								
pH	standard units	---	---	---	---	7.32	7.32	7.31	7.35
Conductivity	umhos/cm	---	---	---	---	790	787	789	790
Total Organic Carbon	mg/L	---	---	---	---	1.1	1.2	1.1	1.1
Total Organic Halides	mg/L	---	---	---	---	<0.02	<0.02	<0.02	<0.02

Note: MW-14 not sampled due to damaged riser

TABLE 3

SENECA ARMY DEPOT ACTIVITY
OD GROUNDS SECOND QUARTER 1997 MONITORING PROGRAM
INDICATOR ANALYSIS RESULTS

	MATRIX	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
	DATE SAMPLED	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97
	ES ID	OB104	OB105	OB106	OB107	OB109	OB110	OB111	OB112
	WELL ID	**MW45-3A**	**MW45-3B**	**MW45-3C**	**MW45-3D**	**MW45-4A**	**MW45-4B**	**MW45-4C**	**MW45-4D**
	LAB ID	334053	334054	334055	334056	334048	334050	334049	334047
PARAMETER	**UNITS**								
pH	standard units	7.58	7.26	7.45	7.41	7.22	7.26	7.25	7.21
Conductivity	umhos/cm	1352	1229	1233	1243	670	677	679	654
Total Organic Carbon	mg/L	1.0	0.9	0.9	0.8	1.1	1	1.1	1.6
Total Organic Halides	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

TABLE 3

SENECA ARMY DEPOT ACTIVITY
OD GROUNDS SECOND QUARTER 1997 MONITORING PROGRAM
INDICATOR ANALYSIS RESULTS

	MATRIX	WATER	WATER	WATER	WATER
	DATE SAMPLED	06/19/97	06/19/97	06/19/97	06/19/97
	ES ID	OB099	OB100	OB101	OB102
	WELL ID	**MW45-2A**	**MW45-2B**	**MW45-2C**	**MW45-2D**
	LAB ID	334075	334074	334068	334076
PARAMETER	**UNITS**				
pH	standard units	7.08	7.09	7.18	7.31
Conductivity	umhos/cm	1383	1377	1366	1378
Total Organic Carbon	mg/L	1.1	1.1	1.4	1.1
Total Organic Halides	mg/L	<0.02	<0.02	<0.02	<0.02

Table 4

OB/OD 1997 Second Quarter Groundwater Monitoring
Validated TAL Metals Analytical Results

WELL ID		MW12	MW12(DU)	MW12(R)	MW13	MW27	MW45-2	MW45-3	MW45-4
ES ID		OB073	OB113	OB114	OB078	OB088	OB098	OB103	OB108
SITE		OB	OB	OB	OB	OB	OD	OD	OD
MATRIX		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
DATA SAMPLED		6/19/97	6/19/97	6/18/97	6/19/97	6/19/97	6/19/97	6/18/97	6/18/97
LAB ID		334061	334066	334051	334067	334073	334077	334052	334046
			Duplicate	Rinsate					
COMPOUND	UNITS								
Aluminimum	ug/l	36.8 U	36.8 U	36.8 U	36.8 U	36.8 U	36.8 U	36.8 U	36.8 U
Antimony	ug/l	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Arsenic	ug/l	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
Barium	ug/l	92.8	96.3	3 U	80.3	89.4	22.9	17.6	23.4
Beryllium	ug/l	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Cadmium	ug/l	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Calcium	ug/l	75000	77800	145 U	142000	91400	237000	188000	112000
Chromium	ug/l	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Cobalt	ug/l	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Copper	ug/l	1.2 U	1.7	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.5
Iron	ug/l	50	55.3	26 U	31.6	26 U	26 U	27.8	62.8
Lead	ug/l	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Magnesium	ug/l	58400	60400	114 U	27200	52700	54100	66700	24200
Manganese	ug/l	0.56 J	0.42 J	0.3 U	11.8 J	75.1 J	0.3 U	5.7 J	5 J
Mercury	ug/l	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	ug/l	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.9	2.5	2.2
Potassium	ug/l	8920	9280	305 U	1480	7320	3180	5890	2180
Selenium	ug/l	3.9	3.9	3.1 U	6.2	3.1 U	3.1 U	3.1 U	3.1 U
Silver	ug/l	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.98
Sodium	ug/l	13500	14200	1230	15600	13100	34100	19100	10600
Thallium	ug/l	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Vanadium	ug/l	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Zinc	ug/l	4.2	3.5	22.6	32.8	4.2	7.8	10.8	6.8

H:\eng\seneca\quartsmp\obod\2qtr97\Q297MET.WK4

TABLE 5

SENECA ARMY DEPOT ACTIVITY
SECOND QUARTER 1997 GROUNDWATER MONITORING PROGRAM
HISTORICAL SUMMARY OF OB GROUNDS INDICATOR PARAMETER DATA

Monitoring Well		Dec 1994	June 1995	January 1996	March 1996	June 1996	September 1996	December 1996	June 1997
pH									
Upgradient Well:	MW-13	7.04	7.14	7.13	7.1	6.95	7	7.1	7.02
Downgradient Wells:	MW-12	7.37	7.4	7.18	7.39	7.33	7.4	7.5	7.4
	MW-14	7.11	7.18	6.75	7.19	7.1	7.2	7.2	----
	MW-27	7.34	7.4	7.26	7.32	7.28	7.2	7.4	7.3
Conductivity									
Upgradient Well:	MW-13	886	838	894	920	943	867	722	825
Downgradient Wells:	MW-12	911	892	869	844	854	879	850	783
	MW-14	1082	1090	1025	1047	1070	1070	929	----
	MW-27	953	912	944	889	877	877	812	789
Total Organic Carbon									
Upgradient Well:	MW-13	1.2	1.2	1.2	1.1	1.7	1.9	1.0	1.6
Downgradient Wells:	MW-12	1.2	1.3	1.1	1.1	1.3	1.6	1.4	1.3
	MW-14	1	1.1	1.0	0.95	1.6	2.1	0.8	----
	MW-27	1	1.1	0.8	0.95	1.3	1.1	1.1	1.1
Total Organic Halides									
Upgradient Well:	MW-13	0.03	0.02U	0.02U	<0.02	<0.02	<0.02	<0.02	<0.02
Downgradient Wells:	MW-12	0.04	0.02U	0.02U	<0.02	<0.02	<0.02	<0.02	<0.02
	MW-14	0.02U	0.02U	0.02U	<0.02	<0.02	<0.02	<0.02	<0.02
	MW-27	0.03	0.02U	0.02U	<0.02	<0.02	<0.02	<0.02	<0.02

TABLE 6

SENECA ARMY DEPOT ACTIVITY
SECOND QUARTER 1997 GROUNDWATER MONITORING PROGRAM
HISTORICAL SUMMARY OF OD GROUNDS INDICATOR PARAMETER DATA

Monitoring Well		Dec 1994	June 1995	January 1996	March 1996	June 1996	September 1996	December 1996	June 1997
pH									
Upgradient Well:	MW45-4	7.1	7.24	7.16	7.18	7.2	7.2	7.26	7.24
Downgradient Wells:	MW45-1	-	-	-	-	-	-	-	-
	MW45-2	-	-	-	-	-	-	7.15	7.17
	MW45-3	7.19	7.38	7.18	7.28	7.13	7.3	7.28	7.43
Conductivity									
Upgradient Well:	MW45-4	1030	829	891	836	793	892	679	670
Downgradient Wells:	MW45-1	-	-	-	-	-	-	-	-
	MW45-2	-	-	-	-	-	-	1253	3876
	MW45-3	1430	1335	1325	1213	1350	1275	1275	1264
Total Organic Carbon									
Upgradient Well:	MW45-4	1	0.9	1.1	0.58	0.925	1.2	1	1.2
Downgradient Wells:	MW45-1	-	-	-	-	-	-	-	-
	MW45-2	-	-	-	-	-	-	1.0	1.2
	MW45-3	0.8	0.9	0.65	0.78	1.1	1.3	1.3	0.9
Total Organic Halides									
Upgradient Well:	MW45-4	0.02U	0.02U	0.02U	<0.02	<0.02	<0.02	<0.02	<0.02
Downgradient Wells:	MW45-1	-	-	-	-	-	-	-	-
	MW45-2	-	-	-	-	-	-	<0.02	<0.02
	MW45-3	0.02U	0.02U	0.02U	<0.02	<0.02	<0.02	<0.02	<0.02

Table 7

OB Grounds Second Quarter 1997 Monitoring Program
Students t-Test Statistical Analysis Results

Background Well MW-13	TOC	pH	Specific Cond.	TOX
Intital Mean =	1.19	7.02	909.50	0.01
Initial Variance =	0.14	0.00	704.53	0.00
Sample Size =	16.00	16.00	16.00	16.00

TOTAL ORGANIC CARBON (TOC)							
Compliance Well MW -12		Background Well MW -13		Compliance Well MW -14		Compliance Well MW -27	
t*=	1.43	t*=	3.74	t*=	-12.83	t*=	-0.65
tc=	2.73	tc=	2.77	tc=	2.60	tc=	2.73
	No Change		Increase		No Change		No Change

pH							
Compliance Well MW -12		Background Well MW -13		Compliance Well MW -14		Compliance Well MW -27	
t*=	18.17	t*=	0.04	t*=	-430.20	t*=	16.55
tc=	3.58	tc=	3.01	tc=	2.95	tc=	3.58
	Increase		No Change		No Change		Increase

SPECIFIC CONDUCTANCE							
Compliance Well MW -12		Background Well MW -13		Compliance Well MW -14		Compliance Well MW -27	
t*=	-18.91	t*=	-12.41	t*=	-137.06	t*=	-18.06
tc=	2.63	tc=	2.69	tc=	2.60	tc=	2.62
	No Change		No Change		No Change		No Change

TOTAL ORGANIC HALIDES (TOX)							
Compliance Well MW -12		Background Well MW -13		Compliance Well MW -14		Compliance Well MW -27	
t*=	-1.00	t*=	-1.00	t*=	-2.23	t*=	-1.00
tc=	2.60	tc=	2.60	tc=	2.60	tc=	2.60
	No Change		No Change		No Change		No Change

key:
t*>= tc Indicates a statistically significant increase in the indicator parameter
t*<tc Indicates no statistically significant change in the indicator parameter

Table 7

OD Grounds Second Quarter 1997 Monitoring Program
Students t-Test Statistical Analysis Results

Background Well MW45-4	TOC	pH	Spec Cond.	TOX
Intital Mean =	0.85	7.18	875.08	0.005
Initial Variance =	0.03	0.00	14375.90	0.000
Sample Size =	12.00	12.00	12.00	12

TOTAL ORGANIC CARBON (TOC)

Compliance Well MW 45-1		Compliance Well MW 45-2		Compliance Well MW 45-3		Background Well MW 45-4	
t*=	0.00	t*=	3.61	t*=	0.77	t*=	2.42
tc=	0.00	tc=	3.98	tc=	3.45	tc=	4.32
	Dry		No Change		No Change		No Change

pH

Compliance Well MW 45-1		Compliance Well MW 45-2		Compliance Well MW 45-3		Background Well MW 45-4	
t*=	0.00	t*=	-0.19	t*=	3.62	t*=	2.58
tc=	0.00	tc=	5.51	tc=	5.62	tc=	3.84
	Dry		No Change		No Change		No Change

SPECIFIC CONDUCTANCE

Compliance Well MW 45-1		Compliance Well MW 45-2		Compliance Well MW 45-3		Background Well MW 45-4	
t*=	0.00	t*=	14.40	t*=	8.57	t*=	-5.85
tc=	0.00	tc=	2.74	tc=	3.48	tc=	2.77
	Dry		Increase		Increase		No Change

TOTAL ORGANIC HALIDES (TOX)

Compliance Well MW 45-1		Compliance Well MW 45-2		Compliance Well MW 45-3		Background Well MW 45-4	
t*=	0.00	t*=	3.32	t*=	3.32	t*=	3.32
tc=	0.00	tc=	2.72	tc=	2.72	tc=	2.72
	Dry		Increase		Increase		Increase

key:
t*>= tc Indicates a statistically significant increase in the indicator parameter
t*<tc Indicates no statistically significant change in the indicator parameter

