Volume 1
Monitoring Event No. 1
4th Quarter 1998
Ammunition Burning Grounds

Attachments 1 through 13

Naval Surface Warfare Center
Crane Division
Crane, Indiana

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888

Contract Task Order 0038

July 2001

ATTACHMENT 1

Monitoring Well Development Records
Monitoring Event No. 1

MONITORING WELL DEVELOPMENT RECORD

CTO 38

Well Development

Well: 06C11
Site: ORR
Date Installed: NA
Date : 10.22.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 58.7
Static Water Level Before (ft.): 7.78
Static Water Level After (ft.): 43.0
Screen Length (ft.): 20'
One Well Vol: 8.3 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0850	START	7.78	12.6	7.97	.803	526	CLOUDY, NO ODOR
0855	7.5	↓	12.9	7.78	.422	485	
0900	15	43.0	—	—	—	—	STOP PUMP, RECHARGE TO 19.5'
0945	—	19.5	—	—	—	—	START PUMP
0946	—	19.5	12.3	8.57	.702	386	
0949	22.5	43.0	12.3	7.76	.439	55	DRY @ 0952
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C11P2
Site: ORR
Date Installed: NA
Date : 10.22.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 32.5
Static Water Level Before (ft.): 7.81
Static Water Level After (ft.): 10.22
Screen Length (ft.): 10'
One Well Vol: 4 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~ms/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
0955	START	7.81	13.0	7.04	.349	>999	HIGH SOLIDS, BRN TO RUST COLOR,
1000	7.5	↓	13.0	7.02	.383	>999	NO ODOR
1005	15		12.9	7.06	.380	508	CLOUDY LT BRN.
1010	22.5		13.0	7.07	.388	153	CLEARING
1015	30		13.1	7.07	.389	93	
1020	37.5	↓	13.1	7.08	.390	60	
1025	45	10.22	13.1	7.10	.390	57	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C12
Site: ORR
Date Installed: NA
Date : 10.21.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 79.1
Static Water Level Before (ft.): 26.39
Static Water Level After (ft.): 27.56
Screen Length (ft.): 20
One Well Vol: 8.6 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1735	START	26.39	12.7	7.29	.464	637	CLOUDY, NO ODOR
1740	7.5	↓	12.6	7.36	.469	56	CLEARING
1745	15	↓	12.6	7.39	.472	15	
1750	22.5	↓	12.5	7.38	.489	12	
1755	30	27.56	12.5	7.38	.488	9 ✓	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 2.6 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C13
Site: ORR
Date Installed: NA
Date : 10.21.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 57.5
Static Water Level Before (ft.): 12.64
Static Water Level After (ft.): 12.77
Screen Length (ft.): 20
One Well Vol: 7.3
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1338	START	12.64	13.3	6.52	.477	>999	RUST TO LT TAN, NO ODOR
1342	8	|	13.3	6.63	.325	>999	
1345	15	|	13.3	6.67	.297	423	
1349	18	|	13.3	6.64	.300	274	
1356	37	|	13.3	6.65	.278	150	
1400	42	↓	13.3	6.65	.291	120	
1403	49	12.77	13.3	6.65	.291	87	END DEVELOPMENT
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C13P2
Site: ORR
Date Installed: NA
Date : 10.21.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 32.6
Static Water Level Before (ft.): 12.41
Static Water Level After (ft.): 12.95
Screen Length (ft.): 10
One Well Vol: 3.3
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1451	START	12.41	14.2	6.73	.297	>999	NO ODOR, BROWN
1453	6	↓	13.8	6.73	.288	>999	
1457	11		13.8	6.72	.274	676	
1501	18		13.7	6.74	.286	483	
1506	25		13.7	6.73	.285	388	CLOUDY, NO ODOR
1509	30		13.6	6.73	.288	314	
1514	40		13.7	6.72	.289	228	
1517	45	↓	13.6	6.73	.279	195	
1519	53	12.95	13.6	6.75	.290	181	
							SURGED 1ST
							PID Readings BH 2.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C14
Site: ORR
Date Installed: NA
Date : 10.20.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 50.6
Static Water Level Before (ft.): 15.38
Static Water Level After (ft.): 15.70
Screen Length (ft.): 20
One Well Vol: 5.7 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MHOS~~/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1346	START	15.38	15.4	6.92	.419	>999	RUST, NO ODOR, HIGH SOLIDS
1348	5	↓	15.3	6.74	.368	>999	
1355	10		15.1	6.78	.370	>999	
1358	15		14.9	6.72	.361	>999	
1400	20		14.9	6.72	.347	> 999	
1404	27		14.8	6.76	.360	995	
1406	29		14.5	6.75	.366	788	CLEARING
1408	34		14.3	6.74	.365	607	
1410	39		14.4	6.74	.344	443	
1414	50	↓	14.4	6.75	.357	349	
1417	57	15.70	14.4	6.72	.334	301	REMOVED 10 VOL END PURGE
							SURGED FOR 5+ MIN 1ST
							PID Readings BH 2.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

19.7(1516)

MONITORING WELL DEVELOPMENT RECORD

Well: 06C14P2
Site: ORR
Date Installed: NA
Date : 10/20/98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 27.63
Static Water Level Before (ft.): 14.35
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Vol: 2.2 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1442	START	14.35	15.9	5.81	.147	>999	LIGHT RUST COLOR/CLOUDY, NO ODOR
1446	3.5	DRY	—	—	—	—	STOPPED PUMP TO RECHARGE
1503	3.5	15.25	15.5	5.84	.129	284	RESTART
1506	6.5	DRY	—	—	—	—	STOPPED PUMP TO RECHARGE
1521	6.65	16.15	15.5	5.84	.148	72	RESTART
1524	10	DRY	—	—	—	—	END PURGE
							SURGED 1ST
							PID Readings BH 6.4 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C15
Site: ORR
Date Installed: NA
Date : 10.20.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 58.7
Static Water Level Before (ft.): 19.02
Static Water Level After (ft.): 19.11
Screen Length (ft.): 20
One Well Vol: 6.4 GAL.
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1545	START	19.02	14.4	6.67	.436	>999	DK. BRN. TO RUST, NO ODOR
1547	5	↓	14.4	6.55	.310	>999	
1550	10		14.2	6.55	.310	799	CLEARING TO LT. RUST
1552	15		14.1	6.55	.329	534	
1554	20		14.1	6.60	.352	390	
1556	25		14.0	6.63	.361	329	
1558	30		14.0	6.63	.371	290	
1600	35		14.0	6.67	.375	270	
1603	40		14.0	6.70	.387	211	
1605	45	↓	13.8	6.73	.398	157	
1610	50	19.11	13.9	6.74	.385	168	END PURGE
							PID Readings BH 4.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C16
Site: ORR
Date Installed: NA
Date : 10.20.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 85.4
Static Water Level Before (ft.): 38.09
Static Water Level After (ft.): 38.04
Screen Length (ft.): 20
One Well Vol: 7.7 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1640	START	38.04	13.5	7.99	.685	>999	CLOUDY, NO ODOR
1643	4		13.2	8.09	.712	>999	
1646	7.5		12.9	8.08	.705	>999	
1649	11.0		12.8	8.13	.693	596	
1652	15.2		12.8	8.14	.683	296	CLEARING
1654	18.0		12.8	8.19	.708	180	
1657	22.2		12.8	8.20	.682	158	
1702	29.2		12.8	8.20	.685	40	CLEAR
1705	33.4	38.04	12.8	8.22	.685	28	END PURGE
							PUMP RATE = 1.4 GPM
							SURGED 1ST
							PID Readings BH 1.2 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C18
Site: ORR
Date Installed: NA
Date : 10.21.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 61.9
Static Water Level Before (ft.): 12.81
Static Water Level After (ft.): 16.43
Screen Length (ft.): 20
One Well Vol: 8 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MHOS~~/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1611	START	12.81	13.9	7.28	.412	534	CLOUDY, NO ODOR
1615	7.5	↓	13.4	7.46	.409	498	
1620	15.0	↓	13.2	7.38	.404	101	CLEARING
1625	22.5	↓	12.9	7.32	.420	37	
1630	30.0	↓	12.9	7.27	.400	18	
1635	38.0	16.43	12.9	7.29	.419	12	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 2.1 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C19P2
Site: ORR
Date Installed: NA
Date : 11/7/98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 24.95
Static Water Level Before (ft.): 10.04
Static Water Level After (ft.): 11.50
Screen Length (ft.): 10
One Well Vol: 2.37 gal.
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
0837	START	10.04	11.9	6.99	.288	>999	BRN., NO ODOR
0842	10	↓	12.0	6.99	.285	349	
0846	18		12.3	7.00	.287	109	
0851	28		12.2	7.01	.297	61	
0858	42		12.4	7.00	.296	35	
0903	52	↓	12.5	6.99	.288	26	
0908	62	11.50	12.4	7.01	.296	16	END PURGE
							PUMP RATE = 2 GPM
							PID Readings BH 0.2 PPM
							BZ 0.0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C19
Site: ORL
Date Installed: NA
Date : 11/7/98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 57.80
Static Water Level Before (ft.): 10.04
Static Water Level After (ft.): 10.08
Screen Length (ft.): 20
One Well Vol: 7.73 gal
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0800	—	10.04	10.9	8.98	.600	>999	Light brown, no odor, heavy solids
0805	10	↓	11.3	7.10	.325	81	Clear
0810	20		11.6	7.03	.303	21	
0815	30		11.7	7.03	.303	12	
0820	40		11.8	6.99	.293	10	
0825	50	↓	11.7	7.00	.288	8	
0828	56	10.08	11.7	6.99	.289	7 ✓	
	END OF DEVELOPMENT						
							Pump rate = 2.0 gpm
							PID Readings BH 0.1 PPM
							BZ 0.0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

CTO 38
WA Quadrangles

MONITORING WELL DEVELOPMENT RECORD

Well: 06C18P2
Site: ORR
Date Installed: NA
Date : 10.21.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 35.1
Static Water Level Before (ft.): 13.50
Static Water Level After (ft.): 24.44
Screen Length (ft.): 10
One Well Vol: 3.5
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1645	START	13.5	13.4	6.57	.605	>999	BROWN, NO ODOR
1650	7.5	↓	13.3	6.59	.583	>999	HIGH SOLIDS
1655	15		13.3	6.62	.502	860	
1700	22.5		13.2	6.64	.475	514	CLOUDY
1705	30		13.3	6.62	.472	108	CLEARING
1710	37.5	↓	13.2	6.62	.469	52	
1715	45	24.44	13.1	6.62	.484	20	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 2.6 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C02
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 69.4
Static Water Level Before (ft.): 19.55
Static Water Level After (ft.): 20.00
Screen Length (ft.): 20
One Well Vol: 8.1
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1111	START	19.55	15.1	7.38	.759	932	CLOUDY LT. TAN, NO ODOR
1116	7.5	↓	13.8	7.28	.512	108	
1121	15.0		13.6	7.21	.501	55	
1126	22.5		13.5	7.25	.510	28	
1131	30.0		13.6	7.23	.521	15	
1136	37.5		13.4	7.24	.520	9	
1141	45.0	↓	13.4	7.23	.498	6	
1146	52.5	20.00	13.3	7.23	.499	2	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 9.8 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C03
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 89.5
Static Water Level Before (ft.): 16.31
Static Water Level After (ft.): 16.40
Screen Length (ft.): 20
One Well Vol: 12.0
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1348	START	16.31	14.8	6.59	.500	184	CLEAR, NO ODOR
1355	12	↓	13.8	7.03	.408	61	
1400	20.5		13.5	7.06	.402	44	
1405	29.0		13.4	7.06	.420	17	LT. SULFUR ODOR, CLEAR
1410	37.5	↓	13.3	7.04	.399	8	
1415	46.0	16.40	13.3	7.06	.398	6	END DEVELOPMENT
							SEDIMENT BUILD UP AROUND
							WELLS (06C03 & 06C03P2) 18" ±
							FROM WASH OUT OF DR DURING
							RAIN. WATER MAY FLOW ABOVE WELL CAPS
							PUMP RATE = 1.7 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C03P2
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 23.1
Static Water Level Before (ft.): 3.27
Static Water Level After (ft.): 23.0
Screen Length (ft.): 10
One Well Vol: 3.2
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~ms/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1425	START	3.27	15.7	7.20	.584	>999	Cloudy, grayish, no odor
1430	7	23.1	—	—	—	—	DRY - STOP PUMP TO RECHARGE
1450	7	21.0	15.2	7.54	.579	>999	
	TOTAL 8						REMOVED 1 MORE GAL, DRY
							PUMP RATE = 1.7 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C04
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 100.2
Static Water Level Before (ft.): 31.89
Static Water Level After (ft.): 32.23
Screen Length (ft.): 20
One Well Vol: 11.1
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1517	START	31.89	15.2	7.37	.613	48	CLEAR, NO ODOR
1522	7.5		14.0	7.30	.653	>999	GRAY, HIGH SOLIDS
1527	15.0		13.8	7.32	.660	962	CLOUDY, SOLIDS CLEARING
1532	22.5		13.7	7.32	.634	269	CLEARING
1537	30.0		13.6	7.31	.632	183	
1542	37.5		13.6	7.31	.655	147	
1547	45.0	↓	13.5	7.30	.655	119	
1552	52.5	32.23	13.5	7.30	.653	101	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 4.4 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C04P2
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 28.9
Static Water Level Before (ft.): 21.82
Static Water Level After (ft.): 28.0
Screen Length (ft.): 10
One Well Vol: 1.1
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1600	START	21.82	14.6	7.35	.971	>999	BRN. HIGH SOLIDS, NO ODOR
1609	7	28 DRY	—	—	—	—	STOP PUMP; RECHARGE
1622	7	23.31	14.2	7.32	.976	881	
1625	8	28 DRY	—	—	—	—	STOP PUMP; RECHARGE
1646	9	23.30	14.0	7.32	.959	457	DRY - END DEVELOPMENT
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C05
Site: DR
Date Installed: NA
Date : 10.25.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 82.8
Static Water Level Before (ft.): 21.78
Static Water Level After (ft.): 32.54
Screen Length (ft.): 20
One Well Vol: 10.0
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~ms/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.) TOP SAMPLE, PRIOR TO SURGE
0800	START	21.78	12.9	6.82	.695	0	BAILER SAMPLE
0807	1	↓	12.4	7.49	.672	15	START PUMP
0814	12		12.5	7.59	.672	22	CLEAR, NO ODOR
0820	22		12.5	7.64	.657	5	
0825	30	↓	12.5	7.72	.674	3	
0830	38	32.54	12.5	7.72	.676	2	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST WITH BAILER
							PID Readings BH 0.5 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C06
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 71.9
Static Water Level Before (ft.): 24.49
Static Water Level After (ft.): 24.53
Screen Length (ft.): 20
One Well Vol: 7.7
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0900	START	24.49	12.4	8.17	.632	>999	CLOUDY, NO ODOR
0905	7.5	↓	12.8	8.69	.693	418	
0910	15.0	↓	12.8	8.76	.712	199	LT. SULFUR ODOR
0915	22.5	↓	12.8	8.80	.713	119	
0920	30.0	↓	12.8	8.79	.709	73	
0925	37.5	24.53	12.8	8.80	.706	52	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C06P2
Site: DR
Date Installed: NA
Date : 10.24.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 33.3
Static Water Level Before (ft.): 12.23
Static Water Level After (ft.): 32.0
Screen Length (ft.): 10
One Well Vol: 3.4
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0932	START	12.23	13.4	7.06	.140	>999	BRN, HIGH SOLIDS, NO ODOR
0935	4.5	↓	14.1	5.89	.114	>999	LT. TAN CLEARING SOMEWHAT
0940	12.0	↓	13.7	5.89	.144	>999	TAN SOLIDS INCREASING
0943	16.0	DRY 32.0	—	—	—	—	STOPPED PUMP
1011	—	20.90	—	—	—	—	
1012	16	↓	14.3	6.38	.132	717	RESTART PUMP
1014	19	↓	14.3	6.09	.136	290	
1016	22	DRY 32.0	14.2	6.34	.142	>999	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1 ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C07
Site: DR
Date Installed: NA
Date : 10.25.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 83.9
Static Water Level Before (ft.): 23.54
Static Water Level After (ft.): 30.0
Screen Length (ft.): 20
One Well Vol: 9.8
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 30

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.) SAMPLE PRIOR TO SURGE (BAILER)
1030	START	23.54	15.2	8.42	.610	4	CLEAR, NO ODOR
1035	1	|	14.4	8.67	.619	20	START PUMP - CLEAR, NO ODOR
1040	8.5	|	13.8	8.73	.624	408	
1045	16.0	|	13.7	8.40	.610	10	
1050	23.5	↓	13.9	8.30	.603	3	
1055	31.0	30.0	14.0	8.28	.580	2	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST w/ BAILER
							PID Readings BH 3.1 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C08
Site: DR
Date Installed: NA
Date : 10.22.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 282.9
Static Water Level Before (ft.): 212.97
Static Water Level After (ft.): 214.53
Screen Length (ft.): 40'
One Well Vol: 11.4
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units/~~MHOS~~/CNN)	Turbidity (NTU)	Remarks (odor, color, etc.)
1651	START	212.97	13.6	8.84	1.43	>999	GRAY, NO ODOR
1656	1.5	↓	13.4	8.90	1.56	>999	Gray/Milky
1708	3.0		13.5	8.75	1.18	337	
1715	4.5	↓	13.5	8.74	1.14	490	
1721	5.5	214.53	13.5	8.74	1.19	815	END DEVELOPMENT
							WILL "OVER" PURGE WITH
							BLADDER PUMP
							SURGED WITH BAILER 15
							& EVERY 5TH BAILER
							PID Readings BH 8.2 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 06C08P2
Site: OR
Date Installed: NA
Date : 10.24.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 94.1
Static Water Level Before (ft.): 71.44
Static Water Level After (ft.): 83.63
Screen Length (ft.): 10
One Well Vol: 3.7 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.) SAMPLE PRIOR TO SURGE, OFF TOP
0948	START	71.44	13.4	6.51	.204	0	CLEAR, NO ODOR
0953	1.5		13.3	5.40	.215	145	No odor, light brown, very
1000	3.0		13.3	4.95	.200	185	light fines.
1006	4.5		13.4	5.16	.207	244	
1012	6.0		13.4	4.90	.209	313	
1018	8.0		13.4	4.81	.197	286	
1025	10.0	↓	13.4	4.95	.205	319	
1031	12.0	83.63	13.5	4.86	.205	303	END DEVELOPMENT
							SURGED WITH BAILER
							EVERY 5TH BAILER
							PID Readings BH 7.4 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

CTO 38
Well Development

Well: WES 3 B02 86
Site: ABG
Date Installed: NA
Date: 10.19.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 18.6
Static Water Level Before (ft.): 6.05
Static Water Level After (ft.): NA
Screen Length (ft.): 5'
One Well Vol: 2.0 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1530	START	6.05	16.7	7.11	.342	>999	RUST COLOR, NO ODOR
1532	5	↓	16.9	6.88	.309	>999	
1534	10		16.8	6.82	.283	836	
1536	14		16.8	6.83	.278	392	CLEARING, LT. TAN
1539	19		16.8	6.83	.287	164	
1542	23		16.8	6.86	.277	105	
1545	26		16.8	6.84	.277	82	CLEAR
							SURGED 1ST FOR 5 MIN
							PID Readings BH 4.9 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 3 B04 86
Site: ABG
Date Installed: NA
Date : 10.19.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 16.8
Static Water Level Before (ft.): 8.29
Static Water Level After (ft.): NA
Screen Length (ft.): 5
One Well Vol: 1.4 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ms/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1600	START	8.29	16.1	7.07	.349	>999	RUST COLOR, NO ODOR
1602	4	↓	16.0	7.00	.302	985	LT. TAN
1604	8		16.0	6.98	.287	416	CLEARING
1608	14		16.0	7.00	.276	192	
1611	19		16.0	6.98	.269	112	
1614	24		16.0	6.98	.275	80	
							SURGED FOR 5 MIN
							PID Readings BH 2.8 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C02P2
Site: ABG
Date Installed: NA
Date : 10.22.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 50.9
Static Water Level Before (ft.): 37.66
Static Water Level After (ft.): 37.72
Screen Length (ft.): 10'
One Well Vol: 2.2
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1240	START	37.66	13.7	6.90	0.93	>999	BROWN, HIGH SOLIDS, NO ODOR
1245	6.7	↓	13.6	6.86	.780	>999	
1250	13.4	↓	13.6	7.03	.781	587	CLOUDY, LT BRN
1255	20	↓	13.5	6.87	.769	174	CLEARING
1300	27	↓	13.4	6.85	.775	167	
1305	33.7	↓	13.4	6.86	.755	235	
1310	40	37.72	13.3	6.89	.781	240	END DEVELOPMENT
							FLOW RATE = 1.3 GPM
							RISER NEEDS REPAIRED
							SURGED 1ST
							PID Readings BH 6.5 PPM
							BZ 1.0 PPM
							PAINTING IN AREA

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C03
Site: ABG
Date Installed: NA
Date : 10.22.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 152.7
Static Water Level Before (ft.): 88.23
Static Water Level After (ft.): 88.28
Screen Length (ft.): 10
One Well Vol: 10.5
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1513	START	88.23	14.0	9.24	1.03	>999	GRAY, NO ODOR
1518	1.5	↓	14.0	9.22	.902	41	CLEAR
1525	2.0		14.1	9.25	.862	154	
1530	4.0		14.0	9.24	.859	82	
1537	6.0		14.0	9.25	.892	176	
1544	7.5		14.1	9.24	.855	116	
1551	9.0		14.1	9.24	.886	197	
1558	11.0		14.2	9.24	.901	489	
1604	12.5	8.28	14.1	9.23	.914	789	END DEVELOPMENT
							SURGED WITH BAILER 1ST
							& EVERY 5TH BAILER
							PID Readings BH 8.0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 3C04
Site: ABG
Date Installed: NA
Date : 10.20.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 86.6
Static Water Level Before (ft.): 76.28
Static Water Level After (ft.): 86.0
Screen Length (ft.): 10
One Well Vol: 1.7 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1108	START	76.28	14.4	7.20	1.84	43	NO ODOR, CLEAR WITH
1113	1.5	↓	14.2	7.30	1.86	56	TRACE BLACK FINES
1118	2.5	↓	14.2	7.34	1.89	54	
1122	3.2	86.0	—	—	—	—	DRY
							SURGED WITH BAILER
							PID Readings BH 0.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C07
Site: ABG
Date Installed: NA
Date : 10.21.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 102.1
Static Water Level Before (ft.): 78.96
Static Water Level After (ft.):
Screen Length (ft.): 10
One Well Vol: 3.8 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
0914	START	178.96	14.3	7.01	.870	58	LT. SULFUR ODOR, CLEAR WITH
0922	2	↓	13.7	7.24	.841	67	SOME FINES
0931	3.5		13.3	7.29	.866	92	
0940	4.5		13.4	7.22	.857	91	
0945	—					→	Stopped due to burning
1011	RESTART		13.6	7.17	.826	88	
1020	6		13.4	7.15	.811	71	
1025	7.5	↓	13.5	7.33	.843	151	
1030	8.2	84.0	13.5	7.20	.810	112	END DEVELOPMENT
							2+ VOL REMOVED
							Surged with bailer. 1ST &
							EVERY 5TH BAILER
							PID Readings BH 0.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 3C8P2
Site: ABG
Date Installed: NA
Date : 10.20.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 103.5
Static Water Level Before (ft.): 75.13
Static Water Level After (ft.): 82.07
Screen Length (ft.): 10
One Well Vol: 4.6
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
0955	START	75.13	13.3	6.98	1.10	202	NO ODOR, CLOUDY
1012	1	↓	13.7	7.24	1.09	199	
1020	2		13.5	7.21	1.06	147	
1026	4		13.4	7.20	1.04	210	
1032	5.5	82.07	13.3	7.19	0.99	208	
							SURGED W/BAILER
							& EVERY 5TH BAILER
							0955 READING THEN STOPPED FOR
							15 MIN FOR ABG BURN
							4' ± STICK-UP
							(STAND ON COOLER)
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C09P2
Site: ABG
Date Installed: NA
Date: 10.23.98
Dev. Method: SURGED/PUMPED
Pump Type: 12V SUB.