FIGURES

N

MW-4

615 FT

613.87
MW-40
MW-39
613.89

620 FT

625 FT

630 FT

635 FT

MW-38
615.50

618.15
MW-15
MW-23
617.79
MW-22
MW-16
617.99
MW-7

MW-19/
GB-18
631.26

MW-1

623.84
MW-30/
GB-21

MW-14
619.35

MW-13
623.72

629.51
MW-31/
GB-19

MW-9
630.83

MW-12
621.51
621.42

MW-18
620.69

MW-21/GB-17
632.97

MW-27

MW-24
621.38

617.99
MW-26
MW-25
616.15

621.53
MW-17

MW-8
633.62

627.18
MW-11

MW-5
633.38

626.97
MW-29/
GB-20
MW-6
MW-28
627.03

633.37
MW-36

MW-37
633.86

APPROXIMATE GROUNDWATER DIVIDE

634.05
MW-10

MW-32
630.46

MW-41

100 0 100 200
(feet)

LEGEND:

- BURNING PAD DESIGNATION
- PAD OR GRID BORING
- GROUND CONTOUR AND ELEVATION
- WETLAND & DESIGNATION
- UTILITY POLE
- TREE
- BRUSH
- MW-37 633.86 — MONITORING WELL & DESIGNATION AND MSL ELEVATION DATUM
- 635 — GROUNDWATER CONTOUR LINE (DASHED WHERE INFERRED) MSL DATUM
- ARROW INDICATES PREDOMINANT GROUNDWATER FLOW DIRECTION

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

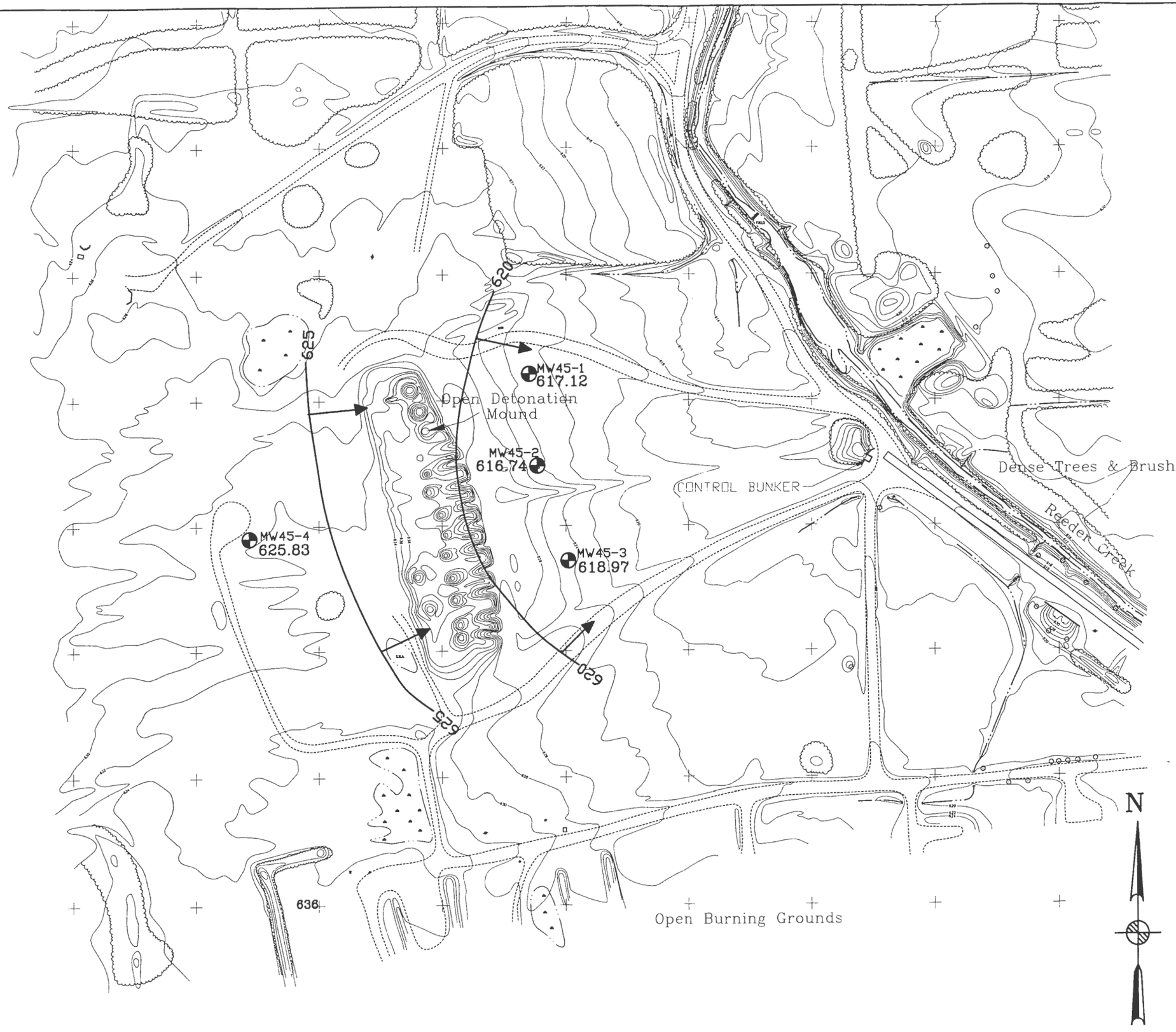
SENECA ARMY DEPOT ACTIVITY
OB GROUNDS
GROUNDWATER MONITORING PROGRAM

DEPT	Dwg. No.
ENVIRONMENTAL ENGINEERING	730769-01003

FIGURE 1
GROUNDWATER ELEVATION PLAN
JUNE 1997

SCALE	DATE	REV
1" = 200'	OCTOBER 1997	A

R:\SENECA\GRDWATER\OBRIGWM2.DWG



LEGEND

- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENTS
- RAILROAD
- 760 — GROUND SURFACE ELEVATION CONTOUR
- ROAD SIGN
- DECIDUOUS TREE
- GUIDE POST
- FIRE HYDRANT
- MANHOLE
- COORDINATE GRID (250' GRID)
- POLE
- UTILITY BOX
- MAILBOX/RR SIGNAL
- OVERHEAD UTILITY POLE
- SURVEY MONUMENT
- LOCATION OF DETONATION MOUND IN 1968
- MW45-1 617.12 — MONITORING WELL & DESIGNATION AND MSL ELEVATION DATUM
- 625 — GROUNDWATER CONTOUR LINE (DASHED WHERE INFERRED)
- ARROW INDICATES PREDOMINANT GROUNDWATER FLOW DIRECTION

100 0 100 200
(feet)

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
OD GROUNDS
GROUNDWATER MONITORING PROGRAM

DEPT	Dwg. No
ENVIRONMENTAL ENGINEERING	730769-01003

FIGURE 2
GROUNDWATER ELEVATION PLAN
JUNE 1997

SCALE	DATE	REV.
1" = 200'	OCTOBER 1997	A

ACAD\SENECA\GRDWATER\SD45GWF2.DWG

APPENDIX A

FIELD DATA

OB/OD Second Quarter 1997 Groundwater Monitoring Program

1. Groundwater Sampling Field Notes

2. Chain-of-Custody Forms

1. Groundwater Sampling Field Notes

6-17-97 June 97 Quarterly Monitoring

0800 AMW, MCB on-site. Unload ice and supplies. Check HACH DR/700 Colorimeter. Visit Randy.
1017 ▽ @ MW45-2 = 10.02' TOC
Two hornet nests inside MW45-3
1020 No cap on MW45-1. It fell down into the riser case. ▽ = 7.96' TOC.
1120 MW45-3 ▽ = 7.48' TOC N. of MW-8
1139 5.08' TOC MW-19 - lots of bees.
1143 5.16' TOC MW-8 - no cap or lock!
OB/OD water levels:
1154 7.18' TOC MW-36
1155 6.95' TOC MW-37
1202 4.57' TOC MW-10 (S. of-36, -37)
1218 4.35' TOC MW-32
1221 4.87' TOC MW-28
1222 5.10 TOC MW-29
1229 3.00' TOC MW-17 gopher hole @ casing
1233 3.26' TOC MW-18 crumbled concrete
1240 5.16' TOC MW-14 no cap. heaved.
1245 3.32' TOC MW-13
1254 4.12' TOC MW-9 & cap broken
1301 6.25' TOC MW-39

6-17-97 ASH / OB-OD water levels

1305	5.17' TOC	MW-38	OB/OD
1309	3.84' TOC	MW-15	OB/OD
1316	4.61' TOC	MW-16	OB/OD
1324	6.32 TOC	MW-26	OB/OD
1325	7.65 TOC	MW-25	OB/OD

Locks rusted shut at MW-22 & MW-7. Unable to get those water levels. See Brent (aw) "Book 2 of 2" for other data.

1429	3.58' TOC	MW-36	outside of ash.
1458	3.48' TOC	MW-56	outside of ash
1507	4.35' TOC	MW-51D	ash
1508	4.22' TOC	MW-47	ash
1507	3.62' TOC	MW-52D	ash
1552	9.03' TOC	PT-10	ash
1602	2.98' TOC	MW-60	ash
1614	2.09' TOC	MW-39	ash
1625	7.53' TOC	PT-12A	ash
1628	6.90' TOC	MW-44A	ash
1634	3.90' TOC	MW-45	ash
1637	5.88' TOC	MW-50D	ash
1641	5.91' TOC	MW-49D	ash
1644	6.06' TOC	MW-46	ash

Two drums staged at ash landfill - are full.

6-17-97 Ash Water levels

One drum is ~ 1/5 full. Will use second for bad purge water containment. Both not yet labeled.

1654	5.34' TOC	PT-19		ash
	This well is infested with ants, including the well column			
1659	7.93' TOC	MW-32	bailer	ash
1704	5.30' TOC	MW-31	bailer	ash
1708	5.96' TOC	~~AMW~~ PT-25	bailer	ash
1713	8.35' TOC	MW-30	bailer	ash
1720	6.65' TOC	MW-29		ash
1723	5.04' TOC	~~AMW~~ PT-24		ash Fence corner
1726	5.61' TOC	MW-28		ash
1729	6.48' TOC	MW-27		ash
1740	Done with ash landfill water levels. See "Book 2 of 2" for other water level data.			
1830	Back at base - end of day			

AMW 6/17/97

6-18-97

0800 AMW & MCB on-site. MCB decons pumps. AMW calibrates equipment.

HF Scientific, inc. DRT-15CE Turbidimeter (Hasco SN 12330):

0.02 NTU ref. STD = 0.02 reading. (no adjustment) 10 scale setting

107.4 NTU STD = 109 reading (no adjustment) 1000 scale setting.

Time	Reading	Param	Std set to	After setting
0839	6.87	pH	7.00	6.99
0843	3.89	pH	4.00	3.99
0846	1125 μΩ	S.Cond.	1021	1021
0849	431 μΩ	S.Cond	419	418
0852	4.5 NTU	Turb.	0.0	0.0
0854	97.8 NTU	Turb.	107.4	107
0858	0.0 NTU	Turb	12.2 N/A	Standard is wrong
0902	282 mV/21.3°C	Eh	293 mV	293!
0906	469 mV/21.1°C	Eh	468 mV	OKAY! not set
0910	9.14 mg/L/20.8°C	DO	9.14	okay! not set.

Above calibration table is a calibration of the Hydrolab H20 water Quality Multiprobe. Read from a Scout 2 data display.

6-18-97

0935 TEI, Inc Model 580B OVM set to zero air. No calibration 100 ppm std. gas in trailer. Checked with sharpie. Registered >100 ppm. Put together bottle sets, loaded can and got ice at the transportation building.

1102 At 03/00 gate.

1106 At MW45-3. POW = 14.09'.

1112 Water level = 7.58'

1120 Pump intake = 12.0 Pump V

At MW45-2. POW = 12.42'.

1176 Water level = 10.11

Pump intake = 11.5 Pump N

1140 At MW45-4. POW = 9.75

1142 Water level = 7.26

Pump intake = 8.5' Pump no-name

1200 Take lunch at NCO Club.

1300 Back from lunch.

1340 ~~Set up at MW45-4. No water~~ level recorded since ∇ is past pump. Rate at 300 ml/min.

1347 Begin pumping MW45-4. Rate = 300 ml/min.

See next pg. for data:

6-18-97 MW45-4 Purge Summary:

Time	Rate (ml/min)	Volume (Gal.)	T (°C)	Cond. (mΩ/cm)	DO (mg/L)	pH	Redox (mV)	Turb (NTU)
1358	300	1.0	11.61	707	.35	6.91	296	21.6
1402	300	1.3	11.51	702	.27	6.93	296	14.3
1405	300	1.8	11.43	697	.22	6.95	295	7.7
1408	300	2.0	11.48	695	.20	6.95	295	4.3
1411	300	2.2	11.46	693	.18	6.96	295	3.1
1414	300	2.5	11.39	691	.17	6.96	296	2.3

1415 ~~Sampled MW45-4~~ Set of:

1 bottle of TAL Metals (OB108)

4 TOX bottles (OB109, OB110, OB111, OB112)

4 pH bottles

4 Sp. Cond bottles

8 TOC bottles (4 sets)

1442 Clean up & pack van. Move to MW45-2.

1457 No water level measurable at MW45-2.

1458 Begin pumping MW45-2. Flow rate - 260 ml/min

MW45-2 Purge Summary:

Time	Rate	Vol	T°	Cond.	DO	pH	Eh	Turb
1508	260	0.5	10.46	1361	5.96	6.79	300	0.2

Compressor battery dies. 1514: resume pumping.

1514 260 0.7 11.6 - Well dry.

1520 Discontinue pumping at MW45-2.

Set-up at MW45-3.

(42)

6-18-97 OB/OD Quarterly Sampling.

1538 ∇ = 7.04' [redacted] Begin pumping.

Time	Rate	Vol.	T°	Cond.	pH	Redox	DO	Turb.
1546	220	0.2	13.38	1139	7.02	286	4.20	0.2
1650	220	0.5	12.31	1210	6.99	291	3.79	0.0
1553	220	0.7	12.10	1249	6.99	293	3.83	0.0
1556	220	1.0	12.07	1261	6.99	295	3.86	0.0
1558	220	1.1	12.05	1250	6.99	294	3.80	0.0

1600 ~~Sampled MW45-3. Sample set 5:~~
~~1 TAL metals bottle (OB103)~~
~~4 Spec Cond bottles (OB104, OB105, OB106, OB107~~
4 pH bottles
4 TOX bottles
8 TOC bottles (4 sets)

1622 Pump ran dry. Stopped pumping to allow recharge for 3 minutes. Adjust purge rate to ~70 ml/min. Dried up.

1747 Re-Start sampling at MW45-3.

1801 Done sampling MW45-3. AMW at trailer making bottle sets for tomorrow. Thunder and heavy rains for past hour.

1920 MCB & AMW off-site.

6-18-97
AMW

(43)

ASH & OB/OD

6-19-97 2nd Qtr. Monitoring OB/OD

0800 AMW/MCB on-site.

0830 MCB pours OB/OD rinsate set:
(No-name pump)
~~OB083~~ (new) ~~OB01~~ (new) OB114, OB114MRD
each set has:
1 TAL metals bottle
1 TOX bottle
1 pH bottle
1 Sp. Cond. bottle
2 TOC bottles (2 per set)

0820-0850 AMW Calibrates instruments:

0821 HF Scientific DRT-15CE (not used yet):
0.02 STD NTUs, set to 0.02 NTUs
45 STD NTUs, reads 45.5 NTUs - OK!

Time	Reading	Param	Std. Set to	After Setting
0859	7.14	pH	7.00	6.99
0902	3.90	pH	4.00	3.99
0905	0.0	Turb.	0.0	0.0 NTUs
0906	110	Turb.	107.4	106 NTUs
0909	39.3	Turb.	NOT set to	45 NTU STD.
0911	981	S.Cond	1021	1021 µΩ
0913	441	S.Cond	399	441 CAL Out of Range
0917	287mV - 19.9°C	Eh	295	295 mV

6-19-97 SEDA OB/OD Quarterly June 1997

Time	Reading	Param	Std. set to	After Setting
0921	474mV-19.9°C	Eh	470 - not set, okay.	
0925	9.65mg/L/20°C	DO	9.17	9.17

0935 Stop by Transportation building to get Potable water and ice. BLDG #122.

1008 Key #2508 opens OB/OD gate.

1020 Set-up at MW45-2. Water level past the pump intake.

1025 Begin pumping MW45-2 at 110ml/min.

MW45-2 Purge Data:

Time	Rate	Vol.	T(°C)	Cond	DO	pH	Eh	Turb
1036	110	0.3	12.32	1418	6.09	6.74	327	1.6
1039	110	0.4	11.60	1422	6.86	6.73	329	2.2
1042	110	0.5	11.28	1432	7.06	6.75	331	2.4
1045	110	0.55	11.31	1438	6.84	6.75	333	2.9

1048 Sampled MW45-2. Sample set is:
only sample taken
1 TAL Metals Bottle (OB098)
14 pH bottles (OB099, OB100, OB101, OB102)
4 S.Cond bottles
4 TOX bottles
8 TOC bottles

1100 Dried up MW45-2. Will sample the rest later today.

1114 MW-13 ∇ = 3.28'. Pump N set to 8.0'.

1130 MW-14 ∇ = 5.11'. Well Pump does not accept

6-19-97

pump - PVC bent at ground surface. Totally obstructed. Go back to MW-13.

1140 Set up pumping at MW-13. Pre-pump water level is 3.28'. Begin pumping.

1202 ∇ = 3.52, Rate = 210 ml/min at MW-13:

Time	Rate	Vol	Temp	S.Cond	DO	pH	Eh	Turb
1204	210	0.4	14.38	884	0.21	6.66	214	2.7
1208	210	1.0	13.99	882	0.17	6.65	211	2.9
1211	210	1.3	13.96	878	0.14	6.65	216	2.3
1214	210	1.5	14.01	878	0.13	6.65	221	2.4
1217	210	1.8	13.80	875	0.17	6.64	226	2.3

1220 Sampled MW-13:

1246 Done sampling MW-13. Sample Set is:
1 TAL Metals Bottle (OB078)
4 pH bottles (OB079, OB080, OB081, OB082)
4 S.Cond Bottles
4 TOX bottles
8 TOC bottles (4 sets)

1301 Pulled up pump from MW-4.

1304 Set up small marine battery to be charged at OB/OD trailer outside the gate.

1318 Leave post 1 for lunch.

1400 Arrive at Slate House. Phone # 585-6376

6-19-97 ASH/OB/OD Quarterly Monitoring

Will return to the State's house tomorrow at about 10 AM to sample.

1430 Stop by BLDG 103 to see Debbie Karlsen at Security. After hours/weekend clearance is set.

1440 Back at trailer. MCB calls Bob Kane letting him know we ~~can't get~~ ~~Marshall pumping MW-11~~. Will perform OB/OD QA/QC on MW-12.

1510 Enter post 5 (Ammo area). 76°F, RH = 80%, P. Cloudy, 5-10 mph NW wind.

1530 ▽ = 3.12' at MW-12. SEt intake at 7.0 feet.

1542 Begin pumping ~~MW-12~~.

1557 MW-12 Rate = 300 mL/min

	RATE	VOL	Temp	Cond	DO	pH	Eh	Turb
1552	300	0.3	14.08	817	0.33	6.96	274	8.5
1555	300	0.6	13.52	822	0.22	6.95	274	5.7
1558	300	0.9	13.21	825	0.17	6.95	274	3.3
1601	300	1.1	13.21	824	0.16	6.95	274	2.3
1604	300	1.3	13.11	826	0.16	6.95	274	2.1

1605 Sampled MW-12

1610 ▽ at MW-27 = 4.45'. Pump set to 13.0 ft.

6-19-97

Samples taken ~~MW-12~~ OB113 duplicate

- 3 TAL Metals (OBØ73, ~~OBØ~~ OB113, OBØ73MRD)
- 5 pH bottles (OBØ74, OBØ75, OBØ76, OBØ77, OBØ73MRD)
- 5 S.Cond bottles
- 5 TOX bottles
- 10 TOC bottles (5 sets)
- Rinsate taken on this pump (OB114, OB114MRD)

1648 ▽ = 4.48 at MW-27. Begin pumping.

~~MW-27~~ Purge summary:

Rate = 280 mL/min, ▽ = 4.78'

Time	Vol	Rate	T°	S.Cond	DO	pH	Eh	Turb
1654	0.3	280	11.81	805	0.40	6.81	298	1.6
1657	0.5	280	11.40	817	0.20	6.83	295	0.8
1700	0.8	280	11.26	822	0.14	6.86	293	0.6
1703	1.1	280	11.22	823	0.12	6.89	291	0.4
1706	1.3	280	11.12	825	0.12	6.90	290	0.5
1709	1.6	280	11.21	825	0.11	6.91	289	0.5

1710 ~~Sampled MW-27~~. Sample set is:

- 1 TAL metals (OBØ88) bottle
- 4 pH bottles (OBØ89, OBØ90, OBØ91, OBØ92)
- 4 S.Cond bottles
- 4 TOX bottles
- 8 TOC bottles (4 sets)

(48)

6-19-97 OB/OD Quarterly Sampling

1848 Finish sampling MW45-2 indicator sets. See page (44).

1900 Leave post 5 for trailer. Unpack. Ice coolers & Separate MRD samples into coolers.

1920 AMW/MCB off-base.

AMW
6-19-97

(49)

6-20-97 ASH Landfill Sampling.

0740 AMW & MCB at site. MCB builds bottle sets. AMW calibrates H20.

Time	Reading	Param	Std. Set to	Reading
0804	6.90	pH	7.00	6.99
0808	4.14	pH	4.00	4.00
0810	1025	S. Cond	1021	1021
0813	433	S. Cond	397	Not set
0816	1.5	Turb	0.0	0.0
0822	98.6	Turb	107.4	107
0825	41.7	Turb	45	N/A: Not set
0827	291 mV 19.5°C	Eh	296	296
0830	474 mV 19.7°C	Eh	470	N/A: Not set
0833	8.94 mg/L 20.3°C	DO	9.11	9.11

AMW packs van & cleans pumps

0900 Pour rinsate for MW-36
3 VOC 524.2 bottles (AL113)

0938 Leave post 1 for the Farmhouse.

1000 At farmhouse - no one home. MCB drives back to SEDA for bailer. Phone communication with Rob Kane this morning: do not sample MW-14 at OB/OD.

1045 BW-5 WL 5.41 Sampled

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC. | CLIENT: USACOE | WELL #: MW-12

PROJECT: 2nd Qtr. Monit. RI FIELD INVESTIGATION
SWMU # (AREA) OB/OD SEAD-
SOP NO.: 17

DATE: 6/19/97
INSPECTORS: MCB, AMW
PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS

MONITORING

INSTRUMENT	READING (UNITS)
OVM	instrument ~~PID~~ units
	(too humid not working)

WELL DIAMETER FACTORS

DIAMETER (INCHES):	1	1.5	2	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV. TURBIDITY	WELL DEV. pH	WELL DEV. SPEC COND
	9.17				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
	N/A	3.12		7.0	1542

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/19/97	1604	0.300	1.3	13.11	826	6.95	274	0.16	2.1
	1605	Sampled well.							