Depth to Bottom (ft.): 74.4
Static Water Level Before (ft.): 45.73
Static Water Level After (ft.): 45.74
Screen Length (ft.): 10
One Well Vol: 4.7 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1545	START	45.73	15.1	6.86	.489	>999	BRN, HIGH SOLIDS, NO ODOR
1550	5	↓	14.5	7.00	.468	>999	
1555	10		14.2	6.96	.495	602	CLEARING
1600	15		14.3	6.93	.509	198	
1605	20		14.2	6.95	.513	105	
1610	25		14.3	6.95	.511	72	
1615	30	↓	14.2	6.95	.510	49	
1620	35	45.74	14.2	6.95	.511	41	END DEVELOPMENT
							PUMP RATE = 1 GPM
							SURGED 1ST WITH
							SURGE BLOCK THEN
							PUMPED
							PID Readings BH 22.5 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C10
Site: ABG
Date Installed: NA
Date : 10.23.98
Dev. Method: BAILER/SURGE
Pump Type: NONE

Depth to Bottom (ft.): 79.1
Static Water Level Before (ft.): 50.50
Static Water Level After (ft.): 50.61
Screen Length (ft.): 10
One Well Vol: 4.7 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.) SAMPLE FROM TOP OF WATER COL.
1024	START	50.50	15.6	5.97	.335	19	LT. RED COLOR, NO ODOR
1030	2.0		14.9	6.37	.351	206	TOOK BAILER TO BOTTOM & SURGED
1035	4.0		14.8	6.53	.423	820	SOFT BTM., HIGH SOLIDS
1040	6.0		14.7	6.55	.520	>999	
1046	8.0		14.7	6.67	.516	>999	
1052	9.0		14.7	6.63	.542	>999	
1056	11.0		14.7	6.57	.520	717	
1101	12.0		14.7	6.75	.538	961	
1107	14.0	↓	14.7	6.75	.554	>999	
1112	16.0	50.61	14.7	6.67	.545	>999	END DEVELOPMENT
							SURGED 1ST AND EVERY 5TH BAILER
							PID Readings BH 12.8 PPM
							*BZ 2.5 PPM
							*SMALL FIRE NEAR-BY

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES-3C11-86
Site: ABG
Date Installed: NA
Date: 10.19.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 60.9
Static Water Level Before (ft.): 44.28
Static Water Level After (ft.): —
Screen Length (ft.): 20'
One Well Vol: 2.7
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1405	2.5	44.28	16.1	6.79	2.07	910	LT BR, SURGED FOR 10 MIN
1410	4.0	↓	15.5	7.01	2.04	880	LT. SULFUR ODOR
1412	4.2		15.4	7.11	1.98	475	
1414	4.8		15.4	7.25	1.80	304	CLEARING
1418	5.2		15.4	7.36	1.74	120	↓
1422	5.4	↓	15.1	7.38	1.76	68	
1427	5.8	55.0	15.0	7.37	1.79	35	↓
							WELL PRODUCED ≈ 1200 ML/MIN
							AFTER DRAW DOWN
							SURGED 1ST
							PID Readings BH 8.0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C12
Site: ABC
Date Installed: NA
Date : 10.22.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 53.2
Static Water Level Before (ft.): 41.87
Static Water Level After (ft.): 53.-
Screen Length (ft.): 10
One Well Vol: 1.9
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1423	START	41.87	13.7	7.30	.727	283	CLOUDY, NO ODOR
1426	2	48	—	—	—	—	DRY; TO PUMP IN-LET
1447	2	43	13.8	7.25	.755	405	LOWERED PUMP TO 53'
1450	4	DRY	13.7	7.31	.749	210	RECHARGE TO 43' @ 1447
							SURGED 1ST
							PID Readings BH 8.7 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C15
Site: ABG
Date Installed: NA
Date : 10.23.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 102.57
Static Water Level Before (ft.): 65.27
Static Water Level After (ft.): 65.38
Screen Length (ft.): 10
One Well Vol: 6.1
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1129	START	65.27	13.2	7.11	.662	133	CLOUDY LT BRN., NO ODOR
1134	1.5	↓	12.9	7.19	.651	103	SURGED
1139	3.0		12.8	7.16	.636	187	
1144	4.5		12.8	7.20	.646	254	
1148	5.5		12.8	7.22	.704	465	
1156	7.5		12.9	7.22	.746	470	
1203	10.0		12.8	7.17	.756	282	
1210	13.0	65.38	12.8	7.23	.769	468	END DEVELOPMENT
							SURGED WITH BAILER
							EVERY 5TH BAILER
							PID Readings BH 5.1 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C17
Site: ABG
Date Installed: NA
Date : 10.23.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 151.7
Static Water Level Before (ft.): 138.35
Static Water Level After (ft.): 138.45
Screen Length (ft.): 10
One Well Vol: 2.2
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1649	START	138.35	13.8	7.09	2.67	47	Sample from top of water column - clear
1658	2	↓	13.3	7.02	2.26	190	No odor, gray w/ light fines
1705	3.5		13.3	7.07	2.31	186	
1713	5		13.1	7.07	2.25	157	
1719	6.5		13.1	7.07	2.30	238	
1725	7.5	138.45	13.1	7.07	2.35	306	END DEVELOPMENT
							Surged w/ bailer.
							& EVERY 5TH BAILER
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C20
Site: ABG
Date Installed: NA
Date : 10.23.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 121.7
Static Water Level Before (ft.): 90.18
Static Water Level After (ft.): 90.40
Screen Length (ft.): 10
One Well Vol: 5.1
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1408	START	90.18	14.2	7.23	.628	>999	SAMPLE FROM BTM. GRAY, SOLIDS, NO ODOR
1415	1.5	↓	13.6	7.30	.607	316	
1423	2.5		13.5	7.41	.607	608	
1429	4.0		13.3	7.28	.618	984	
1436	5.5		13.2	7.33	.616	919	
1443	7.0		13.2	7.35	.619	>999	
1448	8.5		13.1	7.24	.640	626	
1454	9.5	↓	13.1	7.31	.621	807	
1459	11.0	90.40	13.0	7.37	.635	776	
							SURGED WITH BAILER & EVERY 5TH BAILER
							PID Readings BH 6.2 PPM
							BZ 0 PPM

"OLD" EMPTY 55GAL. DRUM BY WELL

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 3C25 86
Site: ABC
Date Installed: NA
Date : 10.19.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 74
Static Water Level Before (ft.): 47.25
Static Water Level After (ft.): NA
Screen Length (ft.): 10
One Well Vol: 4.4
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

WELL IS OFF ROAD ≈ 1 MILE

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1655	START	47.25	13.3	7.25	1.00	297	GRAY TO BLACK, BLACK FINES
1658	2.0	↓	12.7	7.20	1.05	>999	SULFUR ODOR,
1700	4.0		12.5	7.17	1.09	>999	↳ TURNING LT. GRAY TO WHITE
1703	6.4		12.5	7.20	1.11	523	STARTING TO CLEAR
1706	8.8		12.5	7.19	1.12	260	
1708	10.2		12.5	7.20	1.11	174	
1712	13.4		12.5	7.21	1.11	100	
1716	16.6	↓	12.5	7.21	1.11	74	
							SURGED 1ST
							PUMP RATE = .8 GPM
							PID Readings BH 0.5 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C26
Site: ABG
Date Installed: NA
Date : 10.21.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 107.94
Static Water Level Before (ft.): 82.86
Static Water Level After (ft.): 95.68
Screen Length (ft.): 10
One Well Vol: 4 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mhos/cm)	Turbidity (NTU)	Remarks (odor, color, etc.) SURGED
1054	START	82.86	12.9	7.31	0.93	89	LT. SULFUR ODOR
1100	2	|	12.9	7.20	.817	49	BLACK FINES IN SAMPLE
1106	3.5	|	12.9	7.20	.824	87	— SURGED —
1112	4.5	|	13.1	7.18	.845	86	
1117	6.0	↓	13.0	7.20	.840	84	
1123	8.0	95.68	13.0	7.20	.820	87	END DEVELOPMENT
							SURGED WITH BAILER
							PID Readings BH 0.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C27
Site: ABG
Date Installed: NA
Date : 10.22.98
Dev. Method: BAILER
Pump Type: NONE

Depth to Bottom (ft.): 75
Static Water Level Before (ft.): 61.11
Static Water Level After (ft.): 63.08
Screen Length (ft.): 10
One Well Vol: 2.3
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1329	START	61.11	11.6	7.74	.362	>999	LT BRN, NO ODOR
1334	2		11.2	7.73	.357	>999	
1340	4		10.9	7.65	.287	665	
1345	5		11.0	7.59	.304	>999	
1350	6		10.7	7.61	.288	>999	
1354	7.5		10.9	7.61	.281	>999	
1358	8.5	63.08	11.0	7.68	.263	>999	
							SURGED WITH BAILER 1ST
							& EVERY 5TH BAILER
							PID Readings BH 5.1 PPM
							BZ 1.0 PPM
							PAINTING IN AREA

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: 03C30
Site: ABG
Date Installed: NA
Date : 10.24.98
Dev. Method: BAILER
Pump Type: _____

Depth to Bottom (ft.): 263.5
Static Water Level Before (ft.): 223.88
Static Water Level After (ft.): 234.5
Screen Length (ft.): 10
One Well Vol: 6.5
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
							TOP SAMPLE, PRIOR TO SURGE
0828	START	223.88	13.5	11.38	1.49	2	CLEAR, NO ODOR
0835	1.0	"	13.2	11.52	1.53	13	
0847	2.0	"	12.8	11.49	1.43	25	
0853	3.0	"	13.1	11.52	1.45	39	
0904	4.0	↓	13.1	11.41	1.11	57	
0909	5.0	234.5	13.1	11.53	1.29	68	END DEVELOPMENT
							DEEP WELL WILL "OVER" PURGE WITH BLADDER PUMP, NEXT SHIFT
							SURGED W/BAILER EVERY 5TH BAILER
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

File CTO 48

MONITORING WELL DEVELOPMENT RECORD

Well: MW1A
Site: SWL
Date Installed: NA
Date : 1025.98 @ 1400
Dev. Method: —
Pump Type: —

Depth to Bottom (ft.): 21.37
Static Water Level Before (ft.): 20.97
Static Water Level After (ft.): _____
Screen Length (ft.): _____
One Well Vol: _____
Casing ID (in.): 4" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Well Development

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.)
			DRY WELL				
							PID Readings BH PPM
							BZ PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 1B
Site: SWL
Date Installed: NA
Date : 10.25.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 43.6
Static Water Level Before (ft.): 28.57
Static Water Level After (ft.): _____
Screen Length (ft.): 3
One Well Vol: 9.8 (.653)
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MHOS~~ MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1429	START	28.57	16.3	6.88	1.97	>999	LT TAN, NO ODOR
1435	7.0	42.0	16.1	7.05	2.02	685	WATER LEVEL DROP TO PUMP
1440	12.0	42.0	16.6	6.97	2.04	436	INLET 42'
1445	17.0	43.0	16.3	6.92	2.04	215	PUMP RATE, 1 GPM, =
1448	20.0	DRY	—	—	—	—	MAKE-UP RATE OF WELL
1527	20.0	34.95	15.6	6.80	2.02	286	RESTART PUMP
1530	25.0	↓	14.8	6.81	2.01	81	
1534	29.0	DRY 42.0	—	—	—	—	RECOVERY RATE = 1'/4 MIN
			END DEVELOPMENT				
							PUMP RATE > 1.5 GPM
							FOR 4 MIN. THEN 1 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW2A
Site: SWL
Date Installed: NA
Date : 10.26.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 43.9
Static Water Level Before (ft.): 26.22
Static Water Level After (ft.): 35.0
Screen Length (ft.): 2
One Well Vol: 11.6 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1304	START	26.22	15.5	6.05	.830	840	TAN, NO ODOR
1310	8.0	↓	14.3	5.45	.750	119	CLEARING
1315	15.5		14.1	5.38	.741	117	
1320	23.0		14.0	5.33	.734	112	
1325	30.5		14.1	5.27	.726	88	
1330	38.0		14.0	5.21	.704	35	
1335	45.5	↓	14.0	5.23	.703	18	
1340	53.0	35.0	14.0	5.22	.702	11	
							End Development
							SURGED 1ST.
							PID Readings BH 3.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW3A
Site: SWL
Date Installed: NA
Date : 10.26.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 48.4
Static Water Level Before (ft.): 34.65
Static Water Level After (ft.): _____
Screen Length (ft.): 2
One Well Vol: 9 GAL (.653)
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1408	START	34.65	14.5	5.95	0.93	497	TAN, NO ODOR
1415	10.5		14.0	6.21	.845	310	
1418	15	DRY 47.5	—	—	—	—	STOPPED PUMP FOR RECHARGE
1445	15	46	14.5	6.03	0.96	82	RECHARGED TO 46.0'
1446	16	DRY 47.5	—	—	—	—	END DEVELOPMENT
							SURGED 1ST
							PID Readings BH 1.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 3B
Site: SWL
Date Installed: NA
Date: 10.26.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 12.8
Static Water Level Before (ft.): 7.75
Static Water Level After (ft.): 12.2
Screen Length (ft.): 3
One Well Vol: 3.3 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 34

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1451	START	7.75	16.8	7.08	1.44	>999	BRN. HIGH SOLIDS, NO ODOR
1453	3	12.0 DRY	—	—	—	—	STOPPED PUMP FOR RECHARGE
1529*		12.2	—	—	—	—	VERY LITTLE RECHARGE
							0.2' IN 30 MIN
							MAY NOT INSTALL PUMP?
							* START PUMP, PUMPED 8 OZ
							SURGED 1ST
							PID Readings BH 0.9 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 4A
Site: SWL
Date Installed: NA
Date : 10.26.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 27.52
Static Water Level Before (ft.): 18.70
Static Water Level After (ft.): 27
Screen Length (ft.): 2
One Well Vol: 5.8 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.) SEWAGE ODOR
1600	START	18.70	17.3	6.67	.218	>999	DARK GRAY, HIGH SOLIDS, LANDFILL ODOR
1601	1.5 *	DRY 27'	—	—	—	—	STOP PUMP
1620	1.5	DRY	—	—	—	—	END DEVELOPMENT
							VERY LOW RECHARGE
							MAY NOT INSTALL
							PUMP ?
							SURGED 1ST
							* REMOVED 4± GAL SURGING
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as-part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 4B
Site: SWL
Date Installed: NA
Date : 10.26.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 49.5
Static Water Level Before (ft.): 30.30
Static Water Level After (ft.): 49.0
Screen Length (ft.): 3
One Well Vol: 12.5 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MHS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1628	START	30.30	15.3	6.58	2.29	425	LT. BRN TO GRAY, LT. LANDFILL ODOR
1635	9.1	↓	14.2	6.58	2.30	320	
1640	15.5		14.1	6.71	2.32	162	
1645	22.0		13.9	6.54	2.23	22	CLEARING
1650	28.5	DRY 49'	13.8	6.58	2.26	16	STOP PUMP, RECHARGE
1710	29.2	DRY 49'	15.1	6.64	2.39	239	RESTART REMOVED ≈ .75 GAL
							PUMP RATE = 1.3 GPM
							SURGED 1ST
							SURGING REMOVED ≈ 4 GAL
							PID Readings BH 1.1 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW5A
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 44.01
Static Water Level Before (ft.): 20.48
Static Water Level After (ft.): 43.5
Screen Length (ft.): 2
One Well Vol: 15.3 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~ms/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
0853	START	20.48	14.5	5.98	.643	>999	LT. BRN., HIGH SOLIDS, NO ODOR
0900	14	↓	14.4	6.26	.616	>999	
0905	24		14.0	6.09	.629	>999	CLEARING (SOMEWHAT)
0910	34		14.0	6.05	.624	>999	
0915	44	↓	14.0	6.05	.611	>999	
0920	54	42.0	14.0	6.06	.595	>999	
0925	64	↓	13.9	6.03	.598	>999	
0930	74		13.9	6.13	.566	>999	
0936	84		13.9	6.23	.519	>999	
0940	94		13.9	6.30	.517	>999	REMOVED 7.5 VOL.
0945	104	↓	13.9	6.27	.492	968	→ END DEVELOPMENT
0950	114	43.5 DRY	13.9	6.25	.487	956	PUMP RATE = 2 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 5B
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 18.7
Static Water Level Before (ft.): 8.13
Static Water Level After (ft.): 18.0
Screen Length (ft.): 3
One Well Vol: 6.9 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MHOS~~/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
0955	START	8.13	17.2	6.25	.613	>999	BRN., HIGH SOLIDS, NO ODOR
1000	7.5	↓	18.1	6.22	.615	>999	
1005	15.0	18.0 DRY	18.1	6.21	.515	>999	STOP PUMP, RECHARGE TO 12'
1023	15.0	12.0'	18.0	6.18	.566	>999	RESTART PUMP
1026	20.0	18.0 DRY	18.0	5.92	.478	209	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW6A
Site: SWL
Date Installed: NA
Date : 10.27-98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 44.5
Static Water Level Before (ft.): 8.42
Static Water Level After (ft.): 21.5
Screen Length (ft.): 2
One Well Vol: 23.6 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1056	START	8.42	15.2	6.31	.479	>999	BRN, SOLIDS, NO ODOR
1100	8	↓	14.6	5.95	.328	827	CLEARING
1105	18	↓	14.6	5.67	.250	330	
1110	28	↓	14.6	5.48	.232	20	CLEAR
1115	38	21.5	14.6	5.35	.204	16	END DEVELOPMENT
							SURGED 1ST
							REMOVED ≈ 7 GAL DURING SURGE
							PID Readings BH 1.6 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW6B
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 16.5
Static Water Level Before (ft.): 6.64
Static Water Level After (ft.): _____
Screen Length (ft.): 3
One Well Vol: 6.4 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1121	START	6.64	17.3	6.57	.574	>999	DARK BRN., NO ODOR
1122	3	DRY 16.0	—	—	—	—	STOPPED PUMP, RECHARGING
1137	3	15.10					
1137	3.5	16.0 DRY	17.3	6.55	.603	741	END DEVELOPMENT
							SURGED 1 ST
							REMOVED ≈ 6 GAL SURGING
							PID Readings BH 0.9 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW7A
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 43.6
Static Water Level Before (ft.): 30.40
Static Water Level After (ft.): 39.60
Screen Length (ft.): 2
One Well Vol: 8.6 GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1349	START	30.40	15.5	6.65	.465	>999	GRAY TO BRN, HIGH SOLIDS, LANDFILL ODOR
1355	12	|	14.9	6.55	.484	>999	
1400	22	|	14.8	6.50	.476	>999	
1405	32	|	14.7	6.48	.483	>999	CLOUDY
1410	42	|	14.6	6.53	.508	623	
1415	52	|	14.7	6.51	.494	344	
1420	62	|	14.8	6.50	.514	226	CLEARING
1425	72	↓	14.7	6.54	.500	166	
1430	82	39.60	14.6	6.54	.527	140	END DEVELOPMENT
						/	
						/	PUMP RATE = 2 GPM
							SURGED 1ST
							REMOVED ≈ 3 GAL SURGING
							PID Readings BH 3.2 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 201
Site: SWL
Date Installed: NA
Date : 10-25-98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 9.3
Static Water Level Before (ft.): 6.9.0
Static Water Level After (ft.): 8.8
Screen Length (ft.): 2
One Well Vol: 1.6
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1550	START	6.90	18.5	7.43	.520	>999	BROWN, HIGH SOLIDS, NO ODOR
1553	2	DRY 9.0	—	—	—	—	
1617	—	8.8	—	—	—	—	LITTLE TO NO RECHARGE
							MAY NOT INSTALL PUMP
							?
							CHECK WATER LEVEL NEXT
							QTR. MAY RISE
							WAS 2.63' FEB. '98
							SURGED 1ST
							PID Readings BH 1.5 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 203
Site: SWL
Date Installed: NA
Date : 10.26.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 9.43
Static Water Level Before (ft.): DRY 9.43
Static Water Level After (ft.): _____
Screen Length (ft.): 2
One Well Vol: GAL
Casing ID (in.): 4 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1536	START	DRY 9.43'					
		DRY					
			WELL				
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14193
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 45.17
Static Water Level Before (ft.): 27.67
Static Water Level After (ft.): 39.25
Screen Length (ft.): 10
One Well Vol: 2.9 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1520	START	27.67	16.0	6.64	1.50	294	CLOUDY, NO ODOR
1525	7.5	↓	14.8	6.72	1.50	95	
1530	15.0	↓	14.6	6.79	1.49	6	CLEAR
1535	22.5	39.25	14.6	6.79	1.50	3 ✓	
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 1.3 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14 2 93
Site: SWC
Date Installed: NA
Date: 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 65.31
Static Water Level Before (ft.): 53.05
Static Water Level After (ft.): 60.0
Screen Length (ft.): 10
One Well Vol: 2 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1602	START	53.05	17.7	6.29	2.97	514	CLOUDY, NO ODOR
1605	3	↓	15.5	6.26	3.05	553	
1610	8		15.1	6.35	3.12	236	DRAWING DOWN TO PUMP-INLET EVERY 5 MIN., STOP PUMP RECHARGE ≈ 5 MIN. & PUMP 5 MORE MIN.
1615	11		15.8	6.33	3.17	170	
1617	12		15.0	6.35	3.17	101	
1623	13	↓	15.8	6.38	3.18	81	
1624	13.5	60.0	14.9	6.32	3.21	64	PUMP INLET = 60' → END DEVELOPMENT
							SLIGHTLY SMALL ID ON RISER PIPE 1 15/16" ±
							PUMP RATE = 1 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14 3 93
Site: SWL
Date Installed: NA
Date: 10.25.98 @ 1355
Dev. Method: —
Pump Type: —

Depth to Bottom (ft.): 44.37
Static Water Level Before (ft.): 43.90
Static Water Level After (ft.): _____
Screen Length (ft.): _____
One Well Vol: _____
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
			DRY				
			WELL				
							PID Readings BH PPM
							BZ PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14 4 93
Site: SWL
Date Installed: NA
Date : 10.28.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 35.3
Static Water Level Before (ft.): 20.07
Static Water Level After (ft.): 34.5
Screen Length (ft.): 10
One Well Vol: 2.5 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
0844	START	20.07	15.9	6.35	1.94	483	CLOUDY, NO ODOR
0846	2.3	DRY 34.5	—	—	—	—	STOPPED PUMP FOR RECHARGE
0857	2.3	25.0	15.6	6.48	1.93	329	RESTART
0858	4.6	DRY 34.5	—	—	—	—	STOP PUMP
0915	4.6	25.0	15.5	6.50	1.96	95	RESTART
0916	7.0	DRY 34.5	—	—	—	—	END DEVELOPMENT
							SURGED 1ST
							PID Readings BH 1.9 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14593
Site: SWL
Date Installed: NA
Date : 10.28.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 42.78
Static Water Level Before (ft.): 28.0
Static Water Level After (ft.): 31.8
Screen Length (ft.): 10
One Well Vol: 2.4 GAL
Casing ID (in.): 2" PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
0935	START	28.0	14.9	4.69	.455	>999	TAN TO LT. RUST COLOR, NO ODOR
0940	10	↓	14.5	4.64	.438	115	CLEARING
0945	20		14.4	4.67	.448	42	
0950	30		14.3	4.67	.464	8	
0955	40	31.8	14.3	4.69	.462	2 ✓	END DEVELOPMENT
							PUMP RATE = 2 GPM
							SURGED 1ST
							PID Readings BH 0.8 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14 6 93
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 51.42
Static Water Level Before (ft.): 35.94
Static Water Level After (ft.): 37.05
Screen Length (ft.): 10
One Well Vol: 2.5 GAL
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ~~MS/CM~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1646	START	35.94	16.1	5.83	1.11	>999	LT RUST COLOR, NO ODOR
1650	5.2	↓	14.8	5.66	.855	396	
1655	11.7		14.5	5.61	.833	54	CLEARING
1700	18.2	↓	14.4	5.59	.832	21	CLEAR
1704	23.4	37.05	14.3	5.58	.874	13	
							END DEVELOPMENT
							PUMP RATE = 1.3 GPM
							SURGED 1ST
							PID Readings BH 0 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

MONITORING WELL DEVELOPMENT RECORD

Well: WES 14 7 93
Site: SWL
Date Installed: NA
Date : 10.27.98
Dev. Method: Surged & Pumped
Pump Type: Submersible 12V

Depth to Bottom (ft.): 45.33
Static Water Level Before (ft.): 28.93
Static Water Level After (ft.): 29.66
Screen Length (ft.): 10
One Well Vol: 2.7 GAL (.163)
Casing ID (in.): 2 PVC

Personnel: K. Simpson & S. Neil
Drilling Co.: NA
Project Name: NSWC Crane
Project Number: CTO 38

Time	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units MS/CM)	Turbidity (NTU)	Remarks (odor, color, etc.)
1443	START	28.93	16.3	6.65	.878	>999	TAN, NO ODOR
1450	10.5	↓	14.6	6.70	.905	107	CLEARING
1455	18.0	↓	14.3	6.69	.905	46	
1500	25.5	↓	14.3	6.65	.860	26	
1505	33.0	29.66	14.3	6.69	.853	19	END DEVELOPMENT
							PUMP RATE = 1.5 GPM
							SURGED 1ST
							PID Readings BH 0.8 PPM
							BZ 0 PPM

Note: Well was installed as part of a previous RFI and is being redeveloped at this time.

ATTACHMENT 2

Dedicated Pump Specification Sheets
Monitoring Event No. 1

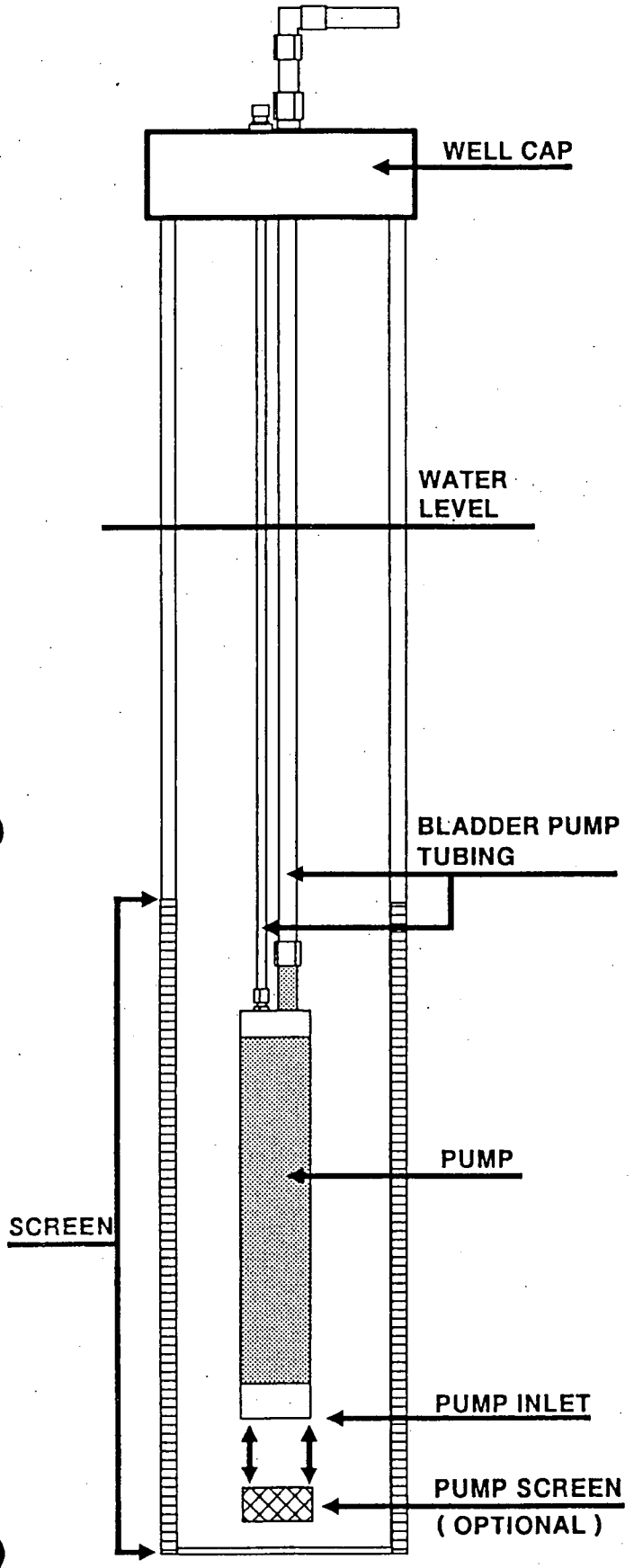
WELL WIZARD Dedicated Monitoring Systems

Downwell Equipment
Build/Specification Sheet(s)
enclosed with System Diagrams
as produced for your site.

PLEASE GIVE THIS INFORMATION TO THE INSTALLER(S)

QED Environmental Systems

Phone 1-800-624-2026
1-800-272-9559 After Hours



WELL WIZARD

WELL SYSTEM: A TYPE

BLADDER PUMP ONLY

INSTRUCTIONS

1. ATTACH PUMP INLET SCREEN TO PUMP (IF APPLICABLE).

2. ATTACH BLADDER PUMP TUBING TO PUMP.

3. LOWER PUMP TO DESIRED DEPTH.

4. PASS DISCHARGE TUBE THROUGH CAP AND ATTACH AIR LINE UNDER CAP.

Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.
Site/Location: NSWC Crane, Indiana
Date: 10/19/98
Salesperson: SW

Well ID No.	ABG03B04	ABG03C17	ABG03C04	ABG03C07	ABG03C15	ABG03C20
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	16.9	151.7	86.6	102.1	102.6	121.7
Static Water Level	7.4	138.3	76.5	79.2	65	90.2
Water Column Height	9.5	13.4	10.1	22.9	37.6	31.5
Screen Length	5	10	10	10	10	10
Casing Length to Screen	11.9	141.7	76.6	92.1	92.6	111.7
Recovery Rate (gpm)	_____	_____	_____	_____	_____	_____
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	14	146.7	81.6	96.5	97	116.5
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	12.5	145	80	95	95.5	115
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	5	10	10	10	10	10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120AS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model	_____	_____	_____	_____	_____	_____
Drop Tubing Model	_____	_____	_____	_____	_____	_____
Drop Tubing Length	_____	_____	_____	_____	_____	_____
Water Level Probe Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Length	_____	_____	_____	_____	_____	_____
Purge Volume (pump and tube)	_____	_____	_____	_____	_____	_____

APPROVAL:
Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.

Site/Location: NSWC Crane, Indiana

Date: 10/19/98

Salesperson: SW

Well ID No.	ABG03C26	ABG03C27	ABG03C02P	ABG03C08P	ABG03C09P	ABG03C25
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	107.8	75	50.9	103.5	74.4	74
Static Water Level	83	60.8	37.6	75	44.8	47.1
Water Column Height	24.8	14.2	13.3	28.5	29.6	26.9
Screen Length	10	10	10	10	10	10
Casing Length to Screen	97.8	65	40.9	93.5	64.4	64
Recovery Rate (gpm)	_____	_____	_____	_____	_____	_____
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	102	70	45.5	98	69	69
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	100.5	68.5	44	96.5	67.5	67.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	10	10	10	10	10	10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120AS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model	_____	_____	_____	_____	_____	_____
Drop Tubing Model	_____	_____	_____	_____	_____	_____
Drop Tubing Length	_____	_____	_____	_____	_____	_____
Water Level Probe Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Length	_____	_____	_____	_____	_____	_____
Purge Volume (pump and tube)	_____	_____	_____	_____	_____	_____

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.
Site/Location: NSWC Crane, Indiana
Date: 10/19/98
Salesperson: SW

Well ID No.	ABG03C30	ABG03C03	ABG03B02	ABG03C10	ABG03C11	ABG03C12
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	263.5	152.7	18.6	79.1	60.1	53.2
Static Water Level	223.7	88	6.1	50.3	44.4	41.9
Water Column Height	39.8	64.7	12.5	28.8	15.7	11.3
Screen Length	10	10	5	10	10	10
Casing Length to Screen	253.5	142.7	13.6	69.1	50.1	43.2
Recovery Rate (gpm)						
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	258	147	15.5	74	55	48
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	256.5	145.5	14	72.5	53.5	46.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	10	10	5	10	10	10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120AS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model						
Drop Tubing Model						
Drop Tubing Length						
Water Level Probe Model						
Water Level Probe Tubing Model						
Water Level Probe Tubing Length						
Purge Volume (pump and tube)						

APPROVAL:
Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.