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW-13
PROJECT: 2nd Qtr. Monitoring RI FIELD INVESTIGATION		DATE: 6/19/97
SWMU # (AREA): 083/0D	SEAD-	INSPECTORS: AMW, MCB
SOP NO.: 17		PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING READING (UNITS)
							OVM	instrument units
							(too humid - OVM not used)	

WELL DIAMETER FACTORS

DIAMETER (INCHES):	1	1.5	2	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV. TURBIDITY	WELL DEV. pH	WELL DEV. SPEC. COND
	10.00				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
	N/A	3.28		8.0	1140

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
	—			—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/19/97	1217	0.210	1.8	13.80	875	6.64	226	0.12	2.3
	1220	Sampled well.							

SAMPLING RECORD - GROUNDWATER

'ARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW-14
PROJECT: 2nd quarterly RI FIELD INVESTIGATION		DATE: 6/19/97
SWMU # (AREA): OB/OD SEAD-		INSPECTORS: AMW, MCB
SOP NO.: 17		PUMP #: Marschaulk

'EATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES) — MONITORING

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	INSTRUMENT	READING (UNITS)
							OVM	instrument
								units
							(too humid - not used)	

WELL DIAMETER FACTORS

'IAMETER (INCHES):	1	1.5	2 (circled)	3	4	5	6	7	8	9	10
'ALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV. TURBIDITY	WELL DEV. pH	WELL DEV. SPEC COND
	10.50				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
		5.11			N/A

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/19/97	1130	This well was not purged nor sampled - The PVC was bent at approx. 5' depth and this obstructed the pump.							

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW-27
PROJECT: 2nd Qtr. Monitor. RI FIELD INVESTIGATION		DATE: 6/19/97
SWMU # (AREA) OB/OD	SEAD-	INSPECTORS: AMW, MCB
SOP NO.: 17		PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)							MONITORING	
DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	INSTRUMENT	READING (UNITS)

WELL DIAMETER FACTORS										
DIAMETER (INCHES):	1	1.5	(2)	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV TURBIDITY	WELL DEV. pH	WELL DEV. SPEC. COND
	15.46				
DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
		4.45		13.0	1648
RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)	—	PUMP AFTER SAMPLING (cps)	—	

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/19/97	1709	0.280	1.4	11.21	825	6.91	289	0.11	0.5
	1710	Sampled well.							

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW45-1
PROJECT: 2nd Qtr. Monitor RI FIELD INVESTIGATION		DATE: 6/17/97
SWMU # (AREA) 08/OD SEAD-		INSPECTORS: MCB, AMW
SOP NO.: 17		PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING READING (UNITS)
							OVM	~~PID~~ (OVM)
								instrument units
							(too humid -	OVM not used).

WELL DIAMETER FACTORS

DIAMETER (INCHES):	1	1.5	2	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV. TURBIDITY	WELL DEV pH	WELL DEV. SPEC. COND
	8.63				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
	N/A	7.96			N/A

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
	—			—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/17/97	1020	0.67 feet of water - well is dry.							

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW45-2
PROJECT: 2nd Qtr. Monitor. RI FIELD INVESTIGATION		DATE: 6/18/97
SWMU # (AREA) OB/OD	SEAD-	INSPECTORS: MCB, AMW
SOP NO.: 17		PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING READING (UNITS)
							OVM	instrument units
								(not used - too humid).

WELL DIAMETER FACTORS

DIAMETER (INCHES):	1	1.5	2	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV TURBIDITY	WELL DEV. pH	WELL DEV. SPEC. COND
	12.42				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
	N/A	10.11		12.0	1025 6/19/97 ~~1458~~ (aw)

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)	PUMP AFTER SAMPLING (cps)
	—	—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/19/97	1045	0.110	0.6	11.31	1438	6.75	333	6.84	2.9
	1048	Sampled well.							

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW45-3
PROJECT: 2nd Qtr. Monitor. RI FIELD INVESTIGATION		DATE: 6/18/97
SWMU # (AREA) OB/OD	SEAD-	INSPECTORS: MCB, AMW
SOP NO.: 17		PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS

MONITORING

INSTRUMENT	READING (UNITS)
OVM	instrument units
(not used - too humid)	

WELL DIAMETER FACTORS

DIAMETER (INCHES):	1	1.5	2	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV. TURBIDITY	WELL DEV pH	WELL DEV. SPEC. COND
	14.09				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
	N/A	7.04		12.0	1538

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
	—			—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/18/97	1558	0.220	1.1	12.05	1250	6.99	274	3.80	0.0
	1600	Sampled well.							

SAMPLING RECORD - GROUNDWATER

PARSONS ENGINEERING - SCIENCE, INC.	CLIENT: USACOE	WELL #: MW45-4
PROJECT: 2nd Qtr. Monitor. RI FIELD INVESTIGATION		DATE: 6-18-97
SWMU # (AREA) OB/OD	SEAD-	INSPECTORS: AMW, MCB
SOP NO.: 17		PUMP #:

WEATHER / FIELD CONDITIONS CHECKLIST (RECORD MAJOR CHANGES)

DATE	TIME (24 HR)	TEMP (APPRX)	WEATHER (APPRX)	REL. HUMIDITY (GEN)	WIND DIRECTION (0 - 360)	GROUND / SITE SURFACE CONDITIONS	MONITORING INSTRUMENT	MONITORING READING (UNITS)
							OVM	instrument units
								(not used - too humid)

WELL DIAMETER FACTORS

DIAMETER (INCHES):	1	1.5	2	3	4	5	6	7	8	9	10
GALLONS / FOOT:	0.041	0.092	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	5.87

STANDING WATER VOLUME = WELL DIAMETER FACTOR * WATER COLUMN

HISTORIC DATA	DEPTH POW (TOC)	DEPTH TOP OF SCREEN	WELL DEV. TURBIDITY	WELL DEV. pH	WELL DEV. SPEC. COND
	9.75				

DATA COLLECTED AT WELL SITE	PID READING (OPENING WELL)	STATIC WATER LEVEL	CALCULATED STANDING WATER VOL. (GAL)	DEPTH TO PUMP INTAKE (DEPTH TOS + 2 ft)	PUMPING START TIME
	N/A	7.26		8.5	1347

RADIATION SCREENING DATA	PUMP PRIOR TO SAMPLING (cps)		PUMP AFTER SAMPLING (cps)	
		—		—

MONITORING DATA COLLECTED DURING PURGING OPERATIONS

DATE	TIME (min)	PUMPING RATE (L/min)	CUMULATIVE VOL (GALLONS)	TEMPERATURE (C)	SPEC. COND (umhos)	pH	Eh	DISSOLVED OXYGEN	TURBIDITY (NTU)
6/18/97	1414	0.300	2.5	11.39	691	6.96	296	0.17	2.3
	1415	Sampled well							

2. Chain-of-Custody Forms

CHAIN-OF-CUSTODY RECORD

PAGE 1 OF 1

PARSONS
ENGINEERING-SCIENCE, INC.
Prudential Center
Boston, MA 02199
Phone: 617-859-2000
Fax: 617-859-2043

JOB NO. 730769-D1003
PROJECT June 1997 Quarterly - OB/OD
CONTACT Mike Duchesneau

LABORATORY ITS
ADDRESS 55 So. Park Dr. Colchester VT
CONTACT Chris Ouellette

SAMPLE NO.	LABORATORY SAMPLE NO.	SAMPLING DATE	SAMPLING TIME	SAMPLE DEPTH (ft)	SAMPLE MATRIX	ANALYSES: VOA	SVOC	METALS TAL	PEST/PCB	CN	HERB (8150)	pH	TOX	TOC	S.Cond	NO. OF CONTAINERS	COMMENTS (Special instructions, cautions, etc.)
OB108		6-18-97	1415	8.5	water			✓								1	MW45-4
OB112		6-18-97	1415	8.5	water							✓	✓	✓	✓	5	MW45-4
OB109		6-18-97	1415	8.5	water							✓	✓	✓	✓	5	MW45-4
OB111		6-18-97	1415	8.5	water							✓	✓	✓	✓	5	MW45-4
OB110		6-18-97	1415	8.5	water							✓	✓	✓	✓	5	MW45-4
OB114		6-18-97	0810	N/A	water			✓				✓	✓	✓	✓	6	Rinsate sample (MW
OB103		6-18-97	1600	12.0	water			✓								1	MW45-3
OB104		6-18-97	1600	12.0	water							✓	✓	✓	✓	5	MW45-3
OB105		6-18-97	1600	12.0	water							✓	✓	✓	✓	5	MW45-3
OB106		6-18-97	1600	12.0	water							✓	✓	✓	✓	5	MW45-3
OB107		6-18-97	1600	12.0	water							✓	✓	✓	✓	5	MW45-3
VOA Vial														X			
Glass Bottle												X	X				
Plastic Bottle								X							X		
Preservative								A D				A	A E	A E	A		
Container Volume								1 L				250 mL	250 mL	40 mL	125 mL		

Sampled and Relinquished by
Sign Annika Willis
Print Annika Willis
Firm ParsonsES
Date 6/20/97 Time 1800

Received by
Sign
Print
Firm
Date Time

Relinquished by
Sign
Print
Firm
Date Time

Received by
Sign
Print
Firm
Date Time

Evidence Samples tampered with? ☐ No ☐ Yes
If Yes, explain in remarks.

PRESERVATION KEY:
A - Ice
B - Filtered
C - Acidified with HCl
D - Acidified with HNO_3
E - Acidified with H_2SO_4
F - NaOH + Ascorbic
G - Other

REMARKS: (Sample storage, nonstandard sample bottles)

Blue Ice

Cooler #: 18

ESB - Form COC1 White - return with data Yellow - lab copy Pink - Sampler copy

Fed-ex tracking # 3234705132

CHAIN-OF-CUSTODY RECORD

PAGE 1 OF 1

PARSONS
ENGINEERING-SCIENCE, INC.
Prudential Center, Boston, MA 02199 — Phone: 617-859-2000, Fax: 617-859-2043

JOB NO. 7307169-01003
PROJECT SEDA - June 1997 Quarterly OB/OD
CONTACT Mike Duchesneau

LABORATORY ITS
ADDRESS 55 So. Park Dr. Colchester VT
CONTACT Chris Ouellette

SAMPLE NO.	LABORATORY SAMPLE NO.	SAMPLING DATE	SAMPLING TIME	SAMPLE DEPTH	SAMPLE MATRIX	ANALYSES: VOA	SVOC	METALS TAL	PEST/PCB	CN	HERB	Sp. pH	Sp. Cond	TOX	TOC	NO. OF CONTAINERS	COMMENTS (Special Instructions, cautions, etc.)
OB101		6-18-97	1048	11.5	water							✓	✓	✓	✓	5	MW45-2
OB089		6-19-97	1710	13.0	Water							✓	✓	✓	✓	5	MW-27
OB090		6-19-97	1710	13.0	water							✓	✓	✓	✓	5	MW-27
OB091		6-19-97	1710	13.0	Water							✓	✓	✓	✓	5	MW-27
OB092		6-19-97	1710	13.0	Water							✓	✓	✓	✓	5	MW-27
OB088		6-19-97	1710	13.0	water			✓								1	MW-27
OB100		6-18-97	1048	11.5	water							✓	✓	✓	✓	5	MW45-2
OB099		6-18-97	1048	11.5	water							✓	✓	✓	✓	5	MW45-2
OB102		6-18-97	1048	11.5	water							✓	✓	✓	✓	5	MW45-2
OB098		6-18-97	1048	11.5	water			✓								1	MW45-2

	VOA	SVOC	METALS TAL	PEST/PCB	CN	HERB	Sp. pH	Sp. Cond	TOX	TOC
VOA Vial										X
Glass Bottle							X	X	X	
Plastic Bottle			X							
Preservative			A D				A	A	A E	A E
Container Volume			1 L				250 mL	125 mL	250 mL	40 mL

PRESERVATION KEY: A - Ice; B - Filtered; C - Acidified with HCl; D - Acidified with HNO_3; E - Acidified with H_2SO_4; F - NaOH + Ascorbic; G - Other

Sampled and Relinquished by
Sign Annika Willis
Print Annika Willis
Firm Parsons ES
Date 6/20/97 Time 1900

Received by
Sign
Print
Firm
Date Time

Relinquished by
Sign
Print
Firm
Date Time

Received by
Sign
Print
Firm
Date Time

Evidence Samples tampered with? ☐ No ☐ Yes
If Yes, explain in remarks.

REMARKS: (Sample storage, nonstandard sample bottles)

Cooler #: 150

ESB - Form COC1 White - return with data Yellow - lab copy Pink - Sampler copy

Fed-ex tracking # 3234705132

CHAIN-OF-CUSTODY RECORD

PAGE 1 OF 1

PARSONS
ENGINEERING-SCIENCE, INC.
Prudential Center
Boston, MA 02199
Phone: 617-859-2000
Fax: 617-859-2043

JOB NO. 730769-01003
PROJECT June 1997 Quarterly – SEDA OB/OD
CONTACT Mike Duchesneau

LABORATORY ITS
ADDRESS 55 So Park Drive, Colchester VT
CONTACT Chris Ouellette

SAMPLE NO.	LABORATORY SAMPLE NO.	SAMPLING DATE	SAMPLING TIME	SAMPLE DEPTH (ft)	SAMPLE MATRIX	ANALYSES: VOA	SVOC	METALS TAL	PEST/PCB	CN	HERB	pH	S. Cond	TOX	TOC	NO. OF CONTAINERS	COMMENTS (Special instructions, cautions, etc.)
OBØ74		6-19-97	1605	7.0	water							✓	✓	✓	✓	5	MW-12
OBØ75		6-19-97	1605	7.0	water							✓	✓	✓	✓	5	MW-12
OBØ76		6-19-97	1605	7.0	water							✓	✓	✓	✓	5	MW-12
OBØ77		6-19-97	1605	7.0	water							✓	✓	✓	✓	5	MW-12
OBØ73		6-19-97	1605	7.0	water			✓								1	MW-12
OBØ8Ø		6-19-97	1220	8.0	water							✓	✓	✓	✓	5	MW-13
OBØ82		6-19-97	1220	8.0	water							✓	✓	✓	✓	5	MW-13
OBØ81		6-19-97	1220	8.0	water							✓	✓	✓	✓	5	MW-13
OBØ79		6-19-97	1220	8.0	water							✓	✓	✓	✓	5	MW-13
OB113		6-19-97	1605	7.0	water			✓								1	dup of MW-12
OBØ78		6-19-97	1220	8.0	water			✓								1	MW-13

Sampled and Relinquished by
Sign Annika Willis
Print Annika Willis
Firm Parsons-ES
Date 6/20/97 Time 1830

Received by
Sign
Print
Firm
Date Time

Relinquished by
Sign
Print
Firm
Date Time

Received by
Sign
Print
Firm
Date Time

Evidence Samples tampered with? ☐ No ☐ Yes
If Yes, explain in remarks.

	VOA	SVOC	METALS	PEST/PCB	CN	HERB	pH	S. Cond	TOX	TOC
VOA Vial										X
Glass Bottle							X		X	
Plastic Bottle			X					X		
Preservative			A D				A	A	A E	A E
Container Volume			1 L				250 ML	125 mL	250 mL	40 mL

PRESERVATION KEY:
A - Ice
B - Filtered
C - Acidified with HCl
D - Acidified with HNO_3
E - Acidified with H_2SO_4
F - NaOH + Ascorbic
G - Other

REMARKS: (Sample storage, nonstandard sample bottles)

Cooler #: 13

ESB - Form COC1 White - return with data Yellow - lab copy Pink - Sampler copy

Fed-ex tracking # 323470513 2

CHAIN-OF-CUSTODY RECORD

PAGE 1 OF 1

PARSONS
ENGINEERING-SCIENCE, INC.
Prudential Center
Boston, MA 02199
Phone: 617-859-2000
Fax: 617-859-2043

JOB NO. 730769-01003
PROJECT June 1997 Quarterly - SEDA OB/OD
CONTACT Mike Duchesneau

LABORATORY MRD
ADDRESS 480 S. 18th St. Omaha, NB
CONTACT Laura Percifield

SAMPLE NO.	LABORATORY SAMPLE NO.	SAMPLING DATE	SAMPLING TIME	SAMPLE DEPTH	SAMPLE MATRIX	ANALYSES: VOA	SVOC	METALS TAL	PEST/PCB	TOC	HERB	TPH	TOX	pH	Sp. Cond.	NO. OF CONTAINERS	COMMENTS (Special instructions, cautions, etc.)
OB114MRD		6-19-97	0810	N/A	water			✓		✓			✓	✓	✓	6	Rinsate Sample
OB073MRD		6-19-97	1605	7.0'	water			✓		✓			✓	✓	✓	6	

Sampled and Relinquished by
Sign Annika Willis
Print Annika Willis
Firm Parsons ES
Date 6/20/97 Time 1700

Received by
Sign
Print
Firm
Date Time

Relinquished by
Sign
Print
Firm
Date Time

Received by
Sign
Print
Firm
Date Time

Evidence Samples tampered with? ☐ No ☐ Yes
If Yes, explain in remarks.

	VOA	SVOC	METALS TAL	PEST/PCB	TOC	HERB	TPH	TOX	pH	Sp. Cond.
VOA Vial					X					
Glass Bottle								X	X	
Plastic Bottle			X							X
Preservative			A D		A E			F A	A	A
Container Volume			1 L		40 mL			250 mL	250 mL	125 mL

PRESERVATION KEY: C - Acidified with HCl; F - NaOH + Ascorbic; A - Ice; D - Acidified with HNO_3; G - Other; B - Filtered; E - Acidified with H_2SO_4

REMARKS: (Sample storage, nonstandard sample bottles)

Please return cooler.
To:
Parsons ES c/o SEDA
BLDG 323
Romulus, NY
14541-5001

Cooler #: 15

ESB - Form COC1 White - return with data Yellow - lab copy Pink - Sampler copy

Fed-ex Tracking # 3234705180

APPENDIX B

Laboratory Analytical Packages with QA/QC Data

1. Sample Delivery Group No. 65479

   A. Indicator Analysis Results
   B. TAL Metals Analysis

1. Sample Delivery Group No. 65479

ITS **Intertek Testing Services**
Environmental Laboratories

SAMPLE DATA SUMMARY PACKAGE

CONTRACT: 93206
CASE NO: QBASH
SDG NO: 65479

ITS Intertek Testing Services
Environmental Laboratories

July 29, 1997

Mr. Mike Duchesneau
Parsons Engineering Science
Prudential Center
Boston, MA 02199

Re: Laboratory Project No. 93206
Case No. 93206; SDG 65479

Dear Mr. Duchesneau:

Enclosed are the analytical results of samples received intact by ITS Environmental Laboratories (Burlington) on June 21, 1997. Laboratory numbers have been assigned to these samples and are designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 06/21/97	ETR No: 65479	
334046	OB108	06/18/97	Water
334047	OB112	06/18/97	Water
334048	OB109	06/18/97	Water
334049	OB111	06/18/97	Water
334050	OB110	06/18/97	Water
334051	OB114	06/18/97	Water
334052	OB103	06/18/97	Water
334053	OB104	06/18/97	Water
334054	OB105	06/18/97	Water
334055	OB106	06/18/97	Water
334056	OB107	06/18/97	Water
334057	OB074	06/19/97	Water
334058	OB075	06/19/97	Water
334059	OB076	06/19/97	Water
334060	OB077	06/19/97	Water
334061	OB073	06/19/97	Water
334062	OB080	06/19/97	Water
334063	OB082	06/19/97	Water
334064	OB081	06/19/97	Water
334065	OB079	06/19/97	Water

Intertek Testing Services NA Inc.
55 South Park Drive Colchester, VT 05446
Telephone (802) 655-1203 Fax (802) 655-1248

001

334066	OB113	06/19/97	Water
334067	OB078	06/19/97	Water

Lab ID	Client Sample ID	Sample Date	Sample Matrix

Received: 06/21/97 ETR No: 65479 (Continued)

334068	OB101	06/19/97	Water
334069	OB089	06/19/97	Water
334070	OB090	06/19/97	Water
334071	OB091	06/19/97	Water
334072	OB092	06/19/97	Water
334073	OB088	06/19/97	Water
334074	OB100	06/19/97	Water
334075	OB099	06/19/97	Water
334076	OB102	06/19/97	Water
334077	OB098	06/19/97	Water

Samples in this sample delivery group were analyzed for TAL Metals following the USEPA Contract Laboratory Program (CLP) Statement Of Work ILM02 and for Inorganic Wet Chemistry Parameters following the Test Methods for Evaluating Solid Waste Physical / Chemical Methods - SW846.

For the benefit of interested parties, documentation of sample handling and preparation is included at the end of the "Sample Data Package." Colored sheets of paper entitled "Sample Preparation" and "Sample Handling" have been used to explicitly mark the location of these documents.

If there are any questions regarding this submittal, please contact Christopher A. Ouellette at (802) 655-1203.

Sincerely,

Deborah A. Loring
Laboratory Manager

DAL/cga
Enclosure

002

ITS Intertek Testing Services
Environmental Laboratories

55 South Park Drive
Colchester, VT 05446

Analytical Report

Parsons Engineering Science
Prudential Center
Boston, MA 02199

Attention : Mike Duchesneau

Date : 07/29/97
ETR Number : 65479
Project No.: 93206
No. Samples: 33
Arrived : 06/21/97
P.O. Number: *

Case:OBASH SDG:65479

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater.
All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
334047	OB112:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	654
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.21
9060	Total Organic Carbon	1.6
334048	OB109:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	670
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.22
9060	Total Organic Carbon	1.1
334049	OB111:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	679
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.25
9060	Total Organic Carbon	1.1
334050	OB110:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	677
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.26
9060	Total Organic Carbon	1.0
334051	OB114:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	1.22
9020	Total Organic Halides	<0.02
9040	pH (std. units)	6.89
9060	Total Organic Carbon	<0.5

< Cont. Next Page >

ITS Intertek Testing Services
Environmental Laboratories

55 South Park Drive
Colchester, VT 05446

Analytical Report

Parsons Engineering Science
Prudential Center
Boston, MA 02199

Attention : Mike Duchesneau

Date : 07/29/97
ETR Number : 65479
Project No.: 93206
No. Samples: 33
Arrived : 06/21/97
P.O. Number: *

Case:OBASH SDG:65479

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater.
All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
334053	OB104:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	1352
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.58
9060	Total Organic Carbon	1.0
334054	OB105:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	1229
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.26
9060	Total Organic Carbon	0.9
334055	OB106:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	1233
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.45
9060	Total Organic Carbon	0.9
334056	OB107:06/18/97 (Water)	
9050	Conductivity (umhos/cm)	1243
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.41
9060	Total Organic Carbon	0.8
334057	OB074:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	785
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.37
9060	Total Organic Carbon	1.3

< Cont. Next Page >

ITS Intertek Testing Services
Environmental Laboratories

55 South Park Drive
Colchester, VT 05446

Analytical Report

Parsons Engineering Science
Prudential Center
Boston, MA 02199

Attention : Mike Duchesneau

Date : 07/29/97
ETR Number : 65479
Project No.: 93206
No. Samples: 33
Arrived : 06/21/97
P.O. Number: *

Case:OBASH SDG:65479

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater.
All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
334058	OB075:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	782
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.36
9060	Total Organic Carbon	1.3
334059	OB076:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	782
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.36
9060	Total Organic Carbon	1.3
334060	OB077:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	784
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.33
9060	Total Organic Carbon	1.4
334062	OB080:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	826
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.04
9060	Total Organic Carbon	1.5
334063	OB082:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	827
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.02
9060	Total Organic Carbon	1.6

< Cont. Next Page >

ITS Intertek Testing Services
Environmental Laboratories

55 South Park Drive
Colchester, VT 05446

Analytical Report

Parsons Engineering Science
Prudential Center
Boston, MA 02199

Attention : Mike Duchesneau

Date : 07/29/97
ETR Number : 65479
Project No.: 93206
No. Samples: 33
Arrived : 06/21/97
P.O. Number: *

Case:OBASH SDG:65479

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater.
All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
334064	OB081:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	827
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.01
9060	Total Organic Carbon	1.6
334065	OB079:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	821
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.01
9060	Total Organic Carbon	1.5
334068	OB101:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	1366
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.18
9060	Total Organic Carbon	1.4
334069	OB089:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	790
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.32
9060	Total Organic Carbon	1.1
334070	OB090:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	787
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.32
9060	Total Organic Carbon	1.2

< Cont. Next Page >

ITS Intertek Testing Services
Environmental Laboratories

55 South Park Drive
Colchester, VT 05446

Analytical Report

Parsons Engineering Science
Prudential Center
Boston, MA 02199

Attention : Mike Duchesneau

Date : 07/29/97
ETR Number : 65479
Project No.: 93206
No. Samples: 33
Arrived : 06/21/97
P.O. Number: *

Case:OBASH SDG:65479

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater.
All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
334071	OB091:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	789
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.31
9060	Total Organic Carbon	1.1
334072	OB092:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	790
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.35
9060	Total Organic Carbon	1.1
334074	OB100:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	1377
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.09
9060	Total Organic Carbon	1.1
334075	OB099:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	1383
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.08
9060	Total Organic Carbon	1.1
334076	OB102:06/19/97 (Water)	
9050	Conductivity (umhos/cm)	1378
9020	Total Organic Halides	<0.02
9040	pH (std. units)	7.31
9060	Total Organic Carbon	1.1

< Last Page > Submitted By : Aquatec Inc.