Site/Location: NSWC Crane, Indiana

Date: 10/19/98

Salesperson: SW

Well ID No.	ORR06C08	ORR06C14P2	ORR06C11	ORR06C12	ORR06C13	ORR06C14
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	282.9	27.6	58.7	79.1	57.5	50.6
Static Water Level	211	12.6	5.7	24.4	10.8	13.6
Water Column Height	71.9	15	53	54.7	46.7	37
Screen Length	40	10	20	20	20	20
Casing Length to Screen	242.9	17.6	38.7	59.1	37.5	30.6
Recovery Rate (gpm)	_____	_____	_____	_____	_____	_____
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	263	22.5	48	68.5	47	40
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	261.5	21	46.5	67	45.5	38.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753 10	37753 10	37753 5	37753 10	37753 10	37753 10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120AS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model	_____	_____	_____	_____	_____	_____
Drop Tubing Model	_____	_____	_____	_____	_____	_____
Drop Tubing Length	_____	_____	_____	_____	_____	_____
Water Level Probe Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Length	_____	_____	_____	_____	_____	_____
Purge Volume (pump and tube)	_____	_____	_____	_____	_____	_____

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.

Site/Location: NSWC Crane, Indiana

Date: 10/19/98

Salesperson: SW

Well ID No.	ORR06C15	ORR06C16	ORR06C18	ORR06C11P2	ORR06C13P2	ORR06C18P2
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	58.7	85.4	61.9	32.5	32.6	35.1
Static Water Level	17.1	36.1	10.9	5.7	10.5	11
Water Column Height	41.6	49.3	51	26.8	22.1	24.1
Screen Length	20	20	20	10	10	10
Casing Length to Screen	38.7	65.4	41.9	22.5	22.6	25.1
Recovery Rate (gpm)						
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	48	74	51	27.5	27.5	30
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	46.5	72.5	49.5	26	26	28.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	10	10	10	5	10	10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120AS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model						
Drop Tubing Model						
Drop Tubing Length						
Water Level Probe Model						
Water Level Probe Tubing Model						
Water Level Probe Tubing Length						
Purge Volume (pump and tube)						

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.
Site/Location: NSWC Crane, Indiana
Date: 10/19/98
Salesperson: SW

Well ID No.	DR06C08P2	DR06C02	DR06C03	DR06C04	DR06C05	DR06C06
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	2	2
Well Depth	94.1	69.4	89.5	100.2	82.8	71.9
Static Water Level	70.2	17.7	14.6	29.6	18.7	21.6
Water Column Height	23.9	51.7	74.9	70.6	64.1	50.3
Screen Length	10	20	20	20	20	20
Casing Length to Screen	84.1	49.4	69.5	80.2	62.8	51.9
Recovery Rate (gpm)						
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	89	58.5	78.5	89	71.5	60.5
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	87.5	57	77	87.5	70	59
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection Location (ft.)	37753 10	37753 10	37753 10	37753 10	37753 10	37753 10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120AS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model						
Drop Tubing Model						
Drop Tubing Length						
Water Level Probe Model						
Water Level Probe Tubing Model						
Water Level Probe Tubing Length						
Purge Volume (pump and tube)						

APPROVAL:
Signature: _____
Date: _____

Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.

Site/Location: NSWC Crane, Indiana

Date: 10/19/98

Salesperson: SW

Well ID No.	DR06C07	DR06C03P2	DR06C04P2	DR06C06P2	SWLMW201	SWLMW1B
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	2	2	2	2	4	4
Well Depth	83.9	23.1	28.9	33.3	9.3	43.6
Static Water Level	20.9	2.2	20.7	7.5	2.6	28.5
Water Column Height	63	20.9	8.2	25.8	6.7	15.1
Screen Length	20	10	10	10	N/A	N/A
Casing Length to Screen	63.9	13.1	18.9	23.3	N/A	N/A
Recovery Rate (gpm)						
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	72.5	18	24.5	28	8	41.8
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	71	16.5	23	26.5	6.5	40.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	10	2	10	5	2	10
Cap Model	2120AS	2120AS	2120AS	2120AS	2120CS	2120CS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model						
Drop Tubing Model						
Drop Tubing Length						
Water Level Probe Model						
Water Level Probe Tubing Model						
Water Level Probe Tubing Length						
Purge Volume (pump and tube)						

APPROVAL:

Signature: _____

Date: _____

Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.

Site/Location: NSWC Crane, Indiana

Date: 10/19/98

Salesperson: SW

Well ID No.	SWLMW203	SWLMW2A	SWLMW3A	SWLMW4A	SWLMW5A	SWLMW6A
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	4	4	4	4	4	4
Well Depth	9.4	43.9	48.4	27.5	44	44.5
Static Water Level	3.6	26.3	35.8	3.9	20.5	8.6
Water Column Height	5.8	17.6	12.6	23.6	23.5	35.9
Screen Length	N/A	N/A	N/A	N/A	N/A	N/A
Casing Length to Screen	N/A	N/A	N/A	N/A	N/A	N/A
Recovery Rate (gpm)	_____	_____	_____	_____	_____	_____
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	8.1	42.6	47.1	26.2	42.7	43.2
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	6.5	41	45.5	24.5	41	41.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	2	10	10	2	10	5
Cap Model	2120CS	2120CS	2120CS	2120CS	2120CS	2120CS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model	_____	_____	_____	_____	_____	_____
Drop Tubing Model	_____	_____	_____	_____	_____	_____
Drop Tubing Length	_____	_____	_____	_____	_____	_____
Water Level Probe Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Length	_____	_____	_____	_____	_____	_____
Purge Volume (pump and tube)	_____	_____	_____	_____	_____	_____

APPROVAL:

Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.
Site/Location: NSWC Crane, Indiana
Date: 10/19/98
Salesperson: SW

Well ID No.	SWLMW7A	SWLMW3B	SWLMW4B	SWLMW5B	SWLMW6B	WLWES1419
Well System Type	A	A	A	A	A	A
Well Diameter (Inches)	4	4	4	4	4	2
Well Depth	43.6	12.8	49.5	18.7	16.5	45.2
Static Water Level	30.4	4.8	30.1	6.1	5	27.6
Water Column Height	13.2	8	19.4	12.6	11.5	17.6
Screen Length	N/A	N/A	N/A	N/A	N/A	10
Casing Length to Screen	N/A	N/A	N/A	N/A	N/A	35.2
Recovery Rate (gpm)	_____	_____	_____	_____	_____	_____
Bladder Pump Model	P1150	P1150	P1150	P1150	P1150	P1150
Bladder Pump Inlet Screen	37727	37727	37727	37727	37727	37727
Inlet Location	42.3	11	47.5	17	14.5	40
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200	PT5200	PT5200
Bladder Pump Tubing Length	41	9.5	46	15.5	13	38.5
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5	0.5	0.5
Cold Weather Protection	37753	37753	37753	37753	37753	37753
Location (ft.)	10	4	10	5	4	10
Cap Model	2120CS	2120CS	2120CS	2120CS	2120CS	2120AS
Elbow/Flex Flow Model	35218	35218	35218	35218	35218	35218
Cap Adapter Model	_____	_____	_____	_____	_____	_____
Drop Tubing Model	_____	_____	_____	_____	_____	_____
Drop Tubing Length	_____	_____	_____	_____	_____	_____
Water Level Probe Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Model	_____	_____	_____	_____	_____	_____
Water Level Probe Tubing Length	_____	_____	_____	_____	_____	_____
Purge Volume (pump and tube)	_____	_____	_____	_____	_____	_____

APPROVAL:
Signature: _____

Date: _____

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Well Wizard (R) Specification Sheet

Customer: Tetra Tech NUS Inc.

Site/Location: NSWC Crane, Indiana

Date: 10/19/98

Salesperson: SW

Well ID No.	WLWES1429	WLWES1449	WLWES1469	WLWES1479		
Well System Type	A	A	A	A		
Well Diameter (Inches)	2	2	2	2		
Well Depth	65.3	35.3	51.4	45.3		
Static Water Level	53.1	20.9	36.1	28.8		
Water Column Height	12.2	14.4	15.3	16.5		
Screen Length	10	10	10	10		
Casing Length to Screen	55.3	25.3	41.4	35.3		
Recovery Rate (gpm)						
Bladder Pump Model	P1150	P1150	P1150	P1150		
Bladder Pump Inlet Screen	37727	37727	37727	37727		
Inlet Location	60	30	46.5	40		
Bladder PumpTubing Model	PT5200	PT5200	PT5200	PT5200		
Bladder Pump Tubing Length	58.5	28.5	45	38.5		
Stick-up Above Cap (included in total tube length)	0.5	0.5	0.5	0.5		
Cold Weather Protection	37753	37753	37753	37753		
Location (ft.)	10	10	10	10		
Cap Model	2120AS	2120AS	2120AS	2120AS		
Elbow/Flex Flow Model	35218	35218	35218	35218		
Cap Adapter Model						
Drop Tubing Model						
Drop Tubing Length						
Purge Mizer Model						
Purge Mizer Tubing Model						
Purge Mizer Tubing Length						
Approximate Purge Time (mins)						

APPROVAL:

Signature: _____

Date: _____

ABG
03 C10

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG
C303

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG
03C11

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC.

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

QED
GroundWater
Specialists

ABG 03C20

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC.

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG
03C15

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC. RJF

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG 03C9P2

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC. RJF

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

QED
GroundWater
Specialists

ABG03C08P2

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

QED
GroundWater
Specialists

ABG0326

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG 03C07

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

ABG03C04

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG 03C27

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG 03C12

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG
03C2P2
≈ 1.5"

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: OCT 23 1998
Pump Model: P1150	Batch Serial Number: 109803

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG
03C30
≈ 1"

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: OCT 23 1998
Pump Model: P1150	Batch Serial Number: 109803

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ABG03C17
NA

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

3 1/2
ABG
03C25

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

03B04
ABG
3

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

WELL #
03B02
ABG

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 23 1998
Date

P1150
Pump Model

109803
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C03P2

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: OCT 2 9 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

(3)

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

DR06C03

Quality Certification Manager	Date: OCT 2 9 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C06 P2

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: OCT 2 9 1998
Pump Model: P1150	Batch Serial Number: 1 0 9 8 0 4

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C07

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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Quality Certification Manager	Date: OCT 2 9 1998
Pump Model: P1150	Batch Serial Number: 1 0 9 8 0 4

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C06

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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T W C.

Quality Certification Manager

OCT 2 9 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C05

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

T W C.

Quality Certification Manager

OCT 2 9 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DL06C04 P2

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC

Quality Certification Manager

OCT 29 1998

Date

P1150

Pump Model

109804

Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DL06C04

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC

Quality Certification Manager

OCT 29 1998

Date

P1150

Pump Model

109804

Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C08P2

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR06C08

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

DR 0602

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC. TNJE

Quality Certification Manager	OCT 2 9 1998 Date
P1150 Pump Model	1 0 9 8 0 4 Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 0612

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

TWC. TNJE

Quality Certification Manager	OCT 2 9 1998 Date
P1150 Pump Model	1 0 9 8 0 4 Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 06C11 P2

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.

Quality Certification Manager	Date: OCT 29 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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ORR 06C11

Quality Certification Manager	Date: OCT 29 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 06C18P2

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC.

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 06C18

QED
GroundWater
Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC.

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 06C13P2

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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Quality Certification Manager

OCT 2 9 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

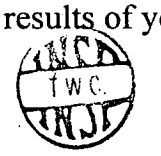
ORR 06C13

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

The enclosed pump has been tested for the EPA priority pollutant parameters under conditions more critical than those required in current accepted ground water monitoring practices. We certify that this pump will not adversely affect the results of your ground water sample analysis.



Quality Certification Manager

OCT 2 9 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 06C16

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC.

Quality Certification Manager	Date: OCT 2 9 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR 06C15

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC.

Quality Certification Manager	Date: OCT 2 9 1998
Pump Model: P1150	Batch Serial Number: 109804

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR06C14

QED
GroundWater Specialists

P.O. Box 3726 • Ann Arbor, MI 48106

QED PUMP CERTIFICATION

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TWC

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ORR06C14P

QED
GroundWater Specialists

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QED PUMP CERTIFICATION

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TWC

Quality Certification Manager

OCT 29 1998
Date

P1150
Pump Model

109804
Batch Serial Number

If you need further information on QED's Pump Certification Program, please contact QED Environmental Systems, Inc. at 1-800-624-2026.

ATTACHMENT 4

Summary of Field Activities
Monitoring Event No. 1

NSWC Crane, IN
CTO 38 and 48
Summary of Field Activities
October 18, 1998 through November 12, 1998

The following is a summary of field activities conducted October 18 through November 12, 1998 at the NSWC Crane facility, Crane, IN. Monitoring wells were developed at the four sites, the Ammunition Burning Grounds (ABG), Old Rifle Range (ORR), Demolition Range (DR) and Sanitary Waste Landfill (SWL). Dedicated bladder pumps were installed in 40 wells at the ABG, ORR and DR sites; two wells at the ORR as well as all wells at the SWL are in need of pump installation.

Well development was accomplished by both surging and pumping the wells. Purge water was contained in a 300-gallon pick-up truck mounted tank and discharged into NSWC-permitted sanitary sewer system via on site manhole #327.

Eighteen monitoring wells, two surface water and two spring water points were sampled completing Round 1 sampling at the ABG. All monitoring points were sampled following the procedures laid-out in the May 1998 FSP.

The dedicated bladder pumps installed were QED Environmental Systems, Well Wizard® Pump Model P1150. All pumps come from the factory "certified clean" and the certificate for each pump was maintained and will be included in the Round 1 report. The 12 pumps for the SWL have been purchased and are being stored on site and will be installed during an upcoming field effort.

Shift 1: October 18 through 28, 1998
Tt NUS personnel on site: Keith Simpson and Scott Neil.

Shift 2: November 1 through 12, 1998
Tt NUS personnel on site: Keith Simpson, Clyde Snyder and Scott Neil.

The following table lists well development, dedicated bladder pump installation and monitoring point sample dates.

SITE	MONITORING POINT	DATE DEVELOPED	PUMP INSTALLATION DATE	SAMPLE DATE
ABG	3B02	10/19/98	11/2/98	11/5/98
ABG	3B04	10/19/98	11/2/98	11/9/98
ABG	3C02P2	10/22/98	11/3/98	11/9/98
ABG	3C03	10/22/98	11/3/98	11/6/98
ABG	3C04	10/20/98	11/3/98	11/11/98
ABG	3C07	10/21/98	11/3/98	11/11/98
ABG	3C09P2	10/23/98	11/3/98	11/8/98
ABG	3C10	10/23/98	11/3/98	11/8/98
ABG	3C11	10/19/98	11/3/98	11/6/98
ABG	3C12	10/22/98	11/3/98	11/8/98
ABG	3C15	10/23/98	11/3/98	11/10/98
ABG	3C17	10/23/98	11/2/98	11/9/98
ABG	3C20	10/23/98	11/3/98	11/10/98
ABG	3C25	10/19/98	11/2/98	11/7/98
ABG	3C26	10/21/98	11/3/98	11/10/98
ABG	3C27	10/22/98	11/3/98	11/9/98
ABG	3C30	10/24/98	11/3/98	11/11/98
ABG	3C8P2	10/20/98	11/3/98	11/10/98
ABG	CRELSD	NA	NA	11/5/98
ABG	CRELSU	NA	NA	11/5/98

NSWC Crane, IN
CTO 38 and 48
Summary of Field Activities
October 18, 1998 through November 12, 1998

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ABG	3B04	10/19/98	11/2/98	11/9/98
ABG	3C02P2	10/22/98	11/3/98	11/9/98
ABG	3C03	10/22/98	11/3/98	11/6/98
ABG	3C04	10/20/98	11/3/98	11/11/98
ABG	3C07	10/21/98	11/3/98	11/11/98
ABG	3C09P2	10/23/98	11/3/98	11/8/98
ABG	3C10	10/23/98	11/3/98	11/8/98
ABG	3C11	10/19/98	11/3/98	11/6/98
ABG	3C12	10/22/98	11/3/98	11/8/98
ABG	3C15	10/23/98	11/3/98	11/10/98
ABG	3C17	10/23/98	11/2/98	11/9/98
ABG	3C20	10/23/98	11/3/98	11/10/98
ABG	3C25	10/19/98	11/2/98	11/7/98
ABG	3C26	10/21/98	11/3/98	11/10/98
ABG	3C27	10/22/98	11/3/98	11/9/98
ABG	3C30	10/24/98	11/3/98	11/11/98
ABG	3C8P2	10/20/98	11/3/98	11/10/98
ABG	CRELSD	NA	NA	11/5/98
ABG	CRELSU	NA	NA	11/5/98

SITE	MONITORING POINT	DATE DEVELOPED	PUMP INSTALLATION DATE	SAMPLE DATE
ABG	SPRA	NA	NA	11/5/98
ABG	SPRC	NA	NA	11/5/98
DR	6C02	10/24/98	11/4/98	NC
DR	6C03	10/24/98	11/4/98	NC
DR	6C03P2	10/24/98	11/4/98	NC
DR	6C04	10/24/98	11/4/98	NC
DR	6C04P2	10/24/98	11/4/98	NC
DR	6C05	10/25/98	11/4/98	NC
DR	6C06	10/25/98	11/4/98	NC
DR	6C06P2	10/25/98	11/4/98	NC
DR	6C07	10/25/98	11/4/98	NC
DR	6C08P2	10/24/98	11/4/98	NC
DR/ORR	06C08	10/22/98	11/4/98	NC
ORR	6C11	10/22/98	11/4/98	NC
ORR	6C11P2	10/22/98	11/4/98	NC
ORR	6C12	10/21/98	11/4/98	NC
ORR	6C13	10/21/98	11/4/98	NC
ORR	6C13P2	10/21/98	11/4/98	NC
ORR	6C14	10/20/98	11/4/98	NC
ORR	6C14P2	10/20/98	11/4/98	NC
ORR	6C15	10/20/98	11/4/98	NC
ORR	6C16	10/20/98	11/4/98	NC
ORR	6C18	10/21/98	11/4/98	NC
ORR	6C18P2	10/21/98	11/4/98	NC
ORR	6C19	11/7/98	NC	NC
ORR	6C19P2	11/7/98	NC	NC
SWL	MW1B	10/25/98	NC	NC
SWL	MW201	10/25/98	NC	NC
SWL	MW2A	10/26/98	NC	NC
SWL	MW3A	10/26/98	NC	NC
SWL	MW3B	10/26/98	NC	NC
SWL	MW4A	10/26/98	NC	NC
SWL	MW4B	10/26/98	NC	NC
SWL	MW5A	10/27/98	NC	NC
SWL	MW5B	10/27/98	NC	NC
SWL	MW6A	10/27/98	NC	NC
SWL	MW6B	10/27/98	NC	NC
SWL	MW7A	10/27/98	NC	NC
SWL	WES 14-1	10/27/98	NC	NC
SWL	WES 14-2	10/27/98	NC	NC
SWL	WES 14-6	10/27/98	NC	NC
SWL	WES 14-7	10/27/98	NC	NC

NC not completed at this time.
NA not applicable.

ATTACHMENT 5

Ground Water Sample Log Sheet/Low Flow Purge Data Sheets Monitoring Event No. 1

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03B02G-W01
Sample Location: ABG
Sampled By: RS-SN-CS
C.O.C. No.: 01299+01300
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.5.98 / Time: 1200	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Method: BLADDER PUMP	CLEAR	7.23	0.417	15	0.9	0.45	-146.0	NONE

PURGE DATA:

Date: 11.5.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 4.8			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 18.6								
Static Water Level (WL): 6.34								
One Casing Volume(gal/L): 2								
Start Purge (hrs): 1049								
End Purge (hrs): 1150								
Total Purge Time (min): 61								
Total Vol. Purged (gal/L): 2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	~~(1)~~ 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate: Carb & Bicarb	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

TOP OF SCREEN = 13'

End of sampling: 1630

Circle if Applicable:

MS/MSD	Duplicate ID No.:
YES	GW FD 110598-1

Signature(s):

R. S. Simpson Scott Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: ABG-03B02GW01
DATE: 11.5.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1052	6.34	175	7.27	0.443	88.5	2.30	15.13	-113.5	
1057	6.45		7.27	0.442	53.1	1.11	14.70	-137.0	
1100	↓		7.27	0.430	75.5	1.12	14.80	-129.2	
1110	↓		7.26	0.427	63.1	1.12	15.02	-144.8	
1115	6.47		7.25	0.423	65.4	0.90	14.88	-150.5	RECAL. TURB.
1125	6.49		7.15	0.417	2.5	1.65	15.13	-123.8	
1130	6.51		7.23	0.419	1.6	0.57	15.06	-144.3	
1135	6.50	↓	7.24	0.420	1.5	0.57	15.03	-145.8	
1140	6.49	120	7.23	0.419	1.3	0.36	15.10	-146.4	
1446	6.47	120	7.23	0.417	0.9	0.45	15.00	-146.0	END PURGE

SIGNATURE(S): K. E. Sin

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03B04GW-0
Sample Location: ABG
Sampled By: S. Neil
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/9/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 0910	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	Clear	7.17	0.446	14.0	0	1.34	-74.6	NONE

PURGE DATA:

Date: 11/9/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 0.8			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 16.80								
Static Water Level (WL): 7.85'								
One Casing Volume (gal/L): 1.46gal								
Start Purge (hrs): 0831								
End Purge (hrs): 0906								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 1.65gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	5 (1) 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; Carb, Bicarb.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0.0 PPM

Reaction to preservative: Light foam in total phosphorus

Final H_2O level = 7.91'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Scott W. Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03B04
DATE: 11/9/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0831	7.85							→	Begin purge
0836	7.90	178	7.28	0.625	217	3.64	13.7	-26.7	
0841	7.88	178	7.24	0.507	229	2.34	13.9	-53.8	
0846	7.93	178	7.21	0.484	18	1.68	13.9	-50.9	Cleaned turb. probe.
0851	7.89	178	7.20	0.477	19	2.27	13.9	-54.1	
0856	7.89	178	7.18	0.457	2	1.16	14.0	-65.8	Cleaned turb. probe.
0901	7.90	178	7.18	0.451	1	0.84	13.9	-71.8	
0906	7.89	178	7.17	0.446	0	1.34	14.0	-74.6	End of purge
	Begin sampling @ 0910 - Sample # ABG03B04GW01								
	End sampling @ 1024								

SIGNATURE(S): Scottie Reid

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG03C02P2GW-1
Sample Location: ABG
Sampled By: Clyde Snyder
C.O.C. No.: 00304
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/9/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1450	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	Clear	6.89	0.765	13.89	3	6.55	169.4	None

PURGE DATA:

Date: 11/9/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 2.8			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 50.90								
Static Water Level (WL): 37.53								
One Casing Volume(gal): 2.18								
Start Purge (hrs): 1320								
End Purge (hrs): 1445								
Total Purge Time (min): 85								
Total Vol. Purged (gal): 3.4								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	(2) 1000mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate CARB. BICARB	4°C	(1) 500 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

I.U. TRANSDUCER IN WELL

No Reaction

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s): Clyde Snyder

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: AOG03C02P2
DATE: 11/9/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1320	37.52	—	7.02	0.666	296	7.36	15.02	158.1	
1325	37.54	50	6.93	0.739	20	6.98	14.54	159.8	
1330	37.54	120	6.90	0.771	22	6.88	14.59	168.4	increased flow rate
1335	37.54	120	6.90	0.771	20	6.73	14.97	169.8	
1340	37.54	120	6.89	0.772	22	7.00	14.78	177.3	
1345	37.54	150	6.89	0.772	16	6.91	14.75	185.5	increased flow rate
1350	37.54	160	6.89	0.767	53	6.83	14.52	181.4	
1355	37.54	180	6.89	0.768	3	6.48	14.41	191.7	
1400	37.54	180	6.89	0.766	43	6.92	14.39	184.2	Cleaned turpidity probe
1405	37.54	180	6.89	0.768	6	7.16	13.98	175.7	
1410	37.54	180	6.89	0.768	3	6.81	13.60	172.4	
1415	37.54	180	6.89	0.767	53	6.56	13.77	191.0	Cleaned turpidity probe
1420	37.54	180	6.91	0.758	1	7.42	14.08	184.3	
1425		180	6.89	0.747	4	7.00	14.03	175.3	
1430		180	6.89	0.765	3	6.52	14.18	182.3	
1435		180	6.89	0.765	4	6.65	14.21	170.2	
1440		180	6.89	0.765	6	6.55	14.21	169.7	
1445		180	6.89	0.765	3	6.55	13.89	169.4	
1450									start sample

SIGNATURE(S):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C03GW01
Sample Location: ABG
Sampled By: KS-SN-CS
C.O.C. No.: 01127+01128
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.6.98 / Time: 1505	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Method: BLADDER PUMP	CLEAR	9.62	1.050	13.70	5	0.29	-45.2	NONE

PURGE DATA:

Date: 11.6.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm): *3.1			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 152.7								
Static Water Level (WL): 88.18								
One Casing Volume (gal/L): 10.5								
Start Purge (hrs): 1045								
End Purge (hrs): 1501								
Total Purge Time (min): 256								
Total Vol. Purged (gal/L): 11.32 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	~~(4)~~ 5 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; Carb, Bicarb.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

REACTION TO PRESERVATIVE
SLIGHT FOAM IN PHOSPHORUS

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	

Signature(s): Scott A. Neil
K. S. Simpson

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: ABG 03C03 GW 01
DATE: 11.6.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S.Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1052	88.18	140	9.68	1.079	80	6.54	13.13	8.6	
1057	88.18	140	9.67	1.065	93.	2.52	13.25	0.3	CLEANED TURB. PROBE
1106	88.18	160	9.67	1.065	73	1.40	13.41	0.8	
1111		160	9.67	1.062	82	1.14	13.35	0.9	
1116			9.66	1.056	57	1.10	13.40	-1.5	
1121			9.65	1.054	54	0.87	13.41	-2.9	
1126			9.65	1.054	45	0.77	13.41	-3.6	
1131			9.64	1.053	32	0.69	13.41	-6.7	
1136			9.64	1.052	28	1.00	13.54	-8.3	
1141			9.64	1.051	22	0.86	13.65	-9.8	
1146			9.64	1.052	23	0.56	13.62	-10.1	
1151			9.64	1.052	24	0.53	13.54	-11.1	
1156			9.64	1.052	24	0.54	13.78	-12.4	
1201			9.64	1.052	21	0.49	13.66	-23.5	
1211			9.63	1.051	23	0.65	13.59	-22.1	
1221			9.63	1.051	16	0.71	13.53	-22.2	
1231			9.63	1.052	15	0.59	13.63	-22.7	
1241			9.63	1.052	18	0.55	13.62	-23.3	
1251			9.63	1.051	18	0.62	13.46	-23.5	
1301		185	9.63	1.050	13	0.34	13.62	-24.2	CLEANED TURB. PROBE
1311			9.63	1.050	35	0.31	13.44	-25.1	
1321			9.63	1.039	15	0.61	13.68	-24.0	
1331			9.63	1.049	10	0.49	14.05	-29.1	
1341			9.63	1.052	10	0.36	14.05	-33.2	
1351			9.62	1.051	10	0.41	13.88	-37.9	
1401			9.62	1.051	8	0.28	14.26	-40.6	
1411			9.62	1.051	9	0.46	13.57	-42.0	
1421			9.63	1.051	6	0.31	14.17	-46.9	
1431			9.63	1.053	7	0.29	13.71	-45.6	
1441			9.63	1.053	9	0.35	13.71	-45.2	

SIGNATURE(S): Scott W. Reid

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 30
WELL ID.: 03C03
DATE: 11/6/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1451	88.18	185	9.62	1.051	8	0.34	13.65	-44.9	
1501	88.18	185	9.62	1.050	5	0.29	13.70	-45.2	End of purging.
	Begin Sampling @ 1505 - Sample # ABG03C03GW01								
	End sampling @ 1625								

SIGNATURE(S):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03COA-GW-01
Sample Location: ABG
Sampled By: CLYDE SYNDER/S. Neil
C.O.C. No.: 00309
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.11.98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1345	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	CLEAR	7.27	1.598	11.3	1	10.68	-30.3	NONE

PURGE DATA:

Date: 11.11.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP	—	7.27	1.598	11.3	1	10.68	-30.3	—
Monitor Reading (ppm):* 0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 86.60								
Static Water Level (WL): 76.18								
One Casing Volume (gal/L): 1.7								
Start Purge (hrs): 0753								
End Purge (hrs): 0840								
Total Purge Time (min): 47								
Total Vol. Purged (gal/L): 0.7gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	5 ~~(4)~~ 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate (CARB, BICARB, CARB)	4°C	(1) ~~500~~ 1000 mL Polyethylene	
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

REACTION TO PRESERVATIVE: NONE

Final H2O level = Below the top of the pump.