Quality Control Summary

ETR No: 65479
Project No: 93206
SDG No: 65479
Units: mg/L

Parameter	Date Analyzed	Method Preparation Blank	Laboratory Control Sample		
			Reported Value	True Value	Percent Recovery
Conductivity (umhos/cm)	7/14/97	NA	147	147	100.0
pH (Std Units)	6/21/97	NA	5.96	6.00	99.3
Total Organic Carbon	6/23/97	< 0.5	67.9	66.2	102.6
Total Organic Halides	7/8/97	< 0.02	0.102	0.1	102.0

Reviewed By:
Date:

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH SAS No.: _____ SDG No.:65479_

No.: ILM02.1

EPA Sample No.	Lab Sample ID
_OB073_____	_334061_____
_OB078_____	_334067_____
_OB088_____	_334073_____
_OB098_____	_334077_____
_OB103_____	_334052_____
_OB108_____	_334046_____
_OB113_____	_334066_____
_OB114_____	_334051_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

e ICP interelement corrections applied ? Yes/No YES

e ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before
application of background corrections ? Yes/No NO_

ments:

_____
_____
_____
_____

ertify that this data package is in compliance with the terms and
ditions of the contract, both technically and for completeness, for
er than the conditions detailed above. Release of the data contained
this hardcopy data package and in the computer-readable data submitted
floppy diskette has been authorized by the Laboratory Manager or the
ager's designee, as verified by the following signature.

nature: _____ Name: _____

e: _____ Title: _____

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB073

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

rix (soil/water): WATER Lab Sample ID: 334061

el (low/med): LOW__ Date Received: 06/21/97

olids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.8	U		P
7440-36-0	Antimony	2.8	U		P
7440-38-2	Arsenic	3.6	U		P
7440-39-3	Barium	92.8	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.40	U		P
7440-70-2	Calcium	75000			P
7440-47-3	Chromium	1.3	U		P
7440-48-4	Cobalt	1.4	U		P
7440-50-8	Copper	1.2	U		P
7439-89-6	Iron	50.0	B		P
7439-92-1	Lead	2.0	U		P
7439-95-4	Magnesium	58400			P
7439-96-5	Manganese	0.56	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	1.6	U		P
7440-09-7	Potassium	8920			P
7782-49-2	Selenium	3.9	B		P
7440-22-4	Silver	0.60	U		P
7440-23-5	Sodium	13500			P
7440-28-0	Thallium	4.0	U		P
7440-62-2	Vanadium	1.2	U		P
7440-66-6	Zinc	4.2	B		P
	Cyanide				NR

or Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

or After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ments:

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB078

Name: ITS_ENVIRONMENTAL Contract: 93206

Code: INCHVT Case No.: OBASH SAS No.: SDG No.: 65479

rix (soil/water): WATER Lab Sample ID: 334067

el (low/med): LOW Date Received: 06/21/97

olids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.8	U		P
7440-36-0	Antimony	2.8	U		P
7440-38-2	Arsenic	3.6	U		P
7440-39-3	Barium	80.3	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.40	U		P
7440-70-2	Calcium	142000			P
7440-47-3	Chromium	1.3	U		P
7440-48-4	Cobalt	1.4	U		P
7440-50-8	Copper	1.2	U		P
7439-89-6	Iron	31.6	B		P
7439-92-1	Lead	2.0	U		P
7439-95-4	Magnesium	27200			P
7439-96-5	Manganese	11.8	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	1.6	U		P
7440-09-7	Potassium	1480	B		P
7782-49-2	Selenium	6.2			P
7440-22-4	Silver	0.60	U		P
7440-23-5	Sodium	15600			P
7440-28-0	Thallium	4.0	U		P
7440-62-2	Vanadium	1.2	U		P
7440-66-6	Zinc	32.8			P
	Cyanide				NR

or Before: COLORLESS Clarity Before: CLEAR Texture:

or After: COLORLESS Clarity After: CLEAR Artifacts:

ments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB088

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

rix (soil/water): WATER Lab Sample ID: 334073

el (low/med): LOW__ Date Received: 06/21/97

olids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	36.8	U		P_
7440-36-0	Antimony_	2.8	U		P_
7440-38-2	Arsenic__	3.6	U		P_
7440-39-3	Barium___	89.4	B		P_
7440-41-7	Beryllium	0.20	U		P_
7440-43-9	Cadmium__	0.40	U		P_
7440-70-2	Calcium__	91400			P_
7440-47-3	Chromium_	1.3	U		P_
7440-48-4	Cobalt___	1.4	U		P_
7440-50-8	Copper___	1.2	U		P_
7439-89-6	Iron_____	26.0	U		P_
7439-92-1	Lead_____	2.0	U		P_
7439-95-4	Magnesium	52700			P_
7439-96-5	Manganese	75.1			P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	1.6	U		P_
7440-09-7	Potassium	7320			P_
7782-49-2	Selenium_	3.1	U		P_
7440-22-4	Silver___	0.60	U		P_
7440-23-5	Sodium___	13100			P_
7440-28-0	Thallium_	4.0	U		P_
7440-62-2	Vanadium_	1.2	U		P_
7440-66-6	Zinc_____	4.2	B		P_
_____	Cyanide__	_____			NR
_____	_____	_____			___

or Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

or After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ments:

_____

_____

_____

_____

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB098

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

rix (soil/water): WATER Lab Sample ID: 334077

el (low/med): LOW__ Date Received: 06/21/97

olids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	36.8	U		P_
7440-36-0	Antimony_	2.8	U		P_
7440-38-2	Arsenic__	3.6	U		P_
7440-39-3	Barium___	22.9	B		P_
7440-41-7	Beryllium	0.20	U		P_
7440-43-9	Cadmium__	0.40	U		P_
7440-70-2	Calcium__	237000			P_
7440-47-3	Chromium_	1.3	U		P_
7440-48-4	Cobalt___	1.4	U		P_
7440-50-8	Copper___	1.3	B		P_
7439-89-6	Iron_____	26.0	U		P_
7439-92-1	Lead_____	2.0	U		P_
7439-95-4	Magnesium	54100			P_
7439-96-5	Manganese	0.30	U		P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	1.9	B		P_
7440-09-7	Potassium	3180	B		P_
7782-49-2	Selenium_	3.1	U		P_
7440-22-4	Silver___	0.60	U		P_
7440-23-5	Sodium___	34100			P_
7440-28-0	Thallium_	4.0	U		P_
7440-62-2	Vanadium_	1.2	U		P_
7440-66-6	Zinc_____	7.8	B		P_
_____	Cyanide__				NR
_____	_____				__

lor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

lor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

mments:

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB103

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

rix (soil/water): WATER Lab Sample ID: 334052

el (low/med): LOW__ Date Received: 06/21/97

olids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	36.8	U		P_
7440-36-0	Antimony_	2.8	U		P_
7440-38-2	Arsenic__	3.6	U		P_
7440-39-3	Barium___	17.6	B		P_
7440-41-7	Beryllium	0.20	U		P_
7440-43-9	Cadmium__	0.40	U		P_
7440-70-2	Calcium__	188000			P_
7440-47-3	Chromium_	1.3	U		P_
7440-48-4	Cobalt___	1.4	U		P_
7440-50-8	Copper___	1.2	U		P_
7439-89-6	Iron_____	27.8	B		P_
7439-92-1	Lead_____	2.0	U		P_
7439-95-4	Magnesium	66700			P_
7439-96-5	Manganese	5.7	B		P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	2.5	B		P_
7440-09-7	Potassium	5890			P_
7782-49-2	Selenium_	3.1	U		P_
7440-22-4	Silver___	0.60	U		P_
7440-23-5	Sodium___	19100			P_
7440-28-0	Thallium_	4.0	U		P_
7440-62-2	Vanadium_	1.2	U		P_
7440-66-6	Zinc_____	10.8	B		P_
_____	Cyanide__	_____	_		NR
_____	_____	_____	_		__

or Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

or After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

ments:

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB108

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

trix (soil/water): WATER Lab Sample ID: 334046

vel (low/med): LOW__ Date Received: 06/21/97

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	36.8	U		P_
7440-36-0	Antimony_	2.8	U		P_
7440-38-2	Arsenic__	3.6	U		P_
7440-39-3	Barium___	23.4	B		P_
7440-41-7	Beryllium	0.20	U		P_
7440-43-9	Cadmium__	0.40	U		P_
7440-70-2	Calcium__	112000			P_
7440-47-3	Chromium_	1.3	U		P_
7440-48-4	Cobalt___	1.4	U		P_
7440-50-8	Copper___	1.5	B		P_
7439-89-6	Iron_____	62.8	B		P_
7439-92-1	Lead_____	2.0	U		P_
7439-95-4	Magnesium	24200			P_
7439-96-5	Manganese	5.0	B		P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	2.2	B		P_
7440-09-7	Potassium	2180	B		P_
7782-49-2	Selenium_	3.1	U		P_
7440-22-4	Silver___	0.98	B		P_
7440-23-5	Sodium___	10600			P_
7440-28-0	Thallium_	4.0	U		P_
7440-62-2	Vanadium_	1.2	U		P_
7440-66-6	Zinc_____	6.8	B		P_
_____	Cyanide__	_____	_	_____	NR
_____	_____	_____	_	_____	__

lor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

lor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

mments:

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB113

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

Matrix (soil/water): WATER Lab Sample ID: 334066

Level (low/med): LOW__ Date Received: 06/21/97

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	36.8	U		P_
7440-36-0	Antimony_	2.8	U		P_
7440-38-2	Arsenic__	3.6	U		P_
7440-39-3	Barium___	96.3	B		P_
7440-41-7	Beryllium	0.20	U		P_
7440-43-9	Cadmium__	0.40	U		P_
7440-70-2	Calcium__	77800			P_
7440-47-3	Chromium_	1.3	U		P_
7440-48-4	Cobalt___	1.4	U		P_
7440-50-8	Copper___	1.7	B		P_
7439-89-6	Iron_____	55.3	B		P_
7439-92-1	Lead_____	2.0	U		P_
7439-95-4	Magnesium	60400			P_
7439-96-5	Manganese	0.42	B		P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	1.6	U		P_
7440-09-7	Potassium	9280			P_
7782-49-2	Selenium_	3.9	B		P_
7440-22-4	Silver___	0.60	U		P_
7440-23-5	Sodium___	14200			P_
7440-28-0	Thallium_	4.0	U		P_
7440-62-2	Vanadium_	1.2	U		P_
7440-66-6	Zinc_____	3.5	B		P_
_____	Cyanide__	_____	_	_____	NR
_____	_____	_____	_	_____	__

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

OB114

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

trix (soil/water): WATER Lab Sample ID: 334051

vel (low/med): LOW__ Date Received: 06/21/97

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.8	U		P
7440-36-0	Antimony	2.8	U		P
7440-38-2	Arsenic	3.6	U		P
7440-39-3	Barium	3.0	U		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.40	U		P
7440-70-2	Calcium	145	U		P
7440-47-3	Chromium	1.3	U		P
7440-48-4	Cobalt	1.4	U		P
7440-50-8	Copper	1.2	U		P
7439-89-6	Iron	26.0	U		P
7439-92-1	Lead	2.0	U		P
7439-95-4	Magnesium	114	U		P
7439-96-5	Manganese	0.30	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	1.6	U		P
7440-09-7	Potassium	305	U		P
7782-49-2	Selenium	3.1	U		P
7440-22-4	Silver	0.60	U		P
7440-23-5	Sodium	1230	B		P
7440-28-0	Thallium	4.0	U		P
7440-62-2	Vanadium	1.2	U		P
7440-66-6	Zinc	22.6			P
	Cyanide				NR

lor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

lor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

mments:

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

itial Calibration Source: VENTURES____

ntinuing Calibration Source: SPEX_____

Concentration Units: ug/L

nalyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
luminum	26000.0	24840.00	95.5	30200.0	30050.00	99.5	30130.00	99.8	P
ntimony	250.0	254.30	101.7	300.0	316.90	105.6	316.30	105.4	P
rsenic	250.0	236.30	94.5	100.0	99.33	99.3	102.20	102.2	P
arium	500.0	501.80	100.4	200.0	201.70	100.8	203.10	101.6	P
eryllium	500.0	506.80	101.4	100.0	99.48	99.5	100.50	100.5	P
admium	500.0	498.10	99.6	100.0	97.56	97.6	98.57	98.6	P
alcium	25000.0	23870.00	95.5	30200.0	30100.00	99.7	30290.00	100.3	P
hromium	500.0	502.70	100.5	200.0	199.60	99.8	200.90	100.4	P
obalt	500.0	496.10	99.2	200.0	198.40	99.2	200.10	100.0	P
opper	500.0	510.80	102.2	200.0	202.20	101.1	203.90	102.0	P
ron	25500.0	24470.00	96.0	30200.0	30200.00	100.0	30410.00	100.7	P
ead	1000.0	1027.00	102.7	400.0	407.30	101.8	408.80	102.2	P
agnesium	25000.0	23710.00	94.8	30200.0	30070.00	99.6	30290.00	100.3	P
anganese	500.0	496.90	99.4	200.0	198.90	99.4	200.60	100.3	P
ercury	1.8	1.72	95.6	5.0	4.94	98.8	4.70	94.0	CV
ickel	500.0	506.40	101.3	200.0	198.50	99.2	198.50	99.2	P
otassium	25000.0	24260.00	97.0	30200.0	30340.00	100.5	30570.00	101.2	P
elenium	250.0	247.70	99.1	100.0	103.30	103.3	102.00	102.0	P
ilver	500.0	473.30	94.7	100.0	101.10	101.1	102.00	102.0	P
odium	25000.0	22940.00	91.8	30200.0	29050.00	96.2	29380.00	97.3	P
hallium	250.0	241.20	96.5	100.0	105.70	105.7	100.90	100.9	P
anadium	500.0	511.00	102.2	200.0	199.80	99.9	201.90	101.0	P
inc	500.0	504.80	101.0	200.0	205.70	102.8	206.50	103.2	P
yanide									NR

) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

ɔ Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

ɔ Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

itial Calibration Source: VENTURES____

ntinuing Calibration Source: SPEX_____

Concentration Units: ug/L

nalyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
luminum_				30200.0	30240.00	100.1			P_
ntimony_				300.0	313.00	104.3			P_
rsenic__				100.0	98.50	98.5			P_
arium___				200.0	203.20	101.6			P_
eryllium				100.0	100.30	100.3			P_
admium__				100.0	98.26	98.3			P_
alcium__				30200.0	30320.00	100.4			P_
hromium_				200.0	200.50	100.2			P_
obalt___				200.0	198.90	99.4			P_
opper___				200.0	203.30	101.6			P_
ron_____				30200.0	30340.00	100.5			P_
ead_____				400.0	409.80	102.4			P_
agnesium				30200.0	30200.00	100.0			P_
anganese				200.0	200.10	100.0			P_
ercury__				5.0	4.62	92.4	4.44	88.8	CV
ickel___				200.0	198.60	99.3			P_
otassium				30200.0	30520.00	101.1			P_
elenium_				100.0	101.50	101.5			P_
ilver___				100.0	101.80	101.8			P_
odium___				30200.0	29350.00	97.2			P_
hallium_				100.0	97.04	97.0			P_
anadium_				200.0	201.90	101.0			P_
inc_____				200.0	206.60	103.3			P_
yanide__									NR

) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

ɔ Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

ɔ Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

CRDL Standard Source: VENTURES____

P CRDL Standard Source: VENTURES____

Concentration Units: ug/L

	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
nalyte	True	Found	%R	True	Found	%R	Found	%R
luminum_				4000.0	4036.00	100.9	4041.00	101.0
ntimony_				120.0	122.20	101.8	123.80	103.2
rsenic__				20.0	18.04	90.2	18.90	94.5
arium___				400.0	390.20	97.6	390.70	97.7
eryllium				10.0	9.99	99.9	9.99	99.9
admium__				10.0	9.58	95.8	9.78	97.8
alcium__				10000.0	10060.00	100.6	10130.00	101.3
hromium_				20.0	20.79	104.0	20.96	104.8
ɔbalt___				100.0	98.93	98.9	99.19	99.2
ɔpper___				50.0	51.20	102.4	50.97	101.9
ron_____				200.0	196.40	98.2	214.20	107.1
ead_____				6.0	5.05	84.2	5.74	95.7
agnesium				10000.0	9808.00	98.1	9846.00	98.5
anganese				30.0	29.76	99.2	29.72	99.1
ercury__	0.2	0.15	75.0					
ickel___				80.0	79.38	99.2	79.10	98.9
ɔtassium				10000.0	10030.00	100.3	10150.00	101.5
elenium_				10.0	13.15	131.5	13.95	139.5
ilver___				20.0	19.67	98.4	20.55	102.8
ɔdium___				10000.0	9514.00	95.1	9487.00	94.9
ıallium_				20.0	19.54	97.7	17.81	89.0
anadium_				100.0	102.20	102.2	101.50	101.5
inc_____				40.0	41.67	104.2	41.73	104.3

3
BLANKS

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

eparation Blank Matrix (soil/water): WATER

eparation Blank Concentration Units (ug/L or mg/kg): UG/L_

nalyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
luminum_	36.8	U	36.8	U	36.8	U	36.8	U	36.800	U	P
ntimony_	2.8	U	2.8	U	2.8	U	2.8	U	-5.181	B	P
rsenic__	3.6	U	-4.6	B	3.6	U	3.6	U	3.600	U	P
arium___	3.0	U	3.0	U	3.0	U	3.0	U	3.000	U	P
eryllium	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	P
admium__	0.4	U	0.4	U	0.4	U	0.4	U	0.400	U	P
alcium__	145.0	U	145.0	U	145.0	U	145.0	U	145.000	U	P
hromium_	1.3	U	1.3	U	1.3	U	1.3	U	1.300	U	P
obalt___	1.4	U	1.4	U	1.4	U	1.4	U	1.400	U	P
opper___	1.2	U	1.2	U	1.2	U	1.2	U	1.200	U	P
ron_____	26.0	U	26.0	U	26.0	U	26.0	U	26.000	U	P
ead_____	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
agnesium	114.0	U	114.0	U	114.0	U	114.0	U	114.000	U	P
anganese	0.3	U	0.3	U	0.3	U	0.3	U	0.300	U	P
ercury__	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV
ickel___	1.6	U	1.6	U	1.6	U	1.6	U	1.600	U	P
otassium	305.0	U	305.0	U	305.0	U	305.0	U	305.000	U	P
elenium_	3.1	U	3.1	U	3.1	U	3.1	U	3.100	U	P
ilver___	0.6	U	0.6	U	0.8	B	0.7	B	0.600	U	P
odium___	336.0	U	433.1	B	336.0	U	336.0	U	336.000	U	P
hallium_	4.3	B	4.0	U	4.0	U	4.0	U	4.000	U	P
anadium_	1.2	U	1.2	U	1.2	U	1.2	U	1.200	U	P
inc_____	1.2	U	1.2	U	1.2	U	1.2	U	1.200	U	P
yanide__											NR

3
BLANKS

o Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

o Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

eparation Blank Matrix (soil/water): _____

eparation Blank Concentration Units (ug/L or mg/kg): _____

nalyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
luminum											NR
ntimony											NR
rsenic											NR
arium											NR
eryllium											NR
admium											NR
alcium											NR
hromium											NR
obalt											NR
opper											NR
ron											NR
ead											NR
agnesium											NR
anganese											NR
ercury			0.2	U							CV
ickel											NR
otassium											NR
elenium											NR
ilver											NR
odium											NR
hallium											NR
anadium											NR
inc											NR
yanide											NR

U.S. EPA - CLP

4
ICP INTERFERENCE CHECK SAMPLE

o Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No: _____ SDG No.: 65479_

P ID Number: ICP4 TJA 61E ICS Source: VENTURES____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum		534300		502300.0	94.0		505200.0	94.6
Antimony		640		637.4	99.6		636.9	99.5
Arsenic		102		103.7	101.7		102.1	100.1
Barium		533		509.3	95.6		513.3	96.3
Beryllium		514		485.8	94.5		490.3	95.4
Cadmium		998		945.1	94.7		952.0	95.4
Calcium		560360		508800.0	90.8		513900.0	91.7
Chromium		507		484.6	95.6		487.4	96.1
Cobalt		499		471.4	94.5		473.7	94.9
Copper		561		533.2	95.0		536.8	95.7
Iron		208280		193500.0	92.9		194500.0	93.4
Lead		50		53.5	107.0		53.0	106.0
Magnesium		562900		513900.0	91.3		517300.0	91.9
Manganese		507		482.1	95.1		485.4	95.7
Mercury								
Nickel		1008		963.1	95.5		969.8	96.2
Potassium		0		36.4			86.3	
Selenium		50		48.2	96.4		50.5	101.0
Silver		224		208.1	92.9		209.0	93.3
Sodium		0		106.2			136.0	
Thallium		107		105.1	98.2		94.2	88.0
Vanadium		511		489.3	95.8		493.2	96.5
Zinc		1076		1016.0	94.4		1020.0	94.8

7
LABORATORY CONTROL SAMPLE

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

lid LCS Source: _____

ueous LCS Source: VENTURES____

nalyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
luminum_	51000.0	49440.00	96.9						
ntimony_	2000.0	2030.00	101.5						
rsenic__	1050.0	1039.00	99.0						
arium___	500.0	485.80	97.2						
eryllium	500.0	490.40	98.1						
admium__	525.0	501.90	95.6						
alcium__	50000.0	48230.00	96.5						
hromium_	500.0	484.50	96.9						
obalt___	500.0	476.10	95.2						
opper___	500.0	496.50	99.3						
ron_____	50500.0	48390.00	95.8						
ead_____	1015.0	999.80	98.5						
agnesium	50000.0	47970.00	95.9						
anganese	500.0	478.40	95.7						
ercury__	1.0	0.92	91.6						
ickel___	500.0	487.20	97.4						
otassium	50000.0	48290.00	96.6						
elenium_	525.0	527.20	100.4						
ilver___	500.0	457.00	91.4						
odium___	50000.0	47720.00	95.4						
hallium_	550.0	541.90	98.5						
anadium_	500.0	487.60	97.5						
inc_____	500.0	490.70	98.1						
yanide__									