Sent 11/11/98

+ ~~Final~~ Field parameters taken before sampling began.
+ Sampling stopped @ 0835 due to water level falling below pump inlet.
+ Let recharge overnight – began sampling on 11/12/98 @ 0650.
+ Well is producing ≈ 10mL every 1.5 seconds.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Scott A. Neil

LOW FLOW PURGE DATA SHEET

ABG

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C04
DATE: 11.11.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV.	Comments
0800	76.18	—	7.28	1.813	73	8.22	9.16	19.0	
0805	77.30	~~350~~ 70	7.22	1.870	73	6.58	10.0	-17.2	
0810	77.72	100	7.22	1.870	4	6.58	10.0	-17.6	
0815	77.90	70	7.23	1.876	4	6.30	9.80	-14.5	
0820	78.23	50	7.24	1.880	4	3.23	9.79	-8.5	
0825	78.41	50	7.25	1.891	8	8.13	9.19	-5.2	
0830	78.53	40	7.27	1.893	8	7.36	8.64	-2.0	
0835	78.61	40	7.27	1.882	76	9.19	8.37	0.1	
0840	78.70	30	7.27	1.887	447	4.36	8.31	-2.5	DRY: TO PUMP INLET
1014	78.18	—	—	—	—	—	—		STOP PUMP FOR RECHARGE
1151	77.94								
1325	77.72	→						→	water level when sampling began
	Began sampling @ 1345 - sample # ABG03C04GW01.								
	End sampling @ 2035 - well volume dropped below pump inlet.								
	Restart sampling @ 0650 on 11/12/98 after overnight recharge - H_2O level = 78.22'								
	end sampling @ 1000.								

SIGNATURE(S): _____

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG03C07GW-01
Sample Location: ABG
Sampled By: S. Neil
C.O.C. No.: 00307
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/11/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1100	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	Clear	7.15	0.874	11.2	1	4.43	117.2	None

PURGE DATA:

Date: 11/11/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 1.2			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 102.1'								
Static Water Level (WL): 78.98'								
One Casing Volume(gal/L): 3.79gal								
Start Purge (hrs): 0756								
End Purge (hrs): 1046								
Total Purge Time (min): 170								
Total Vol. Purged (gal/L): 4.08gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	~~(1)~~ 1000mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, CARB, BICARB	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0.0 PPM

Reaction to preservative: Light foam in total phosphorus.
Final H_2O level: 79.54'

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Scott Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C07
DATE: 11/11/98

	Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
	0756	78.98							→	Start purge.
910	0801	79.33	1.82	7.02	1.180	44	8.15	10.0	104.9	
1350	0806	79.38	88	7.27	1.170	59	5.39	10.1	25.3	Adjusted flow rate.
1790	0811	79.38	88	7.26	1.025	90	4.61	10.1	1.5	
2230	0816	79.38	88	7.23	0.952	1	6.17	9.9	-12.8	Cleaned turb. probe.
2670	0821	79.39	88	7.22	0.946	7	5.14	10.1	-10.4	
3110	0826	79.39	88	7.20	0.929	0	4.53	10.2	-2.6	
3990	0836	79.41	88	7.21	0.911	1	4.62	10.2	16.0	
4870	0846	79.40	88	7.17	0.901	5	5.67	10.3	37.0	
5750	0856	79.42	88	7.18	0.887	909	5.49	10.1	52.7	Cleaned turb. probe.
6630	0906	79.41	88	7.15	0.925	0	3.51	10.3	66.5	
7510	0916	79.44	88	7.15	0.912	0	4.80	10.5	78.3	
8390	0926	79.43	88	7.17	0.901	0	4.54	10.6	87.2	
9270	0936	79.46	88	7.16	0.896	3	5.89	10.8	101.9	
10150	0946	79.47	88	7.15	0.916	0	3.30	10.8	96.6	Cleaned turb. probe.
11030	0956	79.49	88	7.16	0.905	1	5.02	10.8	96.4	
11910	1006	79.49	88	7.17	0.882	1	4.50	10.9	103.5	
12790	1016	79.51	88	7.15	0.889	0	5.21	10.9	102.7	
13670	1026	79.50	88	7.15	0.873	1	4.91	11.1	107.1	
14550	1036	79.52	88	7.15	0.879	2	5.02	11.2	113.6	
15430	1046	79.50	88	7.15	0.874	1	4.43	11.2	117.2	End purge.
		Begin sampling @ 1100 - Sample # ABG 03C07GW01.								
		End sampling @ 1317.								

SIGNATURE(S): Scott W. Reid

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C08P2GW-01
Sample Location: ABG
Sampled By: S. Neil
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/10/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1745	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	Clear	7.10	1.024	12.4	0	3.15	145.9	None

PURGE DATA:

Date: 11/10/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 1.9			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 103.5'								
Static Water Level (WL): 74.12'								
One Casing Volume (gal/L): 4.7gal								
Start Purge (hrs): 1414								
End Purge (hrs): 1737								
Total Purge Time (min): 203								
Total Vol. Purged (gal/L): 5.23gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark	(2) 1000mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, CARB, BICARB	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0.0 PPM

Reaction to preservative: None

Final H_2O level: 75.27'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C08P2
DATE: 11/10/98

	Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
	1414	74.12								Start purge.
855	1419	74.80	171	7.19	1.092	87	5.44	13.7	163.2	
1345	1424	74.96	98	7.17	1,080	40	3.04	13.9	156.7	Adjusted flow.
1835	1429	75.00	98	7.16	1.062	1	3.00	14.0	149.5	
2255	1434	75.03	90	7.16	1.057	0	3.64	14.0	144.6	Adjusted flow.
2735	1439	75.06	90	7.15	1.181	159	2.85	14.0	143.2	
3155	1444	75.08	90	7.17	1.051	1	3.54	14.1	144.0	Cleaned turb. probe.
3635	1449	75.08	90	7.15	1.027	4	3.98	14.2	149.2	
4055	1454	75.12	90	7.15	1.047	42	4.39	14.1	146.0	
4535	1459	75.12	90	7.15	1.057	0	5.49	14.2	151.9	Cleaned turb. probe.
4985	1504	75.14	90	7.13	1.066	0	4.18	14.1	145.4	
5435	1509	75.15	90	7.12	1.053	0	3.63	14.1	139.1	
—	1510									Left site due to burning.
8585	1539	75.19	90	7.11	1.050	1	2.96	13.8	140.8	Returned to well.
9035	1544	75.19	90	7.11	1.050	1	3.29	13.9	136.0	
9935	1554	75.18	90	7.11	1.052	1	3.16	13.8	137.6	
10835	1604	75.21	90	7.11	1.051	2	3.21	13.9	140.5	
11735	1614	75.23	90	7.11	1.050	2	3.37	13.5	138.4	Ambient temp. is dropping.
12685	1624	75.25	90	7.11	1.048	1	3.51	13.4	140.8	
—	1627									Left site due to burning.
14255	1642	75.27	90	7.11	1.041	0	3.17	12.8	146.8	Returned to well.
15155	1652	75.27	90	7.10	1.037	0	3.15	12.8	147.4	
16055	1702	75.25	90	7.10	1.034	0	3.29	12.7	145.6	
16955	1712	75.27	90	7.10	1.033	0	3.23	12.6	152.0	
17855	1722	75.27	90	7.10	1.028	0	3.34	12.5	147.7	
18755	1732	75.26	90	7.10	1.026	0	3.37	12.5	142.5	
19805	1737	75.26	90	7.10	1.024	0	3.15	12.4	145.9	End purge.
	Begin	Sampling @ 1745 - sample # ABG 03C08P2GW01.								
	End	Sampling @								

SIGNATURE(S):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG03C09P2GW01
Sample Location: ABG
Sampled By: S. Neil
C.O.C. No.: 00303
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.8.98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1420	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	CLEAR	6.80	0.469	13.4	17	4.73	245.1	NONE

PURGE DATA:

Date: 11.8.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 3.5			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 74.4								
Static Water Level (WL): 45.53								
One Casing Volume (gal/L): 4.71 gal								
Start Purge (hrs): 1017								
End Purge (hrs): 1417								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L): 1091 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark	(2) 1000mL ~~Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate + CARB + BICARB	4°C	(1) 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓
			✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0.0 PPM

REACTION TO PRESERVATIVE: Slight foaming of total phos.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
YES	GWFD 110898-2

Signature(s): Stanley Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C09P2
DATE: 11/8/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1017	45.53	—	—	—	—	—	—	—	Start purging.
1022	45.55	172	6.87	0.501	417	5.37	13.0	188.9	Water is medium brown.
1027	45.54	172	6.87	0.489	292	5.03	13.0	198.0	Turning light brown.
1032	45.55	172	6.86	0.486	259	4.89	12.9	205.5	
1037	45.55	172	6.86	0.485	275	5.21	13.0	196.6	
1042	45.55	172	6.86	0.482	257	4.58	13.0	211.0	
1047	45.56	172	6.85	0.480	147	4.73	13.0	196.2	
1052	45.55	172	6.84	0.478	126	4.62	13.2	208.7	
1057	45.55	172	6.83	0.475	115	4.85	13.3	206.1	
1102	45.54	172	6.83	0.472	89	4.46	13.4	200.2	
1107	45.55	172	6.82	0.486	75	4.69	13.3	193.3	
1112	45.55	172	6.81	0.472	69	6.59	13.3	220.5	
1117	45.57	172	6.81	0.472	64	6.18	13.3	223.9	
1122	45.55	172	6.81	0.470	48	5.45	13.3	207.7	
1127	45.55	172	6.81	0.469	70	4.96	13.3	214.5	
1132	45.54	172	6.81	0.468	75	4.58	13.2	205.0	
1137	45.54	172	6.80	0.466	137	4.23	13.1	217.2	
1142	45.55	172	6.80	0.466	151	4.13	13.1	167.5	Removed probe and cleaned
1147	45.55	172	6.81	0.464	46	5.41	13.2	218.2	cell & probe.
1152	45.54	172	6.80	0.468	51	4.61	13.3	231.0	
1157	45.56	172	6.80	0.469	73	4.59	13.3	225.8	
1202	45.56	172	6.82	0.467	30	5.62	13.3	205.2	Cleaned cell & probe.
1207	45.54	172	6.80	0.468	37	4.72	13.2	194.6	
1212	45.55	172	6.79	0.468	30	4.68	13.3	208.7	
1217	45.55	172	6.79	0.468	51	4.89	13.3	228.0	
1222	45.55	172	6.79	0.467	60	4.62	13.3	237.8	
1227	45.54	172	6.79	0.468	186	4.66	13.3	229.2	
1232	45.54	172	—	—	—	—	—	—	Cleaned cell & probe-no reading
1237	45.56	172	6.80	0.467	18	5.23	13.2	244.1	
1242	45.54	172	6.79	0.468	23	4.60	13.3	235.7	

SIGNATURE(S): Scott A. Reid

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO
WELL ID.: 0309P2
DATE: 11/8/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1247	45.54	172	6.79	0.468	23	4.59	13.4	233.1	
1252	45.55	172	6.80	0.465	24	4.81	13.4	235.7	
1257	45.54	172	6.79	0.468	19	4.59	13.3	172.9	Cleaned probe & cell.
1307	45.54	172	6.80	0.465	21	5.42	13.2	236.6	
1317	45.54	172	6.79	0.468	30	4.88	13.4	238.4	
1327	45.56	172	6.79	0.468	28	4.86	13.4	238.7	
1337	45.54	172	6.80	0.468	36	4.51	13.4	239.9	
1347	45.54	172	6.80	0.468	32	4.49	13.3	240.7	
1357	45.54	172	6.80	0.469	17	4.64	13.3	220.5	Cleaned probe & cell.
1407	45.55	172	6.80	0.469	12	4.97	13.4	243.7	
1417	45.55	172	6.80	0.469	17	4.73	13.4	245.1	
	END OF PURGING - Turbidity did not drop below 10 NTU's - purged for 4 hours and began sampling per FSP.								
	Began sampling @ 1420 - sample # ABG 0309P2 GW01								
	END sampling @ 1815								
	Duplicate and MS/MSD taken at this well.								

SIGNATURE(S): Scott W. Reid

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C10-GW-01
Sample Location: ABG
Sampled By: RS-CS
C.O.C. No.: 01128 + 00308
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.8.98 / Time: 1340 / Method: BLADDER PUMP	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
	CLEAR	6.45	0.642	14.11	2	3.76	141.9	NONE

PURGE DATA:

Date: 11.8.98 / Method: BLADDER PUMP	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Monitor Reading (ppm):* 4.0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 79.1								
Static Water Level (WL): 50.20								
One Casing Volume(gal/L): 4.7								
Start Purge (hrs): 1021								
End Purge (hrs): 1150								
Total Purge Time (min): 89								
Total Vol. Purged (gal/L): 5.6								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	(1) 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate, CARB, BICARB	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

REACTION TO PRESERVATIVE — NONE

Circle if Applicable:

MS/MSD —

Duplicate ID No.: GWFD 110898-3

Signature(s):

LOW FLOW PURGE DATA SHEET

ABG

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38

WELL ID.: 03C10
DATE: 11.8.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S, Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1026	50.20	240	6.61	0.926	619	8.81	13.5	115.7	
1031	50.20		6.51	0.645	131	5.53	13.8	118.6	
1036	50.23		6.49	0.640	96	4.43	13.8	114.7	CLEANED TURB. PROBE
1043	50.23		6.46	0.637	14	4.45	13.9	128.9	
1047	50.23		6.45	0.645	14	4.26	13.9	127.9	
1057	50.23		6.45	0.642	6	4.02	14.14	136.9	
1107	50.23		6.45	0.640	5	4.36	14.24	139.8	
1117	50.23		6.45	0.641	5	3.96	13.95	142.5	
1127	50.23		6.45	0.641	4	3.79	14.09	141.6	
1137	50.23	↓	6.45	0.641	2	3.71	13.99	142.1	
1147	50.23		6.45	0.642	2	3.76	14.11	141.9	
1340	50.23								Sample
									75 MIN = 4.7 GAL

SIGNATURE(S): K.S. Savage

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C11-GW-01
Sample Location: ABG-
Sampled By: KS-SN-CS
C.O.C. No.: 01127 + 01128
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.6.98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 0910	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	CLEAR	7.19	2.220	12.47	0	7.75	-49.6	SLIGHT SULPHUR

PURGE DATA:

Date: 11.6.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 3.4			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 60.9								
Static Water Level (WL): 44.35								
One Casing Volume(gal/L): 2.7								
Start Purge (hrs): 0803								
End Purge (hrs): 0907								
Total Purge Time (min): 64								
Total Vol. Purged (gal/L): 3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	(2) 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate: Carb, Bicarb.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

TROUBLE WITH TURB. PROBE CLEANED TWICE, WATER WAS CLEAR

NO REACTION TO PRESERVATIVE

END SAMPLE 1030

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: ABG-03C11GW01
DATE: 11.6.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0806	44.35	—	7.02	2.423	18.8	10.46	13.60	161.5	
0815	45.46	250	7.08	2.350	539.2	9.62	13.15	16.6	
0820	45.13	250	7.15	2.269	-0.7E	8.20	11.68	-36.5	Clean Turpidity probe
0826	44.95	250	7.15	2.269	-0.9E	7.97	11.73	-39.5	
0830	44.87	80	7.19	2.225	11.3	7.28	11.61	-52.8	
0835	44.96	140	7.23	2.188	244.6	7.11	12.28	-62.5	
0840	44.94	140	7.22	2.208	47.7	6.72	12.34	-61.6	
0845	44.94	↓	7.22	2.209	96.4	7.65	12.60	-55.4	
0850	44.99		7.26	1.136	0.0	16.52	11.53	-38.1	Clean Turpidity probe
0855	45.02		7.20	2.200	0	8.19	12.38	-53.0	
0900	45.00		7.21	2.208	0	7.80	12.39	-51.4	
0905	45.00		7.19	2.220	0	7.75	12.42	-49.6	

SIGNATURE(S): K-1/5 Sp

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C12GW-01
Sample Location: ABG
Sampled By: RS-CS
C.O.C. No.: 01128+00308
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.8.98 / Time: 1615	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Method: BLADDER PUMP	CLEAR	7.14	0.850	13.0	0	10.12	115.0	NONE

PURGE DATA:

Date: 11.8.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 3.0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 53.20								
Static Water Level (WL): 41.88								
One Casing Volume (gal/L): 1.9								
Start Purge (hrs): 1423								
End Purge (hrs): 1547								
Total Purge Time (min): 84								
Total Vol. Purged (gal/L): 2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark 5	~~(4)~~ 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate, CARB, BICARB.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

REACTION TO PRESERVATIVE - NONE

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

R. S. Simpson

LOW FLOW PURGE DATA SHEET

AB6

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38

WELL ID.: 03C12
DATE: 11·8·98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1427	41.88	150	7.24	1.667	100	13.06	13.4	149.0	
1432	41.93	100	7.19	0.886	1	10.39	13.4	155.2	
1441	41.98	↓	7.17	0.831	0	10.38	13.4	143.4	
1445	42.05	↓	7.19	0.826	0	11.58	13.4	146.7	
1450	42.11	↓	7.18	0.825	1	10.75	13.3	140.2	
1455	42.18	90	7.17	0.820	0	11.42	13.3	139.6	
1500	42.21	↓	7.16	0.853	0	11.24	13.3	140.7	
1505	42.28	↓	7.16	0.865	0	10.86	13.2	133.9	
1510	42.31	↓	7.15	0.863	0	11.18	13.2	125.6	
1520	42.33	↓	7.14	0.859	0	10.20	13.1	121.1	
1530	42.35	↓	7.14	0.857	0	10.50	13.1	116.4	
1540	42.38	↓	7.14	0.852	0	10.08	13.0	118.8	1 VOC @ 1545
1545	42.39	↓	7.14	0.850	0	10.12	13.0	115.0	
									PUMP INLET SET @ 48'±
									TOP OF SCREEN @ 43.2'±
1753	42.55 ✓	90	→	→	→	→	→	→	END SAMPLING

SIGNATURE(S): K-15 Snyder

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C15GW-01
Sample Location: ABG
Sampled By: S. NEIL
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/10/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1050	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	CLEAR	7.12	0.862	13.8	2	2.02	12.5	NONE

PURGE DATA:

Date: 11/10/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 2.2			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 102.57'								
Static Water Level (WL): 64.14'								
One Casing Volume (gal/L): 6.26 gal								
Start Purge (hrs): 0827								
End Purge (hrs): 1037								
Total Purge Time (min): 130								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	(2) 1000mL ~~& (2) 500-mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, CARB, BICARB.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0.0 PPM

Reaction to preservative: None
Final H_2O level: 64.17'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Scott Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C15
DATE: 11/10/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0827	64.14							→	Start purge.
0832	64.16	176	7.18	0.802	232	5.10	14.4	111.3	Water is light brown.
0837	64.15	176	7.13	0.767	202	2.18	14.1	52.6	
0842	64.15	176	7.12	0.782	135	1.22	14.0	37.9	
0847	64.15	204	7.12	0.814	434	1.07	14.0	29.7	Adjusted flow rate.
0852	64.16	204	7.11	0.833	379	0.78	13.8	23.9	Water is clearing.
0857	64.15	204	7.10	0.860	18	1.66	13.8	25.5	Cleaned turb. probe.
0902	64.15	204	7.10	0.856	15	0.68	13.8	12.6	water is clear.
0907	64.15	204	7.10	0.845	10	0.67	13.8	7.0	Cleaned turb. probe.
0912	64.15	204	7.10	0.866	11	0.74	13.8	11.0	
0917	64.15	204	7.10	0.861	15	0.74	13.8	1.6	
0922	64.16	204	7.10	0.864	14	0.54	13.7	-2.4	
0927	64.15	204	7.11	0.866	8	1.76	13.8	5.9	Cleaned turb. probe.
0932	64.15	204	7.14	0.865	4	1.88	13.9	45.7	
0937	64.15	204	7.11	0.865	4	1.19	13.8	24.2	
0942	64.15	204	7.11	0.861	6	2.91	13.8	18.0	
0947	64.15	204	7.11	0.863	5	1.37	13.8	11.4	Cleaned turb. probe.
0952	64.15	204	7.12	0.861	7	2.83	13.8	9.4	
0957	64.15	204	7.12	0.868	3	2.35	13.9	23.9	
1002	64.15	204	7.12	0.867	3	1.77	13.8	13.2	
1007	64.15	204	7.13	0.866	1	2.02	13.9	36.8	
1012	64.15	204	7.12	0.866	0	1.92	13.8	13.5	Cleaned turb. probe.
1017	64.15	204	7.12	0.862	1	1.53	13.7	10.4	
1022	64.15	204	7.12	0.868	0	1.27	13.8	25.1	
1027	64.15	204	7.12	0.869	0	1.18	13.8	11.2	
1032	64.15	204	7.12	0.863	2	2.05	13.9	6.6	
1037	64.15	204	7.12	0.862	2	2.02	13.8	12.5	End of purge.
	Begin sampling @ 1050 + Sample # ABG 03C15GW01								
	End sampling @ 1203								

SIGNATURE(S): Scott W. Reid

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG03C17GW01
Sample Location: ABG
Sampled By: C. Snyder
C.O.C. No.: 00303
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/9/98 Time: ~~0826~~ 1040	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Method: BLADDER PUMP	CLEAR	6.98	2.084	12.1	0	2.00	-7.7	LT SULPHUR

PURGE DATA:

Date: 11/9/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm): *0.2ppm			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 151.70								
Static Water Level (WL): 138.17								
One Casing Volume(gal/ft): 2.205								
Start Purge (hrs): 0826								
End Purge (hrs): 1037								
Total Purge Time (min): 125								
Total Vol. Purged (gal): 4.9								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	~~(2)~~ 1000mL & ~~(2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate CARB. BICARB.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

REACTION TO PRESERVATIVE None

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: AB603C17
DATE: 11/9/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0826	138.17	—	6.98	2.183	34	3.05	11.58	14.2	
0831	138.19	150	6.97	2.140	51	1.37	11.75	1.7	
0836	138.21	150	6.97	2.153	22	1.29	11.61	-3.7	
0841		150	6.98	2.154	25	0.96	11.80	-9.9	
0846		150	6.98	2.152	246	1.07	11.77	-13.4	Clean Turpidity Probe
0851		150	6.98	2.099	1	4.31	11.65	7.2	
0856		150	6.98	2.200	1	0.82	11.85	-15.5	
0901		150	7.00	2.161	100	1.54	11.85	-2.7	
0906		150	7.00	2.064	1	2.58	11.65	16.4	Clean Turpidity probe
0911		150	6.99	2.117	1	1.17	11.80	4.2	
0916		150	6.99	2.118	1	1.24	11.92	-1.8	
0921		150	6.99	2.109	15	1.13	11.97	-1.1	
0926		150	6.98	2.099	8.8	0.99	11.85	-0.7	
0931		150	6.98	2.097	51	0.72	12.04	-6.0	
0936		150	6.98	2.093	26	1.12	12.05	-4.8	Clean Turpidity Probe
0941		150	6.99	2.076	0	2.37	11.08	15.7	
0946		150	6.98	2.090	0	0.64	11.97	-1.4	
0951		150	6.98	2.093	0	0.84	11.94	-10.7	
0956		150	6.98	2.050	0	0.91	12.02	-3.1	
1001		150	6.98	2.089	0	0.89	12.02	-5.2	
1006		150	6.98	2.089	3	0.89	12.07	-9.9	
1011		150	6.98	2.090	3	0.89	12.09	-15.5	Clean Probe
1016		150	6.98	2.078	0	1.49	12.06	7.0	
1021		150	6.98	2.065	0	1.48	12.08	-8.3	
1026		150	6.98	2.028	1	2.95	12.09	-7.6	
1031		150	6.98	2.084	0	2.00	12.07	-7.7	
1040 @ Sample									Sample

SIGNATURE(S):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C20GW-01
Sample Location: ABG
Sampled By: RS, CS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/10/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1730	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	Clear	7.18	0.626	13.40	1	2.46	159.8	None

PURGE DATA:

Date: 11.10.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 1.7			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 121.7								
Static Water Level (WL): 88.88								
One Casing Volume (gal/L): 5.4								
Start Purge (hrs): 13.58								
End Purge (hrs): 16.16								
Total Purge Time (min): 138								
Total Vol. Purged (gal/L): 6.23								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	~~(2)~~ 1000mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, CARB, BICARB,	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

1.7 * in riser

PID reading in Breathing Zone = 0 PPM

Readings interupted due to explosive materials burn at ABG, Continued purge.

No reaction during sampling to PRESERVATIVE

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

ABG

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C20
DATE: 11-10-98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S.Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1400	88.88								Initial water level
1406	89.01	—	7.33	0.637	12	4.50	14.09	188.3	
1411	88.97	150	7.25	0.636	12	2.73	13.80	168.2	
1416	88.96	180	7.20	0.633	7	2.44	13.83	179.6	
1421	88.98	180	7.20	0.632	6	2.74	13.77	170.1	
1426	88.98	180	7.19	0.627	7	2.60	13.73	155.2	
1431	89.00	210	7.19	0.627	5	2.32	13.67	156.2	
1436	89.01	210	7.18	0.626	8	2.59	13.71	160.7	
1446	89.01	210	7.15	0.629	16	2.46	13.67	161.7	Clean turpidity probe
1456	89.01	210	7.17	0.627	3	2.42	13.76	156.6	
1506	89.01	210	7.17	0.624	3	2.39	13.58	150.5	Purge continued
1546	89.01	210	7.19	0.620	1	3.24	13.50	174.9	readings interupted
1556	89.01	210	7.18	0.624	1	2.74	13.40	165.2	due to burn at
1606	89.01	210	7.18	0.626	1	2.46	13.40	160.0	the ABG Cleaned
1616	89.01	210	7.18	0.626	1	2.46	13.40	159.8	turpidity probe at
									1546 hours.
1730									Sample time

SIGNATURE(S):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C256W 01
Sample Location: ABG
Sampled By: KS SN. CS
C.O.C. No.: 01129-01128
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.7.98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1345	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	CLEAR	7.16	1.229	11.6	2.0	1.09	-88.0	NONE

PURGE DATA:

Date: 11.7.98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 0.8			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 74.0								
Static Water Level (WL): 47.14								
One Casing Volume(gal/L): 4.4								
Start Purge (hrs): 1044								
End Purge (hrs): 1228								
Total Purge Time (min): 104								
Total Vol. Purged (gal/L): 5.0 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	(1) 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; carb, bicarb.	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

Reaction to preservative:

1750 START TANK PRES.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C25
DATE: 11.7.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1048	47.14	255	7.36	1.169	38.2	8.24	11.4	11.7	
1053	47.22	255	7.29	1.170	47.4	3.31	11.6	-66.5	
1058	47.23	174	7.27	1.171	46.4	1.81	11.6	-77.4	Adjusted flow rate
1103	47.24	174	7.25	1.179	12.6	1.39	11.6	-85.1	
1108	47.23	174	7.24	1.182	8.6	1.25	11.4	-94.0	
1113	47.24	174	7.23	1.193	7.3	0.90	11.5	-99.9	
1118	47.24	174	7.22	1.200	4.7	0.78	11.6	-102.1	
1123	47.24	174	7.20	1.208	7.6	0.73	11.5	-99.5	
1128	47.25	174	7.20	1.211	7.3	0.69	11.5	-100.8	
1133	47.25	174	7.20	1.217	7.6	0.92	11.4	-100.2	
1138	47.25	174	7.20	1.222	5.7	0.57	11.7	-101.3	
1143	47.24	174	7.18	1.221	2.9	0.84	11.7	-102.0	
1148	47.25	174	7.17	1.220	2.9	0.71	11.7	-102.3	
1153	47.25	174	7.18	1.229	2.1	0.68	11.5	-103.2	
1158	47.25	174	7.17	1.231	0.7	1.27	11.6	-96.1	
1203	47.24	174	7.17	1.230	1.3	0.70	11.6	-87.2	
1208	47.26	174	7.17	1.232	0.8	1.22	11.7	-87.2	
1213	47.26	174	7.17	1.231	0.8	0.64	11.6	-92.1	
1218	47.24	174	7.17	1.234	0.8	0.57	11.6	-92.3	
1223	47.26	174	7.17	1.233	1.6	0.99	11.6	-90.4	
1228	47.26	174	7.16	1.229	2.0	1.09	11.6	-88.0	
	Begin sampling @ 1230 - Sample # ABG03C25MW01								
	End sampling @ 1410								

SIGNATURE(S): Scott Neo

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C26GW-01
Sample Location: ABG
Sampled By: Clyde Snyder
C.O.C. No.: 00504
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/10/98 / Time: 0950	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Method: BLADDER PUMP	Clear	7.09	0.760	15.11	0	2.92	151.8	None

PURGE DATA:

Date: 11/10/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 107.89								
Static Water Level (WL): 82.12								
One Casing Volume(gal): (1.58)	S/B 4.3	gAL						
Start Purge (hrs): 0821								
End Purge (hrs): 0940								
Total Purge Time (min): 79								
Total Vol. Purged (gal): 3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	(2) 1000mL & ~~(2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, CARB, BICARB	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

No Reaction Sample Event was conducted in a heavy rain.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: ABG03C26
DATE: 11/10/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
0821	82.12	—	7.11	0.803	23	3.22	14.75	173.0	
0826	82.94	130	7.08	0.797	13	2.21	14.68	165.0	
0831	83.18	190	7.07	0.788	1	2.36	14.61	162.9	
0836	83.18	150	7.07	0.796	1	2.06	14.88	140.0	
0841	83.34	120	7.08	0.788	0	3.14	14.85	158.5	
0846	83.43	120	7.09	0.773	4	3.71	14.92	163.0	
0851	83.43	130	7.08	0.777	6	3.55	14.94	162.3	
0856	83.45	130	7.08	0.772	6	4.16	14.93	163.5	
0901	83.45	100	7.09	0.774	0	3.88	15.00	163.1	
0906	83.45	100	7.09	0.772	6	4.11	15.04	153.3	
0911	83.50	100	7.09	0.771	2	3.37	15.03	158.4	
0916	83.54	100	7.09	0.757	0	3.56	15.04	156.8	
0921	83.54	100	7.09	0.765	0	3.00	15.10	157.3	
0926	83.54	100	7.09	0.757	203	2.91	15.11	152.2	Clean Turpidity Probe
0931	83.54	100	7.09	0.757	0	2.90	15.34	124.6	
0935	83.54	100	7.09	0.758	0	2.90	15.11	145.7	
0940	83.43	100	7.09	0.760	0	2.92	15.11	151.8	
0950									Start Sampling

SIGNATURE(S):

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C27GW-01
Sample Location: ABG
Sampled By: S. Neil
C.O.C. No.: 00304
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/9/98	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Odor
Time: 1435	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	
Method: BLADDER PUMP	Clear	7.66	0.573	12.2	8	13.11	140.4	None

PURGE DATA:

Date: 11/9/98	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Method: BLADDER PUMP								
Monitor Reading (ppm):* 2.4			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 75.00'								
Static Water Level (WL): 60.83'								
One Casing Volume(gal/L): 2.31 gal								
Start Purge (hrs): 1251								
End Purge (hrs): 1426								
Total Purge Time (min): 95								
Total Vol. Purged (gal/L): 2.87 gal.								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark	3 1000mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, Carbonate, Bicarbonate	4°C	(1) 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0.0 PPM

Reaction to preservative:

Final H_2O level = 61.09'

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Scott Neil

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C27
DATE: 11/9/98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Sp. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1257	60.83	→	→	→	→	→	→	→	Begin purge
1256	60.94	170	7.65	0.423	17	12.67	11.9	119.1	
1301	60.97	170	7.63	0.401	38	13.80	11.8	119.0	Cleaned turb. probe.
1306	61.03	170	7.67	0.395	42	12.76	11.9	117.7	Cleaned turb. probe.
1311	61.06	170	7.63	0.395	58	12.29	12.0	123.6	
1316	61.07	130	7.62	0.395	44	12.26	12.0	120.4	Adjusted flow rate.
1321	61.08	130	7.63	0.392	69	12.82	12.0	128.8	Cleaned turb probe.
1326	61.09	130	7.62	0.387	54	13.44	12.0	124.3	Cleaned turb. probe.
1331	61.08	130	7.65	0.382	50	13.01	12.1	123.7	
1336	61.10	130	7.64	0.375	61	12.52	12.1	121.4	Cleaned turb. probe.
1341	61.12	84	7.64	0.370	50	12.38	12.1	128.7	
1346	61.10	84	7.65	0.366	33	11.89	12.1	136.5	
1351	61.10	84	7.66	0.364	32	10.75	12.2	137.2	
1356	61.11	84	7.66	0.362	11	12.91	12.2	129.7	Cleaned turb probe.
1401	61.10	84	7.66	0.361	19	11.86	12.1	120.5	
1406	61.10	84	7.65	0.366	12	12.34	12.1	129.4	
1411	61.12	84	7.65	0.371	7	12.87	12.2	132.9	
1416	61.09	84	7.64	0.375	8	12.03	12.1	126.1	
1421	61.10	84	7.65	0.375	6	13.08	12.2	133.8	
1426	61.09	84	7.66	0.373	8	13.11	12.2	140.4	End of purge.
	Began sampling @ 1435 - Sample # ABB03C27GW01								
	End sampling @ 1649								

SIGNATURE(S): Scott W. Reid

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSWC Crane
Project No.: CTO 0038

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: ABG-03C30GW-01
Sample Location: ABG
Sampled By: KS - CS
C.O.C. No.: 00310
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.11.98 / Time: 1700 / Method: BLADDER PUMP	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
	Clear	8.43	0.730	12.22	2	1.06	-115.1	sulphur

PURGE DATA:

Date: 11.11.98 / Method: BLADDER PUMP	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	ORP	Other
Monitor Reading (ppm):* 0			SEE LOW FLOW PURGE DATA SHEET					
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 263.5								
Static Water Level (WL): 223.92								
One Casing Volume (gal/L): 6.45								
Start Purge (hrs): 1215								
End Purge (hrs): 1603								
Total Purge Time (min): 228								
Total Vol. Purged (gal/L): 3.67								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subset A)	4°C/Dark 3	~~(2)~~ 1000mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate & Sulfate, CARB., BICARB	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

* in riser

PID reading in Breathing Zone = 0 PPM

SLOW PURGE RATE PLUS SOME DRAWDOWN
LOW SAMPLE VOL.

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

START 223.92'

LOW FLOW PURGE DATA SHEET

ABG

PROJECT SITE NAME: NSWC CRANE
PROJECT NUMBER: CTO 38
WELL ID.: 03C30
DATE: 11.11.98

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S.Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Comments
1228	225.95	—	11.15	0.770	35	5.85	12.98	27.3	
1233	226.68	180	10.60	0.647	33	2.39	13.10	34.6	
1238	227.38	170	10.63	0.648	24	1.91	12.89	28.8	
1243	227.78	100	10.65	0.650	14	2.01	12.49	22.2	
1248	227.84	130	10.63	0.648	19	1.77	12.47	20.0	
1253	228.01	100	10.52	0.645	16	1.72	12.35	15.0	
1258	228.11	70	10.43	0.636	13	1.61	12.51	13.6	
1303	228.22	100	10.29	0.631	12	1.64	12.82	10.4	
1308	228.21	80	10.18	0.627	9	1.63	12.94	7.6	
1313	228.14	80	10.02	0.622	6	1.88	13.03	-0.5	Stop pump to let well recharge
1353	225.30	80	—	—	—	—	—	—	RESTART
1403	225.75	80	9.85	0.618	6	2.77	13.45	-12.2	1,13 Gal. →
1413	226.60	80	9.69	0.621	5	1.77	13.11	-19.3	
1423	227.0	80	9.38	0.640	5	1.23	12.93	-28.3	
1433	227.17	80	9.26	0.658	3	1.12	12.99	-37.9	
1443	227.37	80	9.18	0.669	3	1.18	12.65	-48.9	
1453	227.57	80	9.06	0.667	3	0.94	12.87	-51.0	
1503	227.85	80	8.96	0.690	3	1.12	12.91	-61.6	
1513	227.80	80	8.84	0.698	37	1.31	13.00	-74.8	Clean turbidity probe
1523	228.01	90	8.68	0.712	2	1.11	12.35	-59.9	
1533	227.91	80	8.54	0.728	2	1.08	12.41	-72.7	
1543	228.11	80	8.46	0.728	2	1.04	12.20	-105.7	
1553	227.97	80	8.43	0.729	2	1.06	12.23	-105.9	
1603	228.01	90	8.43	0.730	2	1.06	12.22	-115.1	
1700									Sample Time

SIGNATURE(S): K. S.

ATTACHMENT 6

Surface Water Sample Log Sheets
Monitoring Event No. 1

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NSWC CRANE
Project No.: CTO 38

Sample ID No.: ABG-CRELSDSW-01
Sample Location: ABG-CRELSDSW-01
Sampled By: K. SIMPSON, S. NEIL
C.O.C. No.: 01299 + 01300

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11/5/98	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Time: 0900								
Depth: 1 Foot	CLEAR	7.12	0.495	7.12	2.4	9.75	37.9	NONE
Method: Direct Fill								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	(4) 1000 mL & ~~(2) 500~~ mL Amber Glass	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; Carb, Bicarb.	4°C	(1) ~~500~~ mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

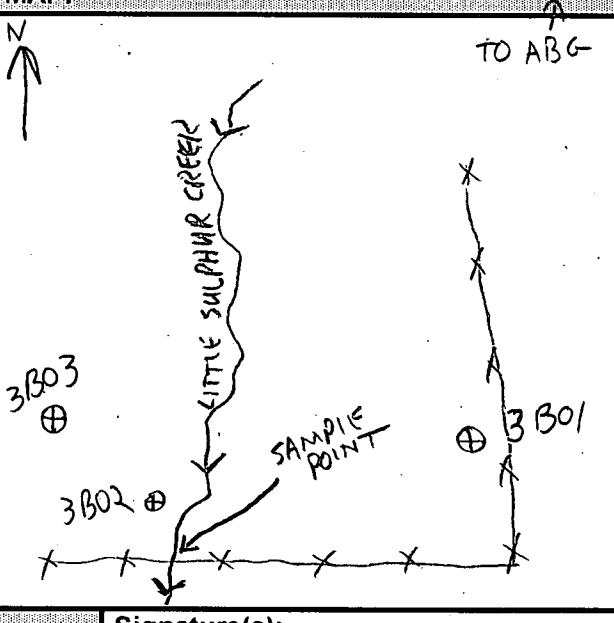
OBSERVATIONS / NOTES:

Reaction of sample to preservative: NONE

LOCATION STAKED @ 10' from sample point.

FLOW ≈ 40 GPM (EST.)

MAP:



Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Scott A. Neil

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NSWC CRANE
Project No.: CTO 38

Sample ID No.: ABGCRELSUSW01
Sample Location: ABG
Sampled By: K. SIMPSON, S. NEIL
C.O.C. No.: 01299 + 01300

[X] Stream
[ ] Spring
[ ] Pond
[ ] Lake
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 11.5.98	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Time: 1000								
Depth: 6" TO 12"	CLEAR	7.73	0.468	9.31	5.9	10.03	155.8	NOIVE
Method: Direct Fill								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	(4) 1000 mL & ~~(2) 500~~ (2) 1000 mL Amber Glass	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; Carb & Bicarb	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

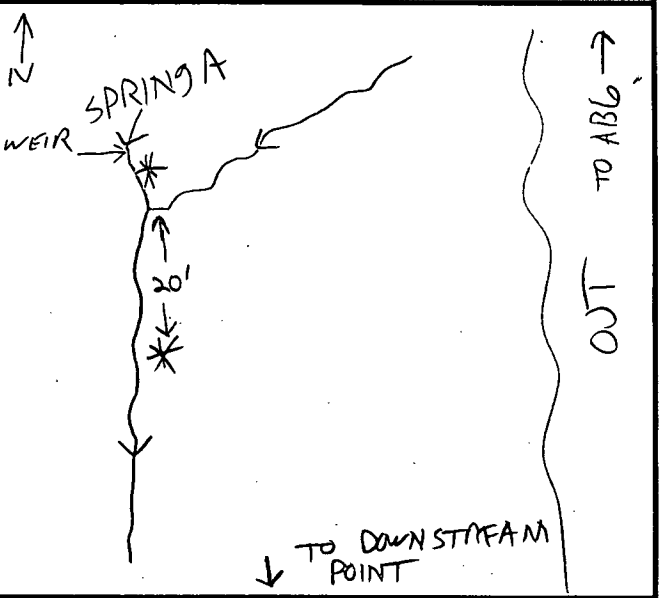
Reaction of sample to preservative: Light foam on surface of Total Phosphorus (H_2SO_4)

FLOW ≈ 20 GPM (EST.)

Sample point app. 5' from staked area.

* = SAMPLE POINTS

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
———	———

Signature(s): Scott Neil

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NSWC CRANE
Project No.: CTO 38

Sample ID No.: ABG-SPR-SW01
Sample Location: ABG
Sampled By: K. SIMPSON, S. NEIL
C.O.C. No.: 01299 + 01300

[] Stream
[X] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Date: 11.5.98								
Time: 1045								
Depth: 6"	CLEAR	8.36	0.531	10.86	10.3	10.38	141.2	NONE
Method: Direct Fill								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	(4) 1000 mL & ~~(2) 500~~ (1) 1000 mL Amber Glass	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; Carb, Bicarb	4°C	(1) ~~500~~ 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

Reaction of sample to preservative: Light foam on surface of Total Phosphorus (H_2SO_4)
Sample point is 4 feet from the stake and ~~from~~ SWN ≈ 1.5' ~~above~~ below SWN the stake.

FLOW ≈ 6 GPM (EST.)

MAP:

SEE UPSTREAM NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Scott W. Neil

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: NSWC CRANE
Project No.: CTO 38

Sample ID No.: ABG-SPRCSW01
Sample Location: ABG
Sampled By: K. SIMPSON, S. NEIL
C.O.C. No.: 01299+01300

[] Stream
[X] Spring
[] Pond
[] Lake
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. Degrees C	Turbidity NTU	DO mg/l	ORP mV	Odor
Date: 11.5.98 Time: 1445 Depth: 6-8" Method: Direct Fill	CLEAR	7.95	0.475	11.38	1.8	10.53	191.8	NONE

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TCE & Degradation Products	HCl/4°C	(3) 40 mL Glass Vials	✓
Dissolved Methane	4°C/Dark	(2) 40 mL Amber Glass Vials	✓
TOX	H_2SO_4/4°C	(1) 1000 mL Amber Glass	✓
Explosives (Subsets A & B)	4°C/Dark	~~(1)~~ 1000 mL ~~& (2) 500 mL Amber Glass~~	✓
Metals (Total & Dissolved)	HNO_3/4°C	(2) 1000 mL Polyethylene	✓
Cyanide	NaOH/4°C	(1) 500 mL Polyethylene	✓
TOC	H_2SO_4/4°C	(1) 125 mL Amber Glass	✓
Nitrate, Nitrite, Chloride, & Sulfate; Carb, Bicarb	4°C	~~(1) 500~~ (1) 1000 mL Polyethylene	✓
Phosphorus (Total & Dissolved)	H_2SO_4/4°C	(2) 500 mL Polyethylene	✓

OBSERVATIONS / NOTES:

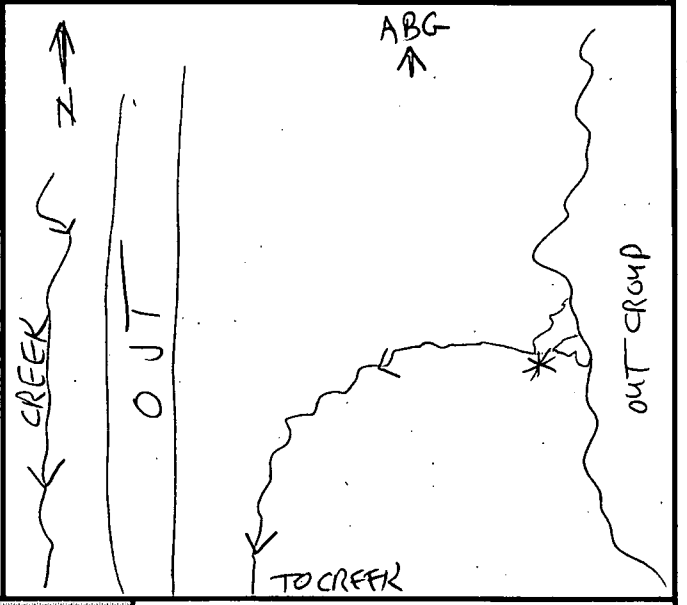
Reaction of sample to preservative: Light foam on surface of Total Phosphorus (H_2SO_4)

Sample point is ≈8 feet to the left of the stake and a depth of ≈6 feet.

FLOW = 6 GPM

SPRING A

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
___	___

Signature(s):

Scott M. Neil

ATTACHMENT 7

Chain of Custody Records
Prepared by Tetra Tech NUS, Inc.
Monitoring Event No. 1

CHAIN OF CUSTODY RECORD

00305

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	DISSOLVED METHANE 40 ML VIAL						REMARKS
RB	11/10	1100		✓	GWRB111098 1	2	2						I. U. TRANSDUCER
AB	11/11	0755		✓	GWAB 111198 1	2	2						
03C04	11/11	1345		✓	ABG-03C04-GW01	2	2						

CTO - 38
SDG Number 1
"COCs"

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11-11-98 1700	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# TO MICROSEEPS 807470132837	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

0030

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	DISSOLVED METHANE 40 ML VIAL						REMARKS
RB	11/10	1100		✓	GWRB111098 1	2	2						I. U. TRANSDUCER
AB	11/11	0755		✓	GWAB 111198 1	2	2						
03C04	11/11	1345		✓	ABG-03C04-GW01	2	2						

CTO - 38
SDG Group No 1
"COCs"

Master Copy

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11.11.98 1700	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# TO MICROSEEPS 807470132937	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

01128

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	DISSOLVED METHANE 40 ML VIAL						REMARKS
03C11	11/6	0910		✓	ABG-03C11 GW 01	2	2						
03C03	↓	1505		✓	ABG-03C03 GW01	2	2						
03C25	11/7	1345		✓	ABG-03C25 GW01	2	2						
03C10	11/8	1340		✓	ABG-03C10 GW 01	2	2						
~~03C04P2~~	~~11/8~~	~~1420~~		✓	~~ABG-03C04P2 GW 01~~ VOID	2	2						KCS
03C12	11/8	1615		✓	ABG-03C12 GW01	2	2						
DUP	11/8	0000		✓	GWFD 110898-3	2	2						ABG-03C10GW 01
RB	11/9	0710		✓	GWRB 110998-1	2	2						WATER LEVEL METER
03B04	11/9	0910		✓	ABG-03B04 GW01	2	2						

11.6.98
11.7
11.8.98
11.9.98

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. Simpson	11.8.98 1540	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# TO MICROSEEPS 807470132826	

Order No. 70440 (0693)

0130

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): Scott W. Neil

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Dissolved Methane						REMARKS
ABG	11/5	0900		X	ABGCRELSDSW01	2	2						CREEK - DOWNSTREAM
ABG	11/5	1000		X	ABGCRELSUSW01	2	2						CREEK - UPSTREAM
ABG	11/5	1045		X	~~ABGCRE~~ SWN ABGSPRASW01	2	2						SPRING A
ABG	11/5	1445		X	ABGSPRCSW01	2	2						SPRING C
ABG	11/5	1200		X	ABG03B02GW01	2	2						03B02
ABG	11/5	0000		X	GWFD - 110598 - 1	2	2						~~ABG~~03B02GW01

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11.5.98 1940	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132848	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

00307

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-J S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DESIGNATED PRIOR. 40 ML VIAL HCL	EXPLOSIVES A+B L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE NAOH 500 ML POLY	TOX H2SO4 L AMBER	TOC H2SO4 125 ML AMBER	CARB. BICARB. NITRATE CHLORIDE SULFATE L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
TB	11/12	0630		✓	TB 1112981	2	2										
03C04	11/12	1345		✓	ABG-03C04-GW-01	14	3	5	1	0	1	1	1	1	1	0	LOW SAMPLE VOL.
	11/11																11

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T-J S. Simpson	11-12-98 1150	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB 807470132583	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

00310

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): K. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD. 40 ML VIAL	EXPLOSIVES 4 oz AMBER	T. METALS 500 ML POLY HNO3	DIS. METALS 500 ML POLY HNO3	CYANIDE 500 ML POLY NaOH	TOX 500 ML POLY H2SO4	CARB. BICARB. NITRATE 1 L AMBER	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC 1 L AMBER	REMARKS
03C30	11/11	1700		✓	ABG-03C30GW01	14	3	3	1	1	1	1	1	1	1	1	LOW SAMPLE VOL

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
K. S. Simpson	11.12.98 1150	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB 807470132583	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

00301

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Sampson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DESIGNAT. METHOD 40 ML VIAL HCL	EXPLOSIVES L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE L POLY NAOH	SO4 NAL POLY	TOX H2SO4 L AMBER	CARB, ISOANIS. NITRATE SO4 FATE L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 L AMBER	REMARKS
03C20	11/10	1730		✓	ABG-03C20GW01	14	3	3	1	1	1	1	1	1	1	1	1	
03C08P2	11/10	1745		✓	ABG-03C08P2GW01	14	3	3	1	1	1	1	1	1	1	1	1	
TB	11/11	0705		✓	TB111198 1	2	2											
03C07	11/11	1100		✓	ABG-03C07GW01	14	3	3	1	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. S. Sampson	11-11-98 1700	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO CAUCKS LAB 807470132539	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

00306

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DESORB. PT. 40 ML VIAL HCl	EXPLOSIVES A+B 4 AMBER H2SO4	T. METALS 1 POLY HNO3	DIS. METALS 1 POLY HNO3	CYANIDE 1 POLY NaOH	TOX 500 ML POLY H2SO4	TOC 1 AMBER H2SO4	CARB. BICARB. NITRATE CHLORIDE 125 ML AMBER 1 POLY	T. PHOSPHORUS 1 POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
RB	11/10	1100		✓	GWRB111098 1	16	3	5	1	1	1	1	1	1	1	1	I.A. TRANSDUCER

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11.10.98 1945	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO GMCRS CAB 807470132804	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

00304

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-J S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD 40 ML VIAL HCL	EXPLOSIVES 1 AMBER	T. METALS 1 POLY HNO3	DIS. METALS 1 POLY HNO3	CYANIDE NAOH	50 ML POLY TOX H2SO4	CA/MG BICARB NITRATE 1 AMBER	TOTAL PHOSPHATE SULFATE 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 1 AMB FR	REMARKS
3002P2	11/9	1450		✓	ABG-03C02P2 GW01	14	3	3	1	1	1	1	1	1	1	1	
03C27	11/9	1435		✓	ABG-03C27GW01	14	3	3	1	1	1	1	1	1	1	1	
TB	11/10	0700		✓	TB111098 1	2	2										
03C26	11/10	0950		✓	ABG03C26 GW 01	14	3	3	1	1	1	1	1	1	1	1	
03C15	11/10	1050		✓	ABG-03C15GW01	14	3	3	1	1	1	1	1	1	1	1	

11·9·98
11·10·98

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T-J S. Simpson	11·10·98 1845	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO CAUCUS LAB 807470132804	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

00303

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. J. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DEGRD. 40 ML VIAL	EXPLOSIVES HPLC L AMBER	T. METALS L POLY HNO3	CYANIDE NaOH 500 ML POLY	TOX H2SO4 L AMBER	DIS. METALS L POLY HNO3	CARB. BICARB NITRATE L POLY	T. PHOSPHORUS SULFATE 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 L AMBER	REMARKS
03C09P2	11/8	1420		✓	ABG03C09P2 GW01	42	9	9	3	3	3	3	3	3	3	3	RUN ALSO MS/MSD
DUP	11/8	0000		✓	GW FD 110898-2	14	3	3	1	1	1	1	1	1	1	1	03C09P2
03C17	11/9	1040		✓	ABG-03C17GW01	14	3	3	1	1	1	1	1	1	1	1	

11-9-98 11-8-98

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. J. Simpson	11-9-98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAYCKS CAIS 807470132789	

Order No. 70440 (0693)

00308

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
CTO38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-J S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD. 40 ML VIAL HCL	EXPLOSIVES 4 OZ L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE NAOH 500 ML POLY	TOX H2SO4 L AMBER	TOC H2SO4 125 ML AMBER	CHLORIDE, NITRATE, ALKALINITY, BICARB. L POLY	T. PHOSPHORUS, SULFATE L POLY	DIS. PHOSPHORUS H2SO4 500 ML POLY	REMARKS
TB	11/8	0710		✓	TB 1109981	2	2										
03C10	11/8	1340		✓	ABG-03C10GW01	16	3	5	1	1	1	1	1	1	1	1	
03C12	11/8	1645		✓	ABG-03C12GW01	16	3	5	1	1	1	1	1	1	1	1	
DUP	11/8	0000		✓	GWFD 1108983	16	3	5	1	1	1	1	1	1	1	1	ABG 03C10 GW01
TB	11/9	0700		✓	TB 1109981	2	2										
RB	11/9	0710		✓	GWRB110998 1	16	3	5	1	1	1	1	1	1	1	1	WATER LEVEL METER
03B04	11/9	0910		✓	ABG-03B04GW01	16	3	5	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T-J S. Simpson	11.9.98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# TO LAUCKS LAB 807470132789	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

01129

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PRODS	40 ML VIAL-HCL	EXPLOSIVES A+B	L AMBER	T. METALS	L POLY HNO3	DIS. METALS	L POLY HNO3	CYANIDE NAOH	500 ML POLY	TOX H2SO4	L AMBER	TOC H2SO4	125 ML AMBER	CARB. BICARB.	NITRATE NITRITE	CHLORIDE	L POLY	REMARKS	T. PHOSPHORUS	50ML POLY H2SO4	DIS. PHOSPHORUS	500 ML POLY H2SO4	
TB	11/7	0700		✓	TB 110798-1	2	2																							
03C25	11/7	1345		✓	ABG 03C25 GW01	16	3	5	1	1	1	1	1	1																
																														ABG 03C1D GW0

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. S. Simpson	11-7-98 1540	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132815 TO CAUCKS LAB	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

01127

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. L. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PRODS. 40 ML VOAs HCl	EXPLOSIVES 4 L AMBER	TI METALS 1 L POLY HNO3	DIS. METALS 1 L POLY HNO3	CYANIDE 1 L POLY 500 mL NaOH	TOX 1 L AMBER H2SO4	TOC 125 mL AMBER H2SO4	CARB. DICARB. NITRATE CHLORIDE SULFATE 1 L POLY	T. PHOSPHORUS 500 mL POLY H2SO4	DIS. PHOSPHORUS 500 mL POLY H2SO4	REMARKS
TB	11/6	0700		✓	TB 110698-1	2	2										
03C11	↓	0910		✓	ABG 03C11 GW 01	16	3	5	1	1	1	1	1	1	1	1	
03C03	↓	1505		✓	ABG 03C03 GW 01	16	3	5	1	1	1	1	1	1	1	1	
																	ABG 03C10 GW 01

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. L. Simpson	11-6-98 1540	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# 807470132790 TO LAUCKS LAB	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

0129

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-15 Sampler

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL Pest Dgrad. Prod. 40-mL Glass (HCL)	Explosives 2 A+B 1L Glass	Metals (Total) 1L Poly (HNO3)	Metals (DIS) 1L Poly (HNO3)	Cyanide 500mL Poly (NAOH)	TOX 125mL Glass (H2SO4)	TOC 125mL Glass (H2SO4)	Chromium, Nitrogen, Sulfate, Chloride 500mL Poly	Phosphorus (Total) 500mL Poly (H2SO4)	Phosphorus (Dis.) 500mL Poly (H2SO4)	REMARKS
TB	11/5	0700		✓	TB 110598-1	2	2							1	—		
DUP		0000		✓	GW FD 110598-1	16	3	5	1	1	1	1	1	1	1	1	ABG-03B026W0
DOWN STREAM		0900		✓	ABG-CRELSD SW 01	16	3	5	1	1	1	1	1	1	1	1	
UP STREAM		1000		✓	ABG-CRELSU SW 01	16	3	5	1	1	1	1	1	1	1	1	
SPRING A		1045		✓	ABG-SPRA SW 01	16	3	5	1	1	1	1	1	1	1	1	
SPRING C		1445		✓	ABG-SPRC SW 01	16	3	5	1	1	1	1	1	1	1	1	
03B02	✓	1200		✓	ABG 03B02 GW 01	48	9	15	3	3	3	3	3	3	3	3	RUN ALSO MS/MSD

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T-15 Sampler	11-5-98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	
				FED EX AIR BILL # 807470132959	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

01120

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): TL-15 Sampler

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	DISSOLVED METHANE 40 ML VIAL						REMARKS
03C11	11/6	0910		✓	ABG-03C11 GW 01	2	2						
03C03	↓	1505		✓	ABG-03C03 GW01	2	2						
03C25	11/7	1345		✓	ABG-03C25 GW01	2	2						
03C10	11/8	1340		✓	ABG-03C10 GW 01	2	2						
~~03C04P2~~	~~11/8~~	~~1420~~		~~✓~~	~~ABG-03C04P2 GW 01~~ VOID	~~2~~	~~2~~						RES
3C12	11/8	1615		✓	ABG-03C12 GW01	2	2						
DUP	11/8	2000		✓	GW FD 110898-3	2	2						ABG-03C10GW 01
RB	11/9	0710		✓	GW RB 110998-1	2	2						WATER LEVEL METER
03B04	11/9	0910		✓	ABG-03B04-GW01	2	2						

11.6.98
11.7
11.8.98
11.9.98

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
TL-15 Sampler	11.8.98 1040	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# 807470132826 TO MICROSEEPS	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

013[illegible]

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): Scott W. Neil

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	Dissolved Methane						REMARKS
ABG	11/5	0900		X	ABGCRELSDSW01	2	2						CREEK - DOWNSTREAM
ABG	11/5	1000		X	ABGCRELSUSW01	2	2						CREEK - UPSTREAM
ABG	11/5	1045		X	~~ABGCRE~~ SWN ABGSPRASW01	2	2						SPRING A
ABG	11/5	1445		X	ABGSPRCSW01	2	2						SPRING C
ABG	11/5	1200		X	ABG03B02GW01	2	2						03B02
ABG	11/5	0000		X	GWFD - 110598 - 1	2	2						~~ABG~~p03B02GW01

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. E. S. Simpson	11.5.98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132848	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PRODS. 40 ML VIAL	EXPLOSIVES A+B 1L AMBER	T. METALS 1L POLY HNO3	DIS. METALS 1L POLY HNO3	CYANIDE 500 ML NaOH	TOX 500 ML POLY H2SO4	TOC 1L AMBER H2SO4	CARB. BICARB. NITRATE CHLORIDE 125 ML AMBER H2SO4	T. PHOSPHORUS NITRITE SULFATE 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
TB	11/12	0630		✓	TB 1112981	2	2										
03C04	11/12	1345		✓	ABG-03C04-GW01	14	2	5	1	0	1	1	1	1	1	0	LOW SAMPLE VOL.
	11/11																11

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. Simpson	11-12-98 1150	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB 807470132583	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): K-15 Lumpkin

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PRVOC 40 ML VIAL	EXPLOSIVES 4 oz AMBER	T. METALS 1 PINT POLY HNO3	DIS. METALS 1 PINT POLY HNO3	CYANIDE 500 ML POLY NaOH	TOX 500 ML POLY H2SO4	CARB. BICARB. NITRATE 1 AMBER	T. PHOSPHORUS SULFATE 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC 1 AMBER H2SO4	REMARKS
03C30	11/11	1700		✓	ABG-03C30G-W01	14	3	3	1	1	1	1	1	1	1	1	LOW SAMPLE VOL

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
K-15 Lumpkin	11-12-98 1150	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LANCES LAB 807470132583	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD. 40 ML VIAL HCL	EXPLOSIVES 1 AMBER	T. METALS 1 POLY HNO3	DIS. METALS 1 POLY HNO3	CYANIDE NAOH 50 ML POLY	TOX H2SO4 1 AMBER	CARB, ISOCARB, NITRATE SUL FATE 1 POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 1 AMBER	REMARKS
03C20	11/10	1730		✓	ABG-03C20GW01	14	3	3	1	1	1	1	1	1	1	1	
03C08P2	11/10	1745		✓	ABG-03C08P2GW01	14	3	3	1	1	1	1	1	1	1	1	
TB	11/11	0705		✓	TB111198 1	2	2										
03C07	11/11	1100		✓	ABG-03C07GW01	14	3	3	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. S. Simpson	11-11-98 1700	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO CAYCKS LAB 807470132539	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. Lindsey

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PIC 40 ML VIAL H	EXPLOSIVES A+B L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE NaOH 500 ML POLY	TOX H2SO4 L AMBER	TOC H2SO4 125 ML AMBER	CARB. BICARB. NITRATE NITRITE CHLORIDE SULFATE L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
RB	11/10	1100		✓	GWRB111098 1	16	3	5	1	1	1	1	1	1	1	1	I.U. TRANSDUCER

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. Lindsey	11.10.98 1945	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO GAYLORS CAB 807470132804	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-J S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD. 40 ML VIAL HCL	EXPLOSIVES 1 AMBER	T. METALS 1 POLY HNO3	DIS. METALS 1 POLY HNO3	CYANIDE 500 ML NAOH	TOX H2SO4 1 AMBER	CL/ALK. BICARB NITRATE/SULFATE 1 POLY	TOTAL PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 1 AMBER	REMARKS
11·9·98																	
302P2	11/9	1450		✓	ABG-03C02P2 GW01	14	3	3	1	1	1	1	1	1	1	1	
03C27	11/9	1435		✓	ABG-03C27 GW01	14	3	3	1	1	1	1	1	1	1	1	
TB	11/10	0700		✓	TB111098 1	2	2										
03C26	11/10	0950		✓	ABG-03C26 GW01	14	3	3	1	1	1	1	1	1	1	1	
11·10·98																	
03C15	11/10	1050		✓	ABG-03C15 GW01	14	3	3	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T-J S. Simpson	11·10·98 1845	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LANCES LAB 807470132804	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

11-9-98 | 11-8-98

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DEGRAD. + MOD. 40 ML VIAL HCL	EXPLOSIVES 1 AMBER	T. METALS 1 POLY HNO3	CYANIDE NAOH 500 ML POLY	TOX H2SO4 1 AMBER	DIS. METALS 1 POLY HNO3	CARB. BICARB. NITRATE SULFATE 1 POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 1 AMBER	REMARKS
03C09P2	11/8	1420		✓	ABG-03C09P2 GW01	42	9	9	3	3	3	3	3	3	3	3	RUN ALSO MS/MSD
DUP	11/8	0000		✓	GW FD 110898-2	14	3	3	1	1	1	1	1	1	1	1	03C09P2
03C17	11/9	1040		✓	ABG-03C17GW01	14	3	3	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11-9-98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAIS 807470132789	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

003

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T.L.S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD. 40 ML VIAL HCl	EXPLOSIVES 4 oz AMBER	T. METALS 1 POLY HNO_3	DIS. METALS 1 POLY HNO_3	CYANIDE 500 ML POLY NaOH	TOX 1 AMBER H_2SO_4	TOC 125 ML AMBER H_2SO_4	CARB BICARB. NITRATE CHLORIDE 1 POLY	T. PHOS. SULFATE 1 POLY	DIS. PHOSPHORUS 500 ML POLY H_2SO_4	REMARKS
TB	11/8	0710		✓	TB 1108981	2	2										
03C10	11/8	1340		✓	ABG-03C10GW01	16	3	5	1	1	1	1	1	1	1	1	
03C12	11/8	165		✓	ABG-03C12GW01	16	3	5	1	1	1	1	1	1	1	1	
DUP	11/8	0000		✓	GWFD 1108983	16	3	5	1	1	1	1	1	1	1	1	ABG 03C10 GW01
TB	11/9	0700		✓	TB 1109981	2	2										
RB	11/9	0710		✓	GWRB110998 1	16	3	5	1	1	1	1	1	1	1	1	WATER LEVEL METER
03B04	11/9	0910		✓	ABG-03B04GW01	16	3	5	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T.L.S. Simpson	11.9.98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# TO LAUCKS LAB 807470132789	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

0112

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. L. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DESRAD, PP ODS	40 ML VIAL-HCL	EXPLOSIVES A+B	L AMBER	T. METALS	L POLY HNO3	DIS. METALS	L POLY HNO3	CYANIDE NAOH	500 ML POLY	TOX H2SO4	L AMBER	TOC H2SO4	125 ML AMBER	CARB, BICARBS, NITRATE NITRITE	CHLORIDE SULFATE	L POLY	T. PHOSPHORUS	500 ML POLY H2SO4	DIS. PHOSPHORUS	500 ML POLY H2SO4	REMARKS
TB	11/7	0700		✓	TB 110798-1	2	2																					
03C25	11/7	1345		✓	ABG 03C25 GW01	16	3	5	1	1	1	1	1	1	1	1	1											
																												ABG 03C10 GW01

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. L. Simpson	11-7-98 1540	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132815 TO CAUCKS CAIS	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

0112

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): [signature]

STATION NO.	DATE (1999)	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DI GRND. PWDS	40 ML GAL. HCL EXPLOSIVES A&B	1 L AMBER T. METALS	1 L POLY DIS. METALS HNO3	1 L POLY CYANIDE NaOH	500 ML POLY TOX H2SO4	1 L AMBER TOC H2SO4	125 ML AMBER CARB. BICARB. NITRATE CHLORIDE SULFATE	1 L PLY T. PHOSPHORUS H2SO4	500 ML POLY DIS. PHOSPHORUS H2SO4	REMARKS
TB	11/6	0700		✓	TB 110698-1	2	2										
03C11	1	0910		✓	ARG-03C11 GW 01	16	3	5	1	1	1	1	1	1	1	1	
03C03	↓	1505		✓	ARG 03C03 GW 01	16	3	5	1	1	1	1	1	1	1	1	ARG -3C10 GW 0

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
[signature]	11.6.99 1540	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# 807470132790 TO LAUCKS LAB	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

012

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): R. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCLP Degrad. (Acid) 40 mL Glass (HCL)	Explosives 3 A+B 1L Glass	Metals (Total) 1L Poly (HNO3)	Metals (Diss.) 1L Poly (HNO3)	Cyanide 500 mL Poly (NaOH)	TOC 125 mL Glass (H2SO4)	Nitrate, Nitrogen, Sulfate (H2SO4)	Phosphorus (Total) 500 mL Poly (H2SO4)	Phosphorus (Diss.) 500 mL Poly (H2SO4)	REMARKS
TB	11/5	0700		✓	TB 110598-1	2	2									
DUP		0000		✓	GW FD 110598-1	16	3	5	1	1	1	1	1	1	1	1	ABG-03B02GW01
DOWN STREAM		0900		✓	ABG-CRELSDSW01	16	3	5	1	1	1	1	1	1	1	1	
UP STREAM		1000		✓	ABG-CRELSUSW01	16	3	5	1	1	1	1	1	1	1	1	"
SPRING A		1045		✓	ABG-SPRASW01	16	3	5	1	1	1	1	1	1	1	1	
SPRING C		1445		✓	ABG-SPRCSW01	16	3	5	1	1	1	1	1	1	1	1	
03B02	↓	1200		✓	ABG-03B02GW01	48	9	15	3	3	3	3	3	3	3	3	RUN ALSO MS/MSD

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
R. Simpson	11-5-98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AIR BILL # 807470132959	

Order No. 70440 (0693)

ATTACHMENT 8

Laucks Testing Sample Receipt
Confirmations/Signed Chain of Custodies/Cooler Receipt Forms
Monitoring Event No. 1

FILE
CTO 78
SDA Form #1

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Baranoski
COMPANY: Foster Tech NSWC Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/13/98

PAGES INCLUDING THIS COVER PAGE: 9

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/13/98.

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by December 14, 1998

When inquiring about the samples, please reference workorder number 9811395 and/or SDG number CRA02.

CHAIN OF CUSTODY RECORD

9811315

0039

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DEGRAD. PROD. 40 ML VIAL HCL	EXPLOSIVES A+B L AMBER	T. METALS L POLY HNO_3	DIS. METALS L POLY HNO_3	CYANIDE NAOH 500 ML POLY	TOX H_2SO_4 L AMBER	TOC H_2SO_4 125 ML AMBER	CARBS (CARB, NITRATE CHLORIDE, NITRITE SULFATE) L POLY	T. PHOSPHORUS 500 ML POLY H_2SO_4	DIS PHOSPHORUS 50C ML POLY H_2SO_4	REMARKS
1) TB	11/12	0630		✓	TB 1112981	2	2										
2) 03C04	11/12/13	1345		✓	ABG-03C04-GW 01	14	3	5	1	0	1	1	1	1	1	0	LOW SAMPLE VOL
	11/11																

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. S. Simpson	11-12-98 1150	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB	
		Jeri A Smith	11/13/98 9:00	807470132583	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

981195

00310

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): K. S. Sampson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DESIRAD. PROD 40 ML VIAL	EXPLOSIVES 4 L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE L POLY NAOH	TOX 500 ML POLY H2SO4	CARB. BICARB. NITRATE L AMBER	T. PHOSPHOURUS L POLY	DIS. PHOSPHOURUS 500 ML POLY H2SO4	TOC 500 ML POLY H2SO4 L AMBER	REMARKS	
3,4 03C30	11/11	1700		✓	ABG-03C30GW01	14	3	3	1	1	1	1	1	1	1	1	LOW SAMPLE VOL	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
K. S. Sampson	11-12-98 1150	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB	
		Joan A Smith	11/13/98 9:00	807470132583	

Order No. 70440 (0693)

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811395 Contractor Cooler 1 OF 2

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CRANE CTO 38

Date samples were received at the laboratory: 11/13/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/13/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 8092955 78083
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front, 2 back
   Seal date: 11/12/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> (YES) NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? (If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubed H2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/12/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/12/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

CUSTODY SEAL Date Signature

CUSTODY SEAL Signature Date

BROWN & ROOT ENVIRONMENTAL

NAVYRCT.DOC

1 of 2

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? (YES) NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>> (YES) NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> (YES) NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> YES (NO)
20. Was project manager called (faxed) & status discussed? >>>>>>>>>>>>>>>>> (YES) NO

If YES, give details below

21. Who was called (faxed)? Ralph B. Bath Cooler

By whom? HSP (date) 11/13/98

DESCREPANCIES:

19) TB1112981 2of2 < 1/4"

1 of 7

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811395
Assigned SDG Number: CRA02

Temperature		pH of Bottle Types								
Temp Blank 23°C		CONV	ORG	TMET	CN	TPO4	TOC	TOX	VOA	
1									2) NC	
2		1) 7	1) 7	1) 1	1) 12	1) 1	1) NC	1) 1	3)	
3									3) ✓	

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811395 Contractor Cooler 2 of 2

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CTO 38 Crane

Date samples were received at the laboratory: 11/12/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/12/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 809295578083
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front, 2 back
   Seal date: 11/12/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> (YES) NO
   COC located in Cooler 1 of 2 JAS
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubes H_2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/13/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/13/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble Wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> (YES) NO

CUSTODY SEAL

NAVYRCT.DOC

2 of 2

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO

15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>> [✓ YES] NO

17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO

19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA

20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ____________________

By whom? ____________________ (date) ____________________

DESCREPANCIES:

2 of 2

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811395
Assigned SDG Number: CRA02

Temperature Temp Blank 2.9°C	pH of Bottle Types								
	CONU	ORG	TMET	DMET	CN	FPO4	D.PO4	TOC	TOX
2		1) 7							
3	1) 7	3) 7	1) 1		1) 12	1) 1		1) NC	1) 1
4				1) 1		1) 1	1) 1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

File
CTO-38
CRANE
Sampling Event
No. 1

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Baranski
COMPANY: Tetra Tech NSWC Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/11/98

PAGES INCLUDING THIS COVER PAGE: 12

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/11/98 COC 00304 00306

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by not determined yet

When inquiring about the samples, please reference workorder number 98-11-325 and/or SDG number CRA02

note: couldn't find samplers for surface soils - but why not use labeled zip lock bags - turn inside out insert hand and grab soil? That way you can avoid cleaning a utensil between samples

CHAIN OF CUSTODY RECORD

9811525

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-J S Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DERIVAD. PROD	40 ML VOAL PRES	EXPLOSIVES L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE NAOH	SO4 L POLY	TOX H2SO4 L AMBER	GA/AB BICARB NITRATE L POLY	TOTAL PHOSPHATE 525 MCL AMBER H2SO4	DIS. PHENOLICS 420 MCL POLY H2SO4	TOC H2SO4 L AMBER
3002P2	11/9	1450		✓	ABG-03C02P2 GW01	14	3	3	1	1	1	1	1	1	1	1	1	1
03C27	11/9	1435		✓	ABG-03C27GW01	14	3	3	1	1	1	1	1	1	1	1	1	1
TB	11/10	0700		✓	TB111098 1	2	2											
03C26	11/10	0950		✓	ABG-03C26 GW 01	14	3	3	1	1	1	1	1	1	1	1	1	1
03C15	11/10	1050		✓	ABG-03C15GW01	14	3	3	1	1	1	1	1	1	1	1	1	1

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T-J S Simpson	11-10-98 1845	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB 807470132804	

Order No. 70440 (0693)

CHAIN OF CUSTODY RECORD

9911325

00306

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DEGRAD. PICKLE	40 ML VIAL HCl EXPLOSIVES AFB	1 L AMBER T. METALS	1 L POLY HNO3 DIS. METALS	1 L POLY HNO3 CYANIDE NaOH	500 ML POLY TOX H2SO4	1 L AMBER TOC H2SO4	125 ML AMBER CARB. RADIANTE NITRATE CHLORIDE SULFATE	1 L POLY T. PHOSPHORUS 500 MG/L H2SO4	1 L POLY DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
RB	11/10	1100		✓	GWRB111098 1	16	3	5	1	1	1	1	1	1	1	1	I.U. TRANSDUCER

10/11)

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11-10-98 1845	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB 807470132804	

Order No. 70440 (0693)

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811325 Contractor Cooler 1 OF 3

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CTO 38 CRANE

Date samples were received at the laboratory: 11/11/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/11/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> YES NO
   If YES, record carrier name and airbill number: 8074 7013 2804
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
   How many and where: 2 front, 2 back
   Seal date: 11/10/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> YES NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES NO
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> YES NO
   COC located in Cooler 3 of 3
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> YES NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubed H_2O YES NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/11/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/11/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>> YES NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> YES NO

CUSTODY SEAL Signature Date

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL Signature Date

NAVYRCT.DOC

1 of 3

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA
20. Was project manager called /[✓ faxed] & status discussed? >>>>>>>>>>>>>>> [✓ YES] NO

If YES, give details below

21. Who was called /[✓ faxed]? Ralph B. all 3 coolers

By whom? HSP (date) 11/11/98

DESCREPANCIES:

1 of 3

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811325
Assigned SDG Number: CRA02

	Temperature	pH of Bottle Types								
	Temp Blank 3.9°C	CONU	ORD	TMET	DMET	CN	T-PO4	D-PO4	TOC	TOX
1		1) 6								
3		1) 6	1) 6	1) 1		1) 12			1) NC	1) 1
4					1) 1			1) 1		
6			1) 6							1) 1
8			1) 6							1) 1
10			2) 7	1) 1			1) 1		1) NC	
11					1) 1			1) 1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 98 Contractor Cooler 2 of 3

QA Lab Cooler #

Number of Coolers

Project: ~~JOSIE A. SMITH~~ JAS Tetra Tech CTO 38 CRANE

Date samples were received at the laboratory: 11/11/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/11/98

By: (print) ~~JOSIE A. SMITH~~ (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> YES NO
   If YES, record carrier name and airbill number: FedEx 807470132804
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
   How many and where: 2 front + 2 back
   Seal date: 11/1098 Seal name: see attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>> YES NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES NO
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES NO
   COC located in cooler 3 of 3
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> YES NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>> YES NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: cubed (4°C) YES NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/11/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/11/98

By (print) ~~JOSIE A. SMITH~~ (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> YES NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> YES NO

CUSTODY SEAL Signature Date 11/10/98

CUSTODY SEAL Signature Date 11/11/98

NAVYRCT.DOC

2 of 3

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? YES NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>>>> YES NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> YES NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>>> YES NO NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? _____

By whom?_____(date)_____

DESCREPANCIES:

2 of 3

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811325
Assigned SDG Number: CRA02

Temperature		pH of Bottle Types								
Temp Blank 2.4°C		CONU	ORD	TMET	DMET	CN	TP04	DP04	TOC	
3			2) 6							
6		1) 6		1) 1		1) 12	1) 1		1) NC	
7					1) 1					
8		1) 6	2) 6	1) 1		1) 12	1) 1		1) NC	
9					1) 1			1) 1		
10			3) 7			1) 12				

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811325 Contractor Cooler 3 of 3

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CTO38 CRANE

Date samples were received at the laboratory: 11/11/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/11/98

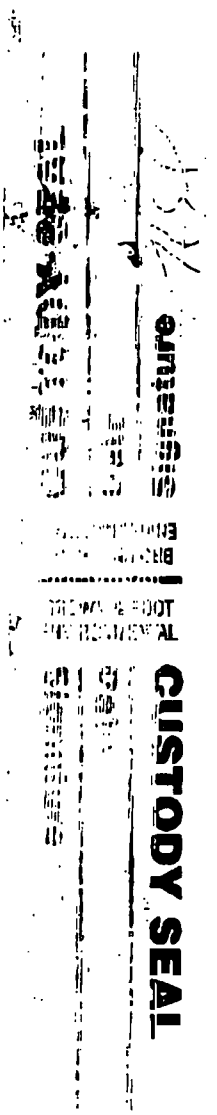
By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 807470132804
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front + 2 back
   Seal date: 11/11/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>> (YES) NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? (If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: cubed H_2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler JAS date 11/11/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/11/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> (YES) NO



3 of 3

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? (YES) NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> (YES) NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>> (YES) NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> YES (NO)
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? _____

By whom?_____(date)_____

DESCREPANCIES:

19) TB1110981 2 of 2 4/4"

3 of 3

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811325
Assigned SDG Number: CRA02

Temperature		pH of Bottle Types								
Temp Blank 2.1°C		CONV	ORD	TMET	DMET	CN	TPO4	DPO4	TOC	TOX
1			3) 6	1) 1		1) 12	1) 1		1) NC	1) 1
3							1) 1			
2					1) 1			1) 1		
6			2) 6							
4					1) 1					
10		1) 7								1) 1
		VOA								
1		3) NC								
3		3)								
6		3)								
8		3)								
10		3)								
5		2) V								

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Baranski
COMPANY: Telia Tech NSWC Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/11/98

PAGES INCLUDING THIS COVER PAGE: 12

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/11/98 COC 00304 00306

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by not determined yet

When inquiring about the samples, please reference workorder number 98-11-325 and/or SDG number CRA02

note: couldn't find samplers for surface soils - but why not use labeled zip lock bags - turn inside out, insert hand and grab soil? That way you can avoid cleaning a utensil between samples

00304

CHAIN OF CUSTODY RECORD

9811025

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T.L. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DESIGNAT. PROD	40 ML VIAL HCL	EXPLOSIVES 4 AMBER	T. METALS 1 POLY HNO3	DIS. METALS 1 POLY HNO3	CYANIDE 1 POLY NAOH	50 ML POLY H2SO4	TOX H2SO4 AMBER	NITRATE BICARB 1 POLY	TOTAL PHOSPHORUS 125 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 AMBER
302P2	11/9	1450		✓	ABG-03C02P2 GW01	14	3	3	1	1	1	1	1	1	1	1	1	1
03C27	11/9	1435		✓	ABG-03C27GW01	14	3	3	1	1	1	1	1	1	1	1	1	1
TB	11/10	0700		✓	TB111098 1	2	2											
03C26	11/10	0950		✓	ABG-03C26 GW 01	14	3	3	1	1	1	1	1	1	1	1	1	1
03C15	11/10	1050		✓	ABG-03C15GW01	14	3	3	1	1	1	1	1	1	1	1	1	1

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T.L. Simpson	11-10-98 1645	FED EX

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):

REMARKS: FED EX AB # TO LAUCKS LAB
807470132804

Order No. 70460 (0693)

CHAIN OF CUSTODY RECORD

9811325

00306

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DEGRAD. PROD. 40 ML VIAL HCl	EXPLOSIVES A+B L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE NaOH 500 ML POLY	TOX H2SO4 L AMBER	TOC H2SO4 125 ML AMBER	SULF. BCARB. NITRATE NITRITE CHLORIDE SULFATE L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
RB	11/10	1100		✓	GWRB111098 1	16	3	5	1	1	1	1	1	1	1	1	I.H. TRANSDUCER

0,11

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
T. S. Simpson	11-10-98 1845	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY(SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB 807470132804	

Order No. 70440 (0693)

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811325 Contractor Cooler 1 of 3

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CTO 38 CRANE

Date samples were received at the laboratory: 11/11/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/11/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: 8074 7013 2804
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front, 2 back
   Seal date: 11/10/98 Seal name: see attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> (YES) NO
   CoC located in Cooler 3 of 3
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: cubed H_2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/11/98

B. **LOG-IN PHASE:** Date samples were logged-in: 11/11/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

CUSTODY SEAL Signature Date

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL Signature Date

NAVYRCT.DOC

1oF3

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA
20. Was project manager called /[✓ faxed] & status discussed? >>>>>>>>>>>>>>> [✓ YES] NO

If YES, give details below

21. Who was called /[✓ faxed?] Ralph B. all 3 coolers

By whom? NSP (date) 11/11/98

DESCREPANCIES:

1 of 3

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811325
Assigned SDG Number: CRA02

	Temperature	pH of Bottle Types								
	Temp Blank 3.9°C	CONU	ORD	TMET	DMET	CN	T-PO4	D-PO4	TOC	TOX
1		1) 6								
3		1) 6	1) 6	1) 1		1) 12			1) NC	1) 1
4					1) 1			1) 1		
6			1) 6							1) 1
8			1) 6							1) 1
10			2) 7	1) 1			1) 1		1) NC	
11					1) 1			1) 1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 98 Contractor Cooler 2 of 3

QA Lab Cooler # _____

Number of Coolers _____

Project: ~~JOSIE A. SMITH~~ JAS Tetra Tech CTO 38 CRANE

Date samples were received at the laboratory: 11/11/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/11/98

By: (print) ~~JOSIE A. SMITH~~ (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 807470132804
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front + 2 back
   Seal date: 11/10/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> (YES) NO
   COC located in cooler 3 of 3
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: cubed (4°C) (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/11/98

B. LOG-IN PHASE : Date samples were logged-in: 11/11/98

By (print) ~~JOSIE A. SMITH~~ (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

CUSTODY SEAL Signature Date 11/10/98

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL Signature Date 11/11/98

NAVYRCT.DOC

2 of 3

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? YES NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>>>> YES NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>>> YES NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>>>> YES NO NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? _____

By whom?_____(date)_____

DESCREPANCIES:

2 of 3

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811325
Assigned SDG Number: CRA02

	Temperature	pH of Bottle Types								
	Temp Blank 2.4°C	CONU	ORD	TMET	DMET	CN	TPO4	DPO4	TOC	
3			2) 6							
6		1) 6		1) 1		1) 12	1) 1		1) NC	
7					1) 1					
8		1) 6	2) 6	1) 1		1) 12	1) 1		1) NC	
9					1) 1			1) 1		
10			3) 7			1) 12				

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811325 Contractor Cooler 3 of 3

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CTO38 CRANE

Date samples were received at the laboratory: 11/11/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/11/98

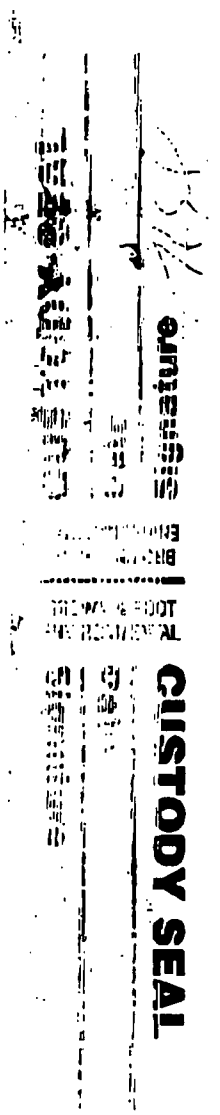
By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: Fed Ex 807470132804
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front + 2 back
   Seal date: 11/11/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>> (YES) NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>YES NO
8. Was project identifiable from custody papers? (If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: cubed H_2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler JAS date 11/11/98

B. **LOG-IN PHASE:** Date samples were logged-in: 11/11/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> (YES) NO



3 of 3

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> YES [✓ NO]
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ______

By whom? ______ (date) ______

DESCREPANCIES:

19) TB1110981 2 of 2 < 1/4"

3 of 3

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811325
Assigned SDG Number: CRA02

Temperature		pH of Bottle Types								
Temp Blank 2.1°C		CONV	ORD	TMET	DMET	CN	TPO4	DPO4	TOC	TOX
1			3) 6	1) 1		1) 12	1) 1		1) NC	1) 1
3							1) 1			
2					1) 1			1) 1		
6			2) 6							
4					1) 1					
10		1) 7								1) 1
		VOA								
1		3) NC								
3		3)								
6		3)								
8		3)								
10		3)								
5		2) V								

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

File CTO 38 SDA Events No. 1

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Baranski
COMPANY: Foster Tech N.SW.C Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/9/98 10

PAGES INCLUDING THIS COVER PAGE: 26

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/10/98 for COC #'s 00308 + 00303

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by 12/10/98

When inquiring about the samples, please reference workorder number 9811264 and/or SDG number CRA01

9811264

00303

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. L. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DEGRAD. + MOD 40 ML VIAL HCl	EXPLOSIVES 4 AMBER	T. METALS 1 POLY HNO3	CYANIDE NaOH 500 ML POLY	TOX H2SO4 4 AMBER	DIS. METALS 1 POLY HNO3	CARB. BICARB NITRATE SULFATE 1 POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 4 AMBER	REMARKS
03C09P2	11/8	1420		✓	ABG-03C09P2 GW01	42	9	9	3	3	3	3	3	3	3	3	RUN ALSO MS/MSD
DUP	11/8	0000		✓	GW FD 110898-2	14	3	3	1	1	1	1	1	1	1	1	
03C17	11/9	1040		✓	ABG-03C17GW01	14	3	3	1	1	1	1	1	1	1	1	

11-9-98 11-8-98

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. L. Simpson	11-9-98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB	
		Jan A Smith	11/10/98 10:05	807470132789	

Order No. 70[illegible]593)

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 1 of 7

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech CRANE CTO 38

Date samples were received at the laboratory: 11/10/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/10/98

By: (print) JOSIE A SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO

   If YES, record carrier name and airbill number: FedEx 807470132789

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO

   How many and where: 2 front, 2 back

   Seal date: 11/9/98 Seal name: See attached

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>> (YES) NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? (If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubed H_2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler JAS date 11/10/98

B. **LOG-IN PHASE:** Date samples were logged-in: 11/10/98

By (print) JOSIE A SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

CUSTODY SEAL Date 11/10/98 Signature

BROWN & ROOT ENVIRONMENTAL

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL Date 11/10/98 Signature

NAVYRCT.DOC

1of7

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> YES [✓ NO]
20. Was project manager called / [✓ faxed] & status discussed? >>>>>>>>>>>>>>> [✓ YES] NO

If YES, give details below

21. Who was called / [✓ faxed?] Ralph B. for all coolers

By whom? HSP (date) 11/10/98

DESCREPANCIES:

(19) TB1108981 2of2<1/4"

TB1109981 1of2<1/4" 1of2>1/4"

1 of 7

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> YES [✓ NO]
20. Was project manager called / [✓ faxed] & status discussed? >>>>>>>>>>>>>>> [✓ YES] NO
If YES, give details below
21. Who was called / [✓ faxed]? Ralph B. for all coolers
By whom? HSP (date) 11/10/98

DESCREPANCIES:

19) TB1108981 2 of 2 < 1/4"

TB1109981 1 of 2 < 1/4" 1 of 2 > 1/4"

1 of 7

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRA01

Temperature Temp Blank 2.5°C	pH of Bottle Types								
	VOA	DMET	TMET	DPO4	TPO4	TOX	ORD	CONU	
1	2) NC							1) 7	
2	3) ↓								
3		1) 1							
4	3) NC								
6	3) ↓		1) 1						
7		1) 1		1) 1				✓	
8	2) NC								
9	3)		1) 1						
11	3)								
13	3) ↓					1) 1	2) 7		
14		1) 1							
15	3) NC				1) 1	1) 1			
17	3) ↓								

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRA01

	Temperature Temp Blank 2.5°C	pH of Bottle Types								
		VOA	DMET	TMET	DPO4	TPO4	TOX	ORD	CONU	
1		3) NC							1) 7	
2		3) ✓								
3			1) 1							
4		3) NC								
6		3) ✓		1) 1						
7			1) 1		1) 1				✓	
8		2) NC								
9		3)		1) 1						
11		3)								
13		3) ✓					1) 1	2) 7		
14			1) 1							
15		3) NC				1) 1	1) 1			
17		3) ✓								

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 2 of 7

QA Lab Cooler # _____

Number of Coolers _____

Project: B Tetra Tech NSWC CRANE CTO 38

Date samples were received at the laboratory: 11/10/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/10/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO

   If YES, record carrier name and airbill number: FedEx 807470132789

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO

   How many and where: 2 front, 2 back

   Seal date: 11/9/98 Seal name: see attached

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>>> (YES) NO

4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)

5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>>> YES (NO)

6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> (YES) NO

   COC located in cooler 1 of 7

7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>> (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at top of this form.

9. If required, was enough cooling material present?>>>>Type of ice: Cubed H2O (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler JAS date 11/10/98

B. **LOG-IN PHASE:** Date samples were logged-in: 11/10/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap

12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> (YES) NO

13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> (YES) NO

NAVYRCT.DOC

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LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ____________________

By whom?____________________(date)____________________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
Temp Blank 3.3°C	CONU	ORD	TOX	TMET	DMET	TPO4	D-PO4	TOC	
2		D 7	D 1	D 1					
4				R 1					
6	D 7	D 7							
9						D 1		D NC	
10					D 1		D 1		
13		D 7	D 1	D 1		D 1			
14					D 1		D 1		
15		D 7							
16							D 1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 3 of 7

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech NSWC CRANE CTO 38

Date samples were received at the laboratory: 11/10/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/10/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 8074701337 2789 JAS 11/10/98
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
   How many and where: 2 front, 2 back
   Seal date: 11/9/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> (YES) NO
   COC located in cooler 1 of 1
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? (If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: cubed (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/10/98

B. **LOG-IN PHASE:** Date samples were logged-in: 11/10/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> (YES) NO

CUSTODY SEAL Date 11-10-98 Signature JAS

BROWN & ROOT ENVIRONMENTAL

BROWN & ROOT ENVIRONMENTAL CUSTODY SEAL Signature JAS Date 11-10-98

NAVYRCT.DOC

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LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES~~ ~~NO~~ N/A
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ______________________

By whom? ______________________ (date) ______________________

DESCREPANCIES:

3 of 7

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRA01

Temperature Temp Blank 3.2°C		pH of Bottle Types								
		CONU	ORD	D.PO4	TOC	TMET	DMET	CN		
4			2) 7							
5				1) 1						
9			2) 7							
11			3) 7							
13		2) 7				1) 1		3) 12		
14							1) 1			
15					1) NC			1) 12		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 4 of 7 JAS

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech NSWC CRANE CTO 38

Date samples were received at the laboratory: 11/10/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/10/98

By: (print) ~~JOSIE A. SMITH~~ (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> YES NO

   If YES, record carrier name and airbill number: FedEx 807470132789

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO

   How many and where: 2 front, 2 back

   Seal date: 11/9/98 Seal name: See attached

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> YES NO

4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES NO

5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES NO

6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> YES NO

   COC located in cooler 1 of 7

7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>>> YES NO

8. Was project identifiable from custody papers? If YES, enter project name at top of this form.

9. If required, was enough cooling material present?>>>>Type of ice: Cubes Wet YES NO

10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/10/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/10/98

By (print) ~~JOSIE A. SMITH~~ (sign) JAS

11. Describe type of packing in cooler: Bubble wrap

12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>>> YES NO

13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> YES NO

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL

NAVYRCT.DOC

JAS
4of ~~8~~7

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>[✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>[✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>[✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>[✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> ~~YES NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ____________________

By whom? ____________________ (date) ____________________

DESCREPANCIES:

Page 2 of 2

4 of 7

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811244
Assigned SDG Number: CRA01

Temperature Temp Blank 4 8°C	pH of Bottle Types								
	ORD	CONU	TMET	T-PO4	D-PO4	TOC	CN		
2				1) 1		1) NC	1)		
3					1) 1				
4	1) 7								
6	1) 7								
9	1) 7								
13	2) 7		1) 1			2) NC			
15	1) 7		1) 1						
17		1) 7					1) 12		
18					1) 1				

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 5 of 7

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech NSWC Crane CTO 38

Date samples were received at the laboratory: 11/10/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/10/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> YES NO
   If YES, record carrier name and airbill number: FedEx 807470132789
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO
   How many and where: 2 front, 2 back
   Seal date: 11/9/98 Seal name: See attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> YES NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES NO
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> YES NO
   COC located in Cooler 1 of 7
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> YES NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubed H2O YES NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/10/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/10/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> YES NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> YES NO

CUSTODY SEAL
Date 11/9/98
Signature

CUSTODY SEAL

NAVYRCT.DOC

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LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? YES NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>>YES NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>YES NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>YES NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>YES NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>>~~YES~~ ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

    If YES, give details below

21. Who was called / faxed? _____

    By whom?_____(date)_____

DESCREPANCIES:

5 OF 7

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRA01

Temperature Temp Blank 2.3 °C	pH of Bottle Types								
	CONU	ORD	DMET	TPO4	DPO4	CN	TOC	TOX	
2		3) 7							
4	1) 7						1) NC		
6		2) 7						1) 1	
9		1) 7				1) 12			
5			1) 1						
13								✓	
14				1) 1	2) 1				
15	1) 7								

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 6 of 7

QA Lab Cooler #

Number of Coolers

Project: Tetra Tech NSWC Crane CTO 38

Date samples were received at the laboratory: 11/10/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/10/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 807470132789
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front, 2 back
   Seal date: 11/10/98 (11/9/98) Seal name: see attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> (YES) NO
   COC located in cooler 1 of 7
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubed H2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/10/98

B. LOG-IN PHASE: Date samples were logged-in: 11/10/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

CUSTODY SEAL signature

CUSTODY SEAL signature

NAVYRCT.DOC

6 of 7

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? (YES) NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> (YES) NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>> (YES) NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> YES ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

    If YES, give details below

21. Who was called / faxed? _____

    By whom?_____(date)_____

DESCREPANCIES:

6 of 7

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRAORGS

Temperature		pH of Bottle Types								
Temp Blank 3.8 °C		ORD	TMET	DMET	T-PO4	D-PO4	CN	TOC		
6		1) 7			1) 1		1) 12			
11							1) 12			
12						1) 1				
13		4) 7			1) 1			1) NC		
16				1) 1						
17		3) 7	1) 1		1) 1			1) NC		
18				1) 1						

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811264 Contractor Cooler 7 of 7

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech NSWC CRANE CTO 38

Date samples were received at the laboratory: 11/10/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/10/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 807470132789
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 front, 2 back
   Seal date: 11/9/98 Seal name: see attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>> (YES) NO
   COC located in Cooler 1 of 7
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: wet H2O (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler JAS date 11/10/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/10/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>> (YES) NO

CUSTODY SEAL
Signature
Date
BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL
Signature
Date
BROWN & ROOT ENVIRONMENTAL

NAVYRCT.DOC

7 of 7

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)?_ [✓ YES] NO

15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO

17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO

19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> ~~YES NO~~ NA

20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ____________________

By whom? ____________________(date)____________________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811264
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
Temp Blank 2.8 °C	ORD	CONU	DMET	TMET	T-PO4	ON	TOC	TOX	
4	2) 7					1) 12		1) 1	
6							1) NC		
9	1) 7	1) 7							
11	1) 7	1) 7		1) 1	1) 1		1) NC	1) 1	
12			1) 1						
13	1) 7	1) 7						1) 1	

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

File CTO 38 for 11/98 from SAA Event No 1

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Baranski
COMPANY: Tetra Tech NSWC Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/9/98

PAGES INCLUDING THIS COVER PAGE: 5

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/9/98 COC# 01129

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by not determined yet

When inquiring about the samples, please reference workorder number 9811199 and/or SDG number CRA01

9811199

01129

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. J. Simpson

STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE+DEGRAD. PRODS 40 ML VIAL-HCL	EXPLOSIVES A+B L AMBER	T. METALS L POLY HNO3	DIS. METALS L POLY HNO3	CYANIDE NAOH 500 ML POLY	TOX H2SO4 L AMBER	TOC H2SO4 125 ML AMBER	CARB. BICARB. NITRATE CHLORIDE SULFATE L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
TB	11/7	0700		✓	TB 110798-1	2	2										
03C25	11/7	1345		✓	ABG-03C25GW01	16	3	5	1	1	1	1	1	1	1	1	

1) 3)

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. J. Simpson	11-7-98 1540	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # 807470132815 TO LAUCKS LAB	
		Joni A Smith	11/9/98 8:40		

Order No. 7044 (J)

002

LAUCKS TESTING

11/09/98 MON 11:43 FAX 767 5063

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811199 Contractor Cooler 1 of 1

QA Lab Cooler # _____

Number of Coolers _____

Project: Tetra Tech NSWC CRANE CTO 38

Date samples were received at the laboratory: 11/9/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/9/98

By: (print) JOSIE A. SMITH (sign) JAS

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> YES NO

   If YES, record carrier name and airbill number: _____

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> YES NO

   How many and where: 2 front, 2 back JAS

   Seal date: 11/6/98 Seal name: See attached (page 2)

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> YES NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES NO
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> YES NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> YES NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: Cubes H2O YES NO
10. Have designated person initial here to acknowledge receipt of cooler: JAS date 11/9/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/9/98

By (print) JOSIE A. SMITH (sign) JAS

11. Describe type of packing in cooler: Bubble wrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> YES NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> YES NO

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? YES NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>>>>YES NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>>YES NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>>>YES NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>>YES NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> YES NO
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>>>YES NO

If YES, give details below

21. Who was called / faxed? Ralph B

By whom? WSP (date) 11/9/98

DESCREPANCIES:

19) Trip Blank - TB 110798-01 OWS 20F2<4/4"

CUSTODY SEAL
Date 11/9/98
Signature

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL
Date 11/9/98
Signature

NAVYRCT.DOC

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811199
Assigned SDG Number: CRA01

	Temperature	pH of Bottle Types								
	Temp Blank 2.2°C	ORG	TOX	CONV	TOC	VOA	TMET	DMET	NUTR	CN
1						2) NC				
2		5) ~~57~~ ONS	1) 1	1) 7	1) NC	3) ↓	1) 1		1) 1	1) 12
3								1) 1	1) 1	

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

File
CTO-38
SDA Event
No. 1
No 1
11/98

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Basinski
COMPANY: Tetra Tech
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/6/98

PAGES INCLUDING THIS COVER PAGE: 20

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/6/98 COC 01299.

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by not yet determined

When inquiring about the samples, please reference workorder number 9811185 and/or SDG number CRA01.

CHAIN OF CUSTODY RECORD

9811185

01299

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T-15 Simpson

	STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCL+ Target Comp. List + 10 Tentatively Identified Compounds	TCL+ Target Comp. List + 30 Tentatively Identified Compounds	Explosives (HCL)	1L Glass	Metals (Total)	1L Poly (HNO3)	Metals (Dis.)	1L Poly (HNO3)	Cyanide	500 mL Poly (NaOH)	TOC	100 mL Glass (H2SO4)	Nitrate, Nitrite, Ammonia, Kjeldahl	250 mL Glass (H2SO4)	Phosphorus (Total)	250 mL Poly (H2SO4)	Phosphorus (Dis.)	250 mL Poly (H2SO4)	REMARKS
1)	TB	11/5	0700		✓	TB 110598-1	2	2																		
43	DUP		0600		✓	GW FD 110598-1	16	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
115	DOWN STREAM		0900		✓	ABG-CRELSDSW01	16	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
017	UP STREAM		1000		✓	ABG-CRELSUSW01	16	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
319	SPRING A		1345		✓	ABG-SPRASW01	16	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
011	SPRING C		1445		✓	ABG-SPRCSW01	16	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
12/13	03B02	↓	1200		✓	ABG-03B02GW01	48	9	15	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	RUN ALSO MS/MSD

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T-15 Simp	11-5-98 1840	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS:	
		Jamie A Smith	11/6/98 9:00	FED EX AIR BILL #807470132959	

Order No. 70440 (0693)

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811105

Contractor Cooler ______

QA Lab Cooler # ______

Number of Coolers 1 of 6

Project: NSWC CRANE

Date samples were received at the laboratory: 11 6 98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/6/98

By: (print) PAM R. JOHNSON (sign) PJ

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

   If YES, record carrier name and airbill number: FedEx 807470132959

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

   How many and where: 2 in front, 2 in back

   Seal date: 11/6/98 Seal name: See Attached

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> [✓ YES] NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>>> YES [✓ NO]
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> [✓ YES] NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> [✓ YES] NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> [✓ YES] NO
8. Was project identifiable from custody papers? If [✓ YES], enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose [✓ YES] NO
10. Have designated person initial here to acknowledge receipt of cooler: PJ date 11/6/98

B. **LOG-IN PHASE:** Date samples were logged-in: 11/6/98

By (print) PAM R. JOHNSON (sign) PJ

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> [✓ YES] NO

CUSTODY SEAL

Date 11/5/98

Signature

BROWN & ROOT ENVIRONMENTAL

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> YES [✓ NO]
20. Was project manager called /[✓ faxed] & status discussed? >>>>>>>>>>>>>>> YES NO
If YES, give details below
21. Who was called /[✓ faxed?] Ralph B - all 6 coolers info
By whom? NSP (date) 11/7/98

DESCREPANCIES:

TB110598-1 2 of 2 VOA vials w/bubbles less than 1/4"

GW FD 110598-1 1 of 3 VOA vials w/bubble larger than 1/4"

.Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811105
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
2.0°C	VOA	DMET	TOC	TP	CONV	TOX	ORG		
1	NIC								
2	NIC			1		1	5)7		
3		1							
4	NIC		NIC	1					
6	NIC								
8	NIC								
10	NIC								
11		1							
12	NIC				7				

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811185

Contractor Cooler _____

QA Lab Cooler # _____

Number of Coolers 2 of 6

Project: NSWC CRANE

Date samples were received at the laboratory: 11/6/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/6/98

By: (print) PAM R JOHNSON (sign) PJ

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: FedEx 807479132859
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 in front, 2 in back
   Seal date: 11/6/98 Seal name: See Attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler PJ date 11/6/98

B. LOG-IN PHASE : Date samples were logged-in: 11/6/98

By (print) PAM R. JOHNSON (sign) PJ

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

CUSTODY SEAL Signature

BROWN ROOT ENVIRONMENTAL

Signature CUSTODY SEAL

NAVYRCT.DOC

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ______________________________

By whom? ______________________ (date) ______________________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 981185
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
2.8°C	TOC	TP	C,N	CONV	TMET	DP	DMET	ORG	TOX
4				7				2)7	
6	N/C	1							
8	N/C	1	11	7	1			5)7	1
9						1	1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

TEMPLOG.DOT 02/11/98

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811185

Contractor Cooler ________

QA Lab Cooler # ________

Number of Coolers 3 of 6

Project: NSWC CRANE

Date samples were received at the laboratory: 11/6/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/6/98

By: (print) PAM R. JOHNSON (sign)

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
   If YES, record carrier name and airbill number: FedEx 807470132859
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
   How many and where: 2 in front, 2 in back
   Seal date: 11/5/98 Seal name: See Attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> [✓ YES] NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>>> YES [✓ NO]
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES [✓ NO]
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> [✓ YES] NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>> [✓ YES] NO
8. Was project identifiable from custody papers? If [✓ YES], enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose [✓ YES] NO
10. Have designated person initial here to acknowledge receipt of cooler: date 11/6/98

B. LOG-IN PHASE : Date samples were logged-in: 11/6/98

By (print) PAM R. JOHNSON (sign)

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>>> [✓ YES] NO

CUSTODY SEAL
Date
Signature
BROWN & ROOT ENVIRONMENTAL

BROWN & ROOT ENVIRONMENTAL
CUSTODY SEAL
Date
Signature

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES~~ ~~NO~~ N/A
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ______________________

By whom?______________________(date)______________________

DESCREPANCIES:

. Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811185
Assigned SDG Number: CRAQ1

Temperature	pH of Bottle Types								
2-3°C	CN	TMET	TOX	ORG	DP	DMET	CONV		
4	12	1	1	3)7					
5					1	1			
6	11	1	1	5)7			7		
7					1	1			

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811185

Contractor Cooler ______

QA Lab Cooler # ______

Number of Coolers 4 of 6

Project: NSWC CRANE

Date samples were received at the laboratory: 11/6/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/6/98

By: (print) PAM R. JOHNSON (sign)

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
   If YES, record carrier name and airbill number: FedEx 807470132659
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
   How many and where: 2 in front, 2 in back
   Seal date: 11/5/98 Seal name: See Attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> [✓ YES] NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>>> YES [✓ NO]
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES [✓ NO]
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> [✓ YES] NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>> [✓ YES] NO
8. Was project identifiable from custody papers? If [✓ YES] enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose [✓ YES] NO
10. Have designated person initial here to acknowledge receipt of cooler: PJ date 11/6/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/6/98

By (print) PAM R. JOHNSON (sign)

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> [✓ YES] NO

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ______

By whom? ______ (date) ______

DESCREPANCIES:

Page 2 of 2

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811185
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
2.5°C	TOC	CN	TP	CONV	DP	TMET	TOX	ORG	
2	NIC	11							
10	NIC	12	1	7					
11					1				
12		2)11		7		2)1	2)1	6)7	

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811185

Contractor Cooler ____________

QA Lab Cooler # ____________

Number of Coolers 5 of 6

Project: NSWC CRANE

Date samples were received at the laboratory: 11/6/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/6/98

By: (print) PAM R. JOHNSON (sign) ____________

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

   If YES, record carrier name and airbill number: Fedex 807470132859

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

   How many and where: 2 in front, 2 in back

   Seal date: 11/5/98 Seal name: See Attached

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> [✓ YES] NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>>> YES [✓ NO]
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES [✓ NO]
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> [✓ YES] NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>> [✓ YES] NO
8. Was project identifiable from custody papers? If [✓ YES], enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose [✓ YES] NO
10. Have designated person initial here to acknowledge receipt of cooler: ____ date 11/6/98

B. LOG-IN PHASE : Date samples were logged-in: 11/6/98

By (print) PAM R. JOHNSON (sign) ____________

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> [✓ YES] NO

CUSTODY SEAL

Date

Signature

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ____________________

By whom?____________________(date)____________________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811185
Assigned SDG Number: CRA09

Temperature	pH of Bottle Types								
2.1 °C	DP	TP	TOX	ORG	DMET				
3	1								
12		3)1	1	7)7					
13	3)1				3)1				

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811185

Contractor Cooler _____

QA Lab Cooler # _____

Number of Coolers 6 of 6

Project: NSWC CRANE

Date samples were received at the laboratory: 11/6/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/6/98

By: (print) PAM R. JOHNSON (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc.)?>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: Fed-Ex 807470132659
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 2 in front, 2 in back
   Seal date: 11/5 AG Seal name: See Attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If (YES), enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: PJ date 11/6/98

B. LOG-IN PHASE: Date samples were logged-in: 11/6/98

By (print) PAM R. JOHNSON (sign) [signature]

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>>> (YES) NO

CUSTODY SEAL Signature Date 11/5/98

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL Signature Date

NAVYRCT.DOC

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> ~~YES~~ ~~NO~~ NA
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ______________________________

By whom?____________________(date)________________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811185
Assigned SDG Number: GRA01

Temperature	pH of Bottle Types								
3.6°C	TMET	CONV	TOX	ORG	CN	TOC			
2	1	7							
10	1		1	5)7					
12	1	7		2)7	12	3)NC			

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

File
CTO 38
GEO SAA Bunker
No. 1

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Braunski
COMPANY: Florida Tech NSWC Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/12/98

PAGES INCLUDING THIS COVER PAGE: 8

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/12/98.

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by not determined yet - project 12/13 Sun (12/14)

When inquiring about the samples, please reference workorder number 9811364 and/or SDG number CRA02.

9811364

00307

CHAIN OF CUSTODY RECORD

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): T. S. Simpson

	STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DESIGNATED VOCs 40 ML VIAL HCl	EXPLOSIVES 1 L AMBER	T. METALS 1 L POLY HNO3	DIS. METALS 1 L POLY HNO3	CYANIDE NaOH 500 ML POLY	TOX H2SO4 1 L AMBER	CARB. BICARB. NITRATE SULFATE 1 L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	TOC H2SO4 1 L AMBER	REMARKS
1/2	03C20	11/10	1730		✓	ABG-03C20GW01	14	3	3	1	1	1	1	1	1	1	1	
3/4	03C08P2	11/10	1745		✓	ABG-03C08P2GW01	14	3	3	1	1	1	1	1	1	1	1	
5	TB	11/11	0705		✓	TB111198 1	2	2										
6/7	03C07	11/11	1100		✓	ABG-03C07GW01	14	3	3	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
T. S. Simpson	11-11-98 1700	FED EX			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB # TO LAUCKS LAB	
			11/12/98 0830	807470132539	

Order No. 7[illegible]

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811364

Contractor Cooler ______

QA Lab Cooler # ______

Number of Coolers 1 of 2

Project: NSWC CRANE

Date samples were received at the laboratory: 11/12/98

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 11/12/98

By: (print) PAM R. JOHNSON (sign)

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

   If YES, record carrier name and airbill number: FedEx 807470132539

2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

   How many and where: 2 in front, 2 in back

   Seal date: 11/11/98 Seal name: See Attached

3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> [✓ YES] NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>>> YES [✓ NO]
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> [✓ YES] NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> [✓ YES] NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
8. Was project identifiable from custody papers? If [✓ YES] enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose [✓ YES] NO
10. Have designated person initial here to acknowledge receipt of cooler PJ date 11/12/98

B. LOG-IN PHASE : Date samples were logged-in: 11/12/98

By (print) PAM R. JOHNSON (sign) PJ

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>>> [✓ YES] NO

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> [✓ YES] NO
20. Was project manager called / [✓ faxed] & status discussed? >>>>>>>>>>>>>>> [✓ YES] NO

If YES, give details below

21. Who was called / [✓ faxed]? Ralph B

By whom? NSP (date) 11/12/98

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811364
Assigned SDG Number: CRA02

	Temperature	pH of Bottle Types								
	2.5°C	VOA	CONV	TOC	TP	TMET	ORG	DP	DMET	
1		N|C	7							
2		N|C	7	N|C	1	1	2)7			
3								1	1	
4										
5		N|C								
6		N|C		N|C	1		3)7			
7								1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks
Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811364

Contractor Cooler ____

QA Lab Cooler # ____

Number of Coolers 2 of 2

Project: NSWC CRANE

Date samples were received at the laboratory: 11/12/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/12/98

By: (print) PAM R. JOHNSON (sign)

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
   If YES, record carrier name and airbill number: FedEx 907470132539
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
   How many and where: 2 in front, 2 in back
   Seal date: 11/11/98 Seal name: See Attached
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>>> [✓ YES] NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>>> YES [✓ NO]
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES [✓ NO]
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> [✓ YES] NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>> [✓ YES] NO
8. Was project identifiable from custody papers? If [✓ YES], enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: loose [✓ YES] NO
10. Have designated person initial here to acknowledge receipt of cooler: PJ date 11/12/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/12/98

By (print) PAM R. JOHNSON (sign)

11. Describe type of packing in cooler: bubblewrap
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> [✓ YES] NO

CUSTODY SEAL
Date 11/11/98
Signature

BROWN & ROOT ENVIRONMENTAL

BROWN & ROOT ENVIRONMENTAL

CUSTODY SEAL
Date 11/11/98
Signature

Page 1 of 2

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14\. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO

15\. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

16\. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO

17\. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO

18\. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> [✓ YES] NO

19\. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>> ~~YES NO~~ NA

20\. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>> YES NO

If YES, give details below

21\. Who was called / faxed? ____________________

By whom?____________________(date)____________________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811364
Assigned SDG Number: GRAB2

Temperature	pH of Bottle Types								
3.0°C	TOC	CN	TOX	T-P	TMET	ORG	DMET	DP	CONV
1	NIC	12	1	1	1	3)7			
2							1	1	
3		11	1			7			
6		11	1		1				7
7							1		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

File CTO-38 Soil Event No. 1 11/98

FACSIMILE COVER SHEET

LAUCKS

TESTING LABORATORIES, INC.
940 SOUTH HARNEY STREET
SEATTLE, WA 98108

PHONE: (206) 767-5060
FAX: (206) 767-5063

FROM: HUGH PRENTICE

TO: Ralph Basinski
COMPANY: Tetra Tech NSWC Crane
PHONE: 412 921 8308
FAX: 412 921 4040

DATE: 11/7/98

PAGES INCLUDING THIS COVER PAGE: 8

SAMPLE RECEIPT CONFIRMATION

Any notable issues encountered during the log-in process are noted on the attached Cooler Receipt Form and/or Supplemental Sample Receipt Log.

The sample(s) referenced on the attached COC(s) was/were received by Laucks Testing Laboratories on 11/7/98 COC 01127.

The preliminary faxed results are due to you by: not required

The data package due date is determined from the closure date of the SDG, therefore, it is due to you by not determined yet

When inquiring about the samples, please reference workorder number 9811197 and/or SDG number CRA01

CHAIN OF CUSTODY RECORD

9811197

0112

PROJECT NO.:	SITE NAME:
CTO 38 7651	NSWC CRANE

SAMPLERS (SIGNATURE): K. S. Simpson

	STATION NO.	DATE 1998	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TCE + DCE/TRANS PLUS 40 ML VIAL HCL	EXPLOSIVES A&B 1 L AMBER	T. METALS 1 L POLY HNO3	DIS. METALS 1 L POLY HNO3	CYANIDE NAOH 500 ML POLY	TOX H2SO4 1 L AMBER	TOC H2SO4 125 ML AMBER	CARB. BICARB. NITRATE CHLORIDE SULFATE 1 L POLY	T. PHOSPHORUS 500 ML POLY H2SO4	DIS. PHOSPHORUS 500 ML POLY H2SO4	REMARKS
1)	TB	11/6	0700		✓	TB 110698-1	2	2										
2,3)	03C11	↓	0910		✓	ABG-03C11 GW 01	16	3	5	1	1	1	1	1	1	1	1	
4,5)	03C03	↓	1505		✓	ABG-03C03 GW 01	16	3	5	1	1	1	1	1	1	1	1	

RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):	RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED BY (SIGNATURE):
K. S. Simpson	11-6-98 1840	FED EX			
Fed ex	11/7/98 8:45	Hugh Prentice			
RELINQUISHED BY (SIGNATURE):	DATE / TIME:	RECEIVED FOR LABORATORY BY (SIGNATURE):	DATE / TIME:	REMARKS: FED EX AB# TO LAUCKS LAB	
	11/7/98 9:30	Hugh Prentice		807470132790	

Order No. 70440 (0693)

11/07/98 SAT 11:12 FAX 767 5063 LAUCKS TESTING 002

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811197

Contractor Cooler _____

QA Lab Cooler # _____

Number of Coolers 1 of 2

NSWC-Crane

Project: Tetra Tech Crane

Date samples were received at the laboratory: 11/7/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/7/98

By: (print) Hugh Prentice (sign) Hugh S. Prentice

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: Fedex 8074 7013 2790
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 4 on e 2 on each long side
   Seal date: 11/6 AR Seal name: K. Simpson
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>> (YES) NO
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>>> (YES) NO
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>>> (YES) NO
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: reg (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: HSP date 11/7/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/7/98

By (print) Hugh Prentice (sign) Hugh S. Prentice

11. Describe type of packing in cooler: bubble wrap + ice
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

3.3°C Top of cooler
2.9°C Temp Blk

Page 1 of 2

rcd all-ID 03C11 +TB except
for 03C11 in other cooler { 1 chilled plastic
1 H_2SO_4 preserved 1L amber
1 unpreserved 1L amber
rcd 03C03 VOA's

NAVYRCT.DOC

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> YES [✓ NO] except 1 TB bubble rest were OK
20. Was project manager called/ [✓ faxed &] status discussed? >>>>>>>>>>>>>>>>> [✓ YES] NO
    If YES, give details below
21. Who was called/ [✓ faxed?] Ralph B.
    By whom? HSP (date) 11/7/98

DESCREPANCIES:

TB 110698-1 1of2<1/4"

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811197
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
Temp Blank 29°C	ORG	TMET	DMET	PO4	DPO4	VOA			
2	4) 7	1) 1		1) 7		3) NC			
3			1) 1		1) L				
4						3) NC			
1						2) ↓			

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 9811197 Contractor Cooler _____

QA Lab Cooler # _____

Number of Coolers 2 of 2

Project: NSWC-Crane Tetra Tech Crane

Date samples were received at the laboratory: 11/7/98

A. **PRELIMINARY EXAMINATION PHASE:** Date cooler was opened: 11/7/98

By: (print) HUGH PRENTICE (sign) Hugh S. Prentice

1. Did cooler come with a shipping slip (airbill, etc.),>>>>>>>>>>>>>>>>>>>> (YES) NO
   If YES, record carrier name and airbill number: Fedex 8074 7013 2790
2. Were custody seals on outside of cooler?>>>>>>>>>>>>>>>>>>>>>>>>>>>> (YES) NO
   How many and where: 4 - 2 on each long side
   Seal date: 11/6/98 Seal name: KTS
3. Were custody seals unbroken and intact at the date and time of arrival?>>>>>> (YES) NO
4. Did you screen samples for radioactivity using the Geiger Counter?>>>>>>>> YES (NO)
5. Were custody papers sealed in a plastic bag and taped inside to the lid?>>>>>> YES (NO)
6. Were custody papers filled out properly (ink, signed, etc.)?>>>>>>>>>>>>>> YES (NO)
7. Did you sign custody papers in the appropriate place?>>>>>>>>>>>>>>>>>>>YES (NO) in ethanol cooler
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.
9. If required, was enough cooling material present?>>>>Type of ice: wet (YES) NO
10. Have designated person initial here to acknowledge receipt of cooler: HSP date 11/7/98

B. **LOG-IN PHASE :** Date samples were logged-in: 11/7/98

By (print) HUGH PRENTICE (sign) Hugh S Prentice

11. Describe type of packing in cooler: bubble wrap & ice
12. Were all bottles sealed in separate plastic bags?>>>>>>>>>>>>>>>>>>>>>> (YES) NO
13. Did all bottles arrive unbroken and were labels in good condition?>>>>>>>> (YES) NO

3.8°C

Page 1 of 2 4.6°C on Temp Blk

rcd all ID 03C03 except VOAs. plus 3 bottles for 03C11

NAVYRCT DOC

LAUCKS TESTING LABORATORIES, INC.

COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)? [✓ YES] NO
15. Did all bottle labels agree with custody papers?>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
16. Were correct containers used for the tests indicated?>>>>>>>>>>>>>>>>>>> [✓ YES] NO
17. Were correct preservatives added to samples?>>>>>>>>>>>>>>>>>>>>>>>> [✓ YES] NO
18. Was a sufficient amount of sample sent for tests indicated?>>>>>>>>>>>>>> [✓ YES] NO
19. Were bubbles absent in VOA samples: If NO, list by QA #:>>>>>>>>>>>>> [✓ YES] NO – no VOA bottles
20. Was project manager called / faxed & status discussed? >>>>>>>>>>>>>>>> YES NO

If YES, give details below

21. Who was called / faxed? ____________________

By whom?________________(date)__________

DESCREPANCIES:

Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 9811197
Assigned SDG Number: CRA01

Temperature	pH of Bottle Types								
	ORG	TMET	DMET	PO4	DPO4	TOX	CONU		
2	1) 7								
4	5) 7	1) 1		1) 1		1) 1	1) 7		
3			1) 1		1) 1	1) 1	1) 7		

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature	Allowable temperature range is 4± 2 degrees Celsius
Acid Preserved pH	pH must be less than 2
Base Preserved pH	pH must be greater than 12

ATTACHMENT 9

Equipment Calibration Logs
Monitoring Event No. 1

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : PE PHOTOVAC

MANUFACTURER : PHOTOVAC 11.7 LAMP SER.# EDFM310

PROJECT NAME : NSWC CRANE

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
10.19.98	—	ISOBUTYLENE	AS PER MANUF.	YES SPAN 98	97.8	RSS	98 PPM Span Gas
10/20/98	—	"	"	YES SPAN 98	97.9	SWN	98 ppm "
10/21/98	—	"	"	YES SPAN 98	97.8	SWN	98 ppm "
10/22/98	—	"	"	YES SPAN 98	97.9	SWN	98 ppm "
10/23/98	—	"	"	YES SPAN 98	98.0	SWN	98 ppm "
10/24/98	—	"	"	YES SPAN 98	97.7	SWN	98 ppm "
SWN ~~10/24/98~~ 10/25/98	—	"	"	YES SPAN 98	97.9	SWN	98 ppm "
10/26/98	—	"	"	YES SPAN 98	97.8	SWN	98 ppm "
10/27/98	—	"	"	YES SPAN 98	97.8	SWN	98 ppm "
10/28/98	—	"	"	YES SPAN 98	97.8	SWN	98 PPM "
11/5/98	—	"	"	" "	97.8	CJS	98 PPM "
11/6/98	—	"	"	" "	97.8	SWN	98 ppm "
11/7/98	—	"	"	" "	98.5	CJS	" "
11/8/98	—	"	"	" "	98.5	CJS	" "
11/9/98	—	"	"	" "	98.5	CJS	" "
11/10/98	—	"	"	" "	97.8	CJS	" "
11/11/98	—	"	"	" "	97.8	CJS	" " Changed filter

Instrument Rented From: US ENVIRONMENTAL RECEIVED 10/19/98

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 610-D / 6920

MANUFACTURER : SER# 6100 - 217714R
6920 98K1154

PROJECT NAME : NSWC CRANE

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
11-8-98			AS PER MANUF.			TKS	SEE MANUAL 7 PARAMETER CAL. ON METER CALIBRATION IS GOOD FOR 1 WEEK OF USE

Instrument Rented From: _____

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : HORIBA / WATER CHECKER U10

MANUFACTURER : HORIBA SERIAL # 804003

PROJECT NAME : NSWC CRANE

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
10/19/98	—	AUTO CAL.	AS PER MANUF.	N/A	4.01; 4.52; 0	SWN	AM CAL.
10/19/98	—	"	"	N/A	4.09; 4.40; 0	SWN	POST CAL.
10/20/98	—	"	"	N/A	3.98; 4.49; 0	SWN	AM CAL.
10/20/98	—	"	"	N/A	4.07; 4.48; 0	SWN	POST CAL.
10/21/98	—	"	"	N/A	3.99; 4.48; 0	SWN	AM CAL.
10/21/98	—	"	"	N/A	4.03; 4.56; 0	SWN	POST CAL.
10/22/98	—	"	"	N/A	3.99; 4.48; 0	SWN	AM CAL.
10/22/98	—	"	"	N/A	4.10; 4.42; 1	SWN	POST CAL.
10/23/98	—	"	"	N/A	4.00; 4.48; 0	SWN	AM CAL.
10/23/98	—	"	"	N/A	4.06; 4.48; 0	SWN	POST CAL.
10/24/98	—	"	"	N/A	3.99; 4.51; 0	SWN	AM CAL.
10/24/98	—	"	"	N/A	3.99; 4.47; 1	SWN	POST CAL.
10/25/98	—	"	"	N/A	3.99; 4.47; 0	SWN	AM CAL.
10/25/98	—	"	"	N/A	4.09; 4.45; 0	SWN	POST CAL.
10/26/98	—	"	"	N/A	3.98; 4.49; 0	SWN	AM CAL.
10/26/98	—	"	"	N/A	4.01; 4.44; 0	SWN	POST CAL.
10/27/98	—	"	"	N/A	3.99; 4.48; 0	SWN	AM CAL.
10/27/98	—	"	"	N/A	4.06; 4.46; 1	SWN	POST CAL.
10/28/98	—	"	"	N/A	3.99; 4.49; 0	SWN	AM CAL.
10/28/98	—	"	"	N/A	4.00; 4.50; 0	SWN	POST CAL.
11/5/98	—	"	"	N/A	3.99; 4.48; 0	SWN	AM CAL.
11/5/98	—	"	"	N/A	3.99; 4.51; 0	SWN	POST CAL.
11/7/98	—	"	"	N/A	3.99; 4.48; 0	SWN	AM CAL.
11/7/98	—	"	"	N/A	3.96; 4.43; 0	SWN	POST CAL.

Instrument Rented From: US ENVIRONMENTAL RECEIVED 10/19/98

EQUIPMENT CALIBRATION LOG

INSTRUMENT NAME/MODEL : YSI 610-D / 6820

MANUFACTURER : SER. # 610 D - 21771R
6820 - 9851342

PROJECT NAME : NSWC CRANE

PROJECT NUMBER : CTO 38/48

CALIBRATION DATE	INITIAL SETTINGS	STANDARDS USED	PROCEDURE	ADJUSTMENTS MADE	FINAL SETTINGS	SIGNATURE	COMMENTS
10.3.98			AS PER MANUF.			KSD	SEE MANUAL -
11.9.98			11			KSD	7 PARAMETER CAL
							ON METER.
							CAL. GOOD FOR 1
							WEEK, FIELD CHECK
							DAILY
							DO, PH 2 POINT, TURB
							2 POINT, SPC 2 POINT,

Instrument Rented From: QED

ATTACHMENT 10

Field Log Book Pages
Monitoring Event No. 1

TITLE NSWC CRANE
SUNDAY 10.18.98

PROJECT NO. 765[illegible]
BOOK 2398

Work continued from Page

DEPART PGH → IN. PICK-UP
RENTAL 4X4 PICK-UP & SUV
TO HOTEL @ BEDFORD, IN.

MONDAY 10/19/98

ON SITE SCOTT N. & KEITH S.
0715 MET WITH TOM BRENT AFTER
PICKING UP BASE PASS, LOADED
SUPPLIES INTO TRUCK.
0800 TO BLD 41 PICK-UP SHIPPED SUPPLIES
TOM TOOK US TO TT FIELD
TRAILER.
SCOTT & KEITH CLEANED TRAILER
UNPACK SUPPLIES.
RETURN TO BLD 3260 PICK-UP
3 MORE BOXES FROM FED EX
ALSO FAX FROM QED ON TUBING
LENGTHS, TO BLD 41 PICK-UP
1 FED EX BOX OF SUPPLIES
1130 LUNCH
TO TRAILER, LOAD FOR WELL
DEVELOPMENT AT ABG
CHECKED IN TO ABG WITH
BOBBY TOLBERT RECEIVED CLEARANCE
TO WORK AT ABG

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-1 S. Simpson
WITNESS

DATE 10.19.98
DATE

TITLE NSWC CRANE
10.19.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page 50°-68° SUNNY

DEVELOPED 4 WELLS TODAY
SITE	WELL
ABG	3C11
ABG	3B02
ABG	3B04
ABG	3C25

RETURN TRAILER EMPTY TRUCKS
DECON EQUIPMENT
DUMP PURGE WATER INTO
MANHOLE #327 AS PER TOM
BRENT
LOCKED PICK-UP AND LEFT IT
A TRAILER
1815 TO K-MART FOR HARDWARE
TO HOTEL
PROOF SPREADSHEET FROM
QED FOR PUMP TUBING LENGTH.
MADE MINOR CHANGES WILL
FAX TO QED TUESDAY.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-1 S. Simpson
WITNESS

DATE 10.19.98
DATE

TITLE NSWC CRANE
TUESDAY 10.20.98

PROJECT NO. 765Y
BOOK 2397

Work continued from Page

WEATHER: SUNNY 45-65°F

0715 KS & SN STOP AT GATE
APPLY FOR LONG TERM PASS.
TO TOM B. OFFICE FAXED
ORDER SHEETS TO QED
FOR BLADDER PUMPS.
CALLED NOEL K. HE WILL
BE OUT WED. @ 9:00 ABG
TO MEET US AND PULL
TRANSDUCERS. SET UP A PHONE
ACCOUNT WE WILL BE ABLE TO
DIAL DIRECT FROM TRAILER
PHONE. BILL WILL BE SENT TO PGH OFFICE.
TO TRAILER LOAD SUPPLIES
CAL. EQ. TO ABG START.
WELL DEVELOPMENT
TOM BRENT IS OFF SICK TODAY.
AFTER LUNCH TO ORR FOR
WELL DEVELOPMENT.
PUMPED DEVELOPMENT WATER
INTO MH 327 5X TODAY.

VOID
YES

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-1 S. Simpson
WITNESS

DATE 10.20.98
DATE

12

TITLE NSWC CRANE
10.20.98

PROJECT NO. 765Y
BOOK 2397

Work continued from Page 12

WELLS DEVELOPED 10.20.98 (6)

SITE	WELL
ABG	3C8P2
ABG	3C04
ORR	06C14
ORR	06C14P2
ORR	06C16
ORR	06C15

RETURN TO TRAILER DECON
UNLOAD EQUIPMENT
DEPART BASE TO HARDWARE
STORE FOR NEEDED SUPPLIES
1900 TO HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-1 S. Simpson
WITNESS

DATE 10.20.98
DATE

13

TITLE NSWC CRANE PROJECT NO. 7651

WED 10.21.98 BOOK 2397

Work continued from Page

AM: OVERCAST RAIN 50°F
PM: CLEARING NO RAIN 60°F

0710 ON SITE KS, SN TO BID 3260
TOM B. WAS NOT IN.
PICK-UP SUPPLIES THAT WERE
FED EX IN COOLERS, 8 GAL CONTAINERS
NO 300 GAL. TANK YET!
TO TRAILER PHONE REPAIR MAN
AT TRAILER WE NOW HAVE A
NEW PHONE # 812 854 5470
CAL EQUIPMENT LOAD TRUCKS
TO ABG
NOEL KROTHE & JENNIFER
STEADMAN FROM IU MET US
AT THE ABG TO DISCUSS PULLING
THE TRANSDUCERS. ~~WE~~ JENNIFER
WILL PULL TRANSDUCERS ON FRIDAY
WE WILL TALK WITH TOM B.
CONSERNING REPLACING TRANS-
DUCERS WITH PUMPS IN MID
NOVEMBER.

1140 SCOTT & KEITH TO LUNCH
DUMP ~~DEVELOPMENT~~ DEVELOPMENT WATER
PICKED UP COOLERS & BOTTLES FROM
BID 3260. TO ORR FOR WELL
DEVELOPMENT.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-1 S Sniper

WITNESS

DATE 10.21.98

DATE

14

TITLE NSWC CRANE PROJECT NO. 7651

10.21.98 BOOK 2397

Work continued from Page

CONTINUE USING MH 327 FOR
DEVELOPMENT WATER DISCHARGE.
END DEVELOPMENT FOR THE DAY
RETURN TO TRAILER CLEAN
EQUIPMENT AND UNLOAD TRUCK

1840 DEPART BASE TO HOTEL

VOID
KFS

WELLS DEVELOPED 10.21.98 (7)

SITE	WELL
ABG	03C26
ABG	03C07
ORR	06C13
ORR	06C13P2
ORR	06C18
ORR	06C18P2
ORR	06C12

DUMP DEVELOPMENT WATER INTO
MH 327

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-1 E Lin

WITNESS

DATE 10.21.98

DATE

15

TITLE NSWC CRANE
THUR. 10.22.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page NICE - 35-65°F SUNNY

0710 KS, SN ON SITE STOP AT BLD 3260 COPY NOTES & FILL TAP WATER CONTAINER

0730 AT TRAILER CALLED RALPH B. HE WOULD LIKE US TO CHECK FOR CONTROL POINTS AT 6 SITES SEE PHILL KEITH IN BLD 3260 FOR MAP. TO DR AND CHECK IN WITH LUTHER W. FOR WORK AT ORR, OR TO WORK AT ORR.
TO ORR & WELL DEVELOPMENT
COMPLETED WELL DEVELOPMENT AT ORR.
STOPPED AT BLD 3260 TO CHECK ON FED EX THEN LUNCH
TO ABG FOR WELL DEVELOPMENT

1610 DEPART ABG FOR DR WELL DEVELOPMENT

1735 RETURN TO TRAILER UNLOAD AND CLEAN EQUIPMENT
RESTOCK TRUCKS FOR FRIDAY

1845 DEPART BASE FOR HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson
WITNESS

DATE 10.22.98
DATE

TITLE NSWC CRANE
10.22.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page 16

WELLS DEVELOPED 10.22.98 (7)

SITE	WELL
ORR	06C11
ORR	06C11 P2
ABG	03C02P2
ABG	03C27
ABG	03C12
ABG	03C03
*DR	06C08

* UPGRADIENT WELL FOR BOTH ORR & DR

VOID
KFS

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson
WITNESS

DATE 10.22.98
DATE

TITLE NSWC CRANE PROJECT NO. 7651

FRIDAY 10.23.98 BOOK 2397

Work continued from Page WEATHER: NICE, SUNNY

35 → 58°F

0715 KS, SN AT PASS AND ID PICK-UP CONTRACTOR PASS GOOD FOR ONE YEAR. TO BID 3260 TOM B. OFF SICK TALKED WITH JIM HUNSIKER ABOUT BENCH MARKS FOR SURVEYORS WE HAVE THE FIG. FOR ORR, ABG & DR JIM WILL TRY TO FIND MORE INFO. ON BENCH MARKS MONDAY KS & SN TO TRAILER CALLED IN HOURS FOR THE WEEK, ALSO TALKED WITH RALPH B. ABOUT RACING TRANSDUCERS FOR NOEL K. IN ABG WELL WITH PUMPS NEED TO TALK WITH NOEL/ TOM B. AND MYSELF THEY TRY A FIELD FIT IN NOV. KS, SN TO ABG FOR WELL DEVELOPMENT.

FLAT TIRE ON PICK-UP CHANGED IT WILL GET TIRE REPAIRED IN BEDFORD AFTER WORK.

CONTINUE DEVELOPMENT AT ABG.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson DATE 10.23.98

WITNESS DATE

18

TITLE NSWC CRANE PROJECT NO. 7651

10.23.98 BOOK 2397

Work continued from Page 18

1735 END DEVELOPMENT FOR THE DAY RETURN TO TRAILER UNLOAD AND CLEAN EQUIPMENT

WELLS DEVELOPED 10.23.98 (5)

SITE	WELL
ABG	03C10
ABG	03C15
ABG	03C20
ABG	03C09P2
ABG	03C17

1820 DEPART BASE TO GAS STATION TO HAVE FLAT REPAIRED FOR PICK-UP RETURN TO HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson DATE 10.23.98

WITNESS DATE

19

TITLE NSWC CRANE PROJECT NO. 7651

SAT. 10.24.98 BOOK 2397

Work continued from Page WEATHER: NICE, SUNNY

35→68°F

0710 RKS & SN ONSITE LOAD TRUCKS AND GO-OVER PAPER WORK FOR DEVELPING OF WELL. CAL6 EQ. TO ABG FOR LAST WELL AT THAT SITE 03C30.

1100 TO DR FOR WELL DEVELOPMENT RETURN TO TRAILER TO RE-STOCK TRUCKS

1300 DUMPED ≈ 120 GAL FROM TANK INTO MH 327 RETURN TO DR FOR WELL DEVELOPMENT.

1710 RETURN TO TRAILER UNLOAD/CLEAN EQUIPMENT

WELLS DEVELOPED 10.24.98 (7)

SITE	WELL
ABG	03C30
DR	06C09P2
DR	06C02
DR	06C03
DR	06C03P2
DR	06C04
DR	06C04P2

1815 DEPART BASE TO HARDWARE STORE/HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE R/S Simpson DATE 10.24.98

WITNESS DATE

20

TITLE NSWC CRANE PROJECT NO. 7651

SUNDAY 10.25.98 BOOK 2397

Work continued from Page WEATHER: 40-70°F, OVERCAST, NO RAIN

0715 RKS, SN ON SITE, LOAD TRUCKS, CAL EQUIPMENT.

TO DR FOR WELL DEVELOPMENT

1100 COMPLETE