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

b Name: ITS_ENVIRONMENTAL________   Contract:93206_____

b Code: INCHVT   Case No.:   OBASH_   SAS No.:______   SDG No.:65479_

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

9
ICP SERIAL DILUTION

EPA SAMPLE NO.
OB108L

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

trix (soil/water): WATER Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	36.80	U	184.00	U			P
Antimony	2.80	U	14.00	U			P
Arsenic	3.60	U	20.13	B			P
Barium	23.39	B	15.00	U	100.0		P
Beryllium	0.20	U	1.00	U			P
Cadmium	0.40	U	2.00	U			P
Calcium	111900.00		114200.00		2.1		P
Chromium	1.30	U	6.50	U			P
Cobalt	1.40	U	7.00	U			P
Copper	1.50	B	6.00	U	100.0		P
Iron	62.76	B	130.00	U	100.0		P
Lead	2.00	U	18.25				P
Magnesium	24240.00		24680.00	B	1.8		P
Manganese	4.95	B	1.50	U	100.0		P
Mercury							NR
Nickel	2.24	B	8.00	U	100.0		P
Potassium	2177.00	B	2705.00	B	24.3		P
Selenium	3.10	U	15.50	U			P
Silver	0.98	B	3.00	U	100.0		P
Sodium	10560.00		15940.00	B	50.9		P
Thallium	4.00	U	41.22	B			P
Vanadium	1.20	U	6.00	U			P
Zinc	6.80	B	6.00	U	100.0		P

10
Instrument Detection Limits (Quarterly)

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

P ID Number: ICP4_TJA_61E Date: 07/01/97

ame AA ID Number : _____

rnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	36.8	P
Antimony	206.84		60	2.8	P
Arsenic	189.04		10	3.6	P
Barium	493.41		200	3.0	P
Beryllium	313.04		5	0.2	P
Cadmium	226.50		5	0.4	P
Calcium	317.93		5000	145.0	P
Chromium	267.72		10	1.3	P
Cobalt	228.62		50	1.4	P
Copper	324.75		25	1.2	P
Iron	271.44		100	26.0	P
Lead	220.35		3	2.0	P
Magnesium	279.08		5000	114.0	P
Manganese	257.61		15	0.3	P
Mercury			0.2		NR
Nickel	231.60		40	1.6	P
Potassium	766.49		5000	305.0	P
Selenium	196.03		5	3.1	P
Silver	328.07		10	0.6	P
Sodium	330.23		5000	336.0	P
Thallium	190.86		10	4.0	P
Vanadium	292.40		50	1.2	P
Zinc	213.86		20	1.2	P

mments:

10
Instrument Detection Limits (Quarterly)

Lab Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Lab Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

CP ID Number: _____ Date: 04/01/97

Flame AA ID Number : CV1_PS200II_

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Calcium			5000		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Iron			100		NR
Lead			3		NR
Magnesium			5000		NR
Manganese			15		NR
Mercury	253.70		0.2	0.2	CV
Nickel			40		NR
Potassium			5000		NR
Selenium			5		NR
Silver			10		NR
Sodium			5000		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR

Comments:

U.S. EPA - CLP

11A
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

o Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

o Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

? ID Number: ICP4 TJA 61E Date: 01/01/97

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	CO_
luminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
ntimony_	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
rsenic_	189.04	0.0000000	0.0000000	-0.0000390	0.0000000	0.0000000
arium_	493.41	0.0000000	0.0000000	0.0000400	0.0000000	0.0000000
eryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
admium_	226.50	0.0000000	0.0000000	0.0001035	0.0000000	0.0000000
alcium_	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
hromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
obalt_	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
opper_	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
ron_____	271.44	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
ead_____	220.35	-0.0000596	-0.0000184	0.0000823	0.0000111	-0.0048710
agnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
anganese	257.61	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
ercury_						
ickel_	231.60	0.0000000	0.0000000	0.0000000	0.0000000	-0.0011240
otassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
elenium	196.03	0.0000000	0.0000000	-0.0001999	0.0000000	-0.0000465
ilver_	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
odium_	330.23	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
hallium	190.86	-0.0000100	0.0000000	-0.0000800	0.0000000	0.0049700
anadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
inc_____	213.86	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

mments:

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

ID Number: ICP4 TJA 61E Date: 01/01/97

nalyte	Wave-length (nm)	Interelement Correction Factors for : CR_	MN_	NI_	V__	___
uminum_	308.22	0.0000000	0.0000000	0.0000000	0.0264000	
timony_	206.84	0.0055040	0.0000000	-0.0002668	-0.0036670	
senic__	189.04	-0.0029900	0.0000000	0.0000000	0.0000000	
rium___	493.41	0.0000000	0.0000000	0.0000000	0.0000000	
ryllium	313.04	0.0000000	0.0000000	0.0000000	0.0011400	
dmium__	226.50	0.0000000	0.0000000	-0.0000329	0.0000000	
lcium__	317.93	0.0000000	0.0000000	0.0000000	0.0000000	
romium_	267.72	0.0000000	0.0000704	0.0000000	-0.0000540	
balt___	228.62	0.0000000	0.0000000	0.0000000	0.0000000	
pper___	324.75	0.0000000	0.0000000	0.0000000	0.0000000	
on_____	271.44	0.0000000	0.0000000	0.0000000	0.0000000	
ad_____	220.35	-0.0001864	0.0000279	0.0002131	-0.0006255	
gnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	
nganese	257.61	0.0000000	0.0000000	0.0000000	0.0000000	
rcury__						
ckel___	231.60	0.0000000	-0.0001310	0.0000000	0.0000000	
tassium	766.49	0.0000000	0.0000000	0.0000000	0.0000000	
lenium_	196.03	0.0000000	0.0002108	0.0000000	0.0000188	
lver___	328.07	0.0000000	0.0000000	0.0000000	0.0000000	
dium___	330.23	0.0000000	0.0000000	0.0000000	0.0000000	
allium_	190.86	0.0003750	-0.0005820	0.0000000	0.0036030	
nadium_	292.40	0.0000000	0.0000000	0.0000000	0.0000000	
nc_____	213.86	0.0000000	0.0000000	0.0000000	0.0000000	
_____	_____	_____	_____	_____	_____	_____

nents:

12
ICP LINEAR RANGES (QUARTERLY)

o Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

o Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.: 65479_

P ID Number: ICP4 TJA 61E Date: 07/01/97

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	10.00	1000000.0	P
Antimony	10.00	100000.0	P
Arsenic	10.00	5000.0	P
Barium	10.00	10000.0	P
Beryllium	10.00	50000.0	P
Cadmium	10.00	5000.0	P
Calcium	10.00	1000000.0	P
Chromium	10.00	50000.0	P
Cobalt	10.00	50000.0	P
Copper	10.00	100000.0	P
Iron	10.00	1000000.0	P
Lead	10.00	100000.0	P
Magnesium	10.00	1000000.0	P
Manganese	10.00	30000.0	P
Mercury			NR
Nickel	10.00	50000.0	P
Potassium	10.00	100000.0	P
Selenium	10.00	5000.0	P
Silver	10.00	2000.0	P
Sodium	10.00	100000.0	P
Thallium	10.00	5000.0	P
Vanadium	10.00	50000.0	P
Zinc	10.00	5000.0	P

ments:

13
PREPARATION LOG

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.:_OBASH_ SAS No.: _____ SDG No.:65479_

hod: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSW1	07/11/97		100
OB073	07/11/97		100
OB078	07/11/97		100
OB088	07/11/97		100
OB098	07/11/97		100
OB103	07/11/97		100
OB108	07/11/97		100
OB113	07/11/97		100
OB114	07/11/97		100
PBW1	07/11/97		100

13
PREPARATION LOG

b Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

b Code: INCHVT Case No.:_OBASH_ SAS No.: _____ SDG No.:65479_

thod: CV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSW1	06/26/97		100
OB073	06/26/97		100
OB078	06/26/97		100
OB088	06/26/97		100
OB098	06/26/97		100
OB103	06/26/97		100
OB108	06/26/97		100
OB113	06/26/97		100
OB114	06/26/97		100
PBW1	06/26/97		100

14
ANALYSIS RUN LOG

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.:65479_

trument ID Number: ICP4 TJA 61E_ Method: P_

rt Date: 07/17/97 End Date: 07/17/97

EPA ample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
_____	1.00	1047	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
_____	1.00	1051	_____				X	X	X		X	X	X				X	_	X			X			X	X	_
_____	1.00	1056	_____	X	_	_	_	_	_	X	_	_	_	X	_	X	_	_	_	X	_	_	X	_	_	_	_
_____	1.00	1100	_____	_	X	X	_	_	_	_	_	_	_	_	X	_	_	_	_	_	X	_	_	X	_	_	_
V_____	1.00	1106	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
B_____	1.00	1111	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
SA____	1.00	1116	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
SAB___	1.00	1121	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
I_____	1.00	1125	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
V_____	1.00	1130	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
B_____	1.00	1135	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
W1____	1.00	1140	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
SW1___	1.00	1145	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
108___	1.00	1150	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
108L__	5.00	1154	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
114___	1.00	1159	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
103___	1.00	1204	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
)73___	1.00	1209	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
113___	1.00	1213	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
)78___	1.00	1218	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
)88___	1.00	1223	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
7_____	1.00	1228	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
3_____	1.00	1233	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
)98___	1.00	1237	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
ZZZ___	1.00	1242	_____	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZ___	1.00	1247	_____	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZ___	1.00	1252	_____	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZ___	1.00	1257	_____	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZ___	1.00	1301	_____	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
A_____	1.00	1306	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
AB____	1.00	1311	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
_____	1.00	1316	_____	X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
_____				_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

14
ANALYSIS RUN LOG

o Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

o Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.:65479_

strument ID Number: ICP4 TJA 61E_ Method: P_

art Date: 07/17/97 End Date: 07/17/97

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
V	1.00	1321		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_
B	1.00	1326		X	X	X	X	X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	X	X	_

14
ANALYSIS RUN LOG

Name: ITS_ENVIRONMENTAL_____ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: _____ SDG No.:65479_

trument ID Number: CV1 PS200II__ Method: CV

rt Date: 06/27/97 End Date: 06/27/97

EPA Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
_____	1.00	1253	_____															X								
.2_____	1.00	1256	_____															X								
.5_____	1.00	1259	_____															X								
_____	1.00	1303	_____															X								
_____	1.00	1306	_____															X								
0_____	1.00	1309	_____															X								
V_____	1.00	1312	_____															X								
B_____	1.00	1315	_____															X								
A_____	1.00	1318	_____															X								
V_____	1.00	1321	_____															X								
B_____	1.00	1324	_____															X								
ZZZZ__	1.00	1328	_____																							
ZZZZ__	1.00	1331	_____																							
ZZZZ__	1.00	1334	_____																							
ZZZZ__	1.00	1337	_____																							
ZZZZ__	1.00	1340	_____																							
ZZZZ__	1.00	1343	_____																							
ZZZZ__	1.00	1346	_____																							
ZZZZ__	1.00	1349	_____																							
ZZZZ__	1.00	1353	_____																							
V_____	1.00	1356	_____															X								
B_____	1.00	1359	_____															X								
ZZZZ__	1.00	1402	_____																							
ZZZZ__	1.00	1405	_____																							
ZZZZ__	1.00	1408	_____																							
ZZZZ__	1.00	1411	_____																							
ZZZZ__	1.00	1415	_____																							
ZZZZ__	1.00	1418	_____																							
V1_____	1.00	1421	_____															X								
SW1___	1.00	1424	_____															X								
.08___	1.00	1427	_____															X								
/_____	1.00	1430	_____															X								
_____			_____																							

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Name: ITS_ENVIRONMENTAL________ Contract: 93206_____

Code: INCHVT Case No.: OBASH_ SAS No.: ______ SDG No.:65479_

trument ID Number: CV1 PS200II__ Method: CV

rt Date: 06/27/97 End Date: 06/27/97

EPA ample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
B	1.00	1433																X									
114	1.00	1436																X									
103	1.00	1440																X									
073	1.00	1443																X									
113	1.00	1446																X									
078	1.00	1449																X									
088	1.00	1452																X									
098	1.00	1455																X									
ZZZZ	1.00	1458																									
V	1.00	1501																X									
B	1.00	1505																X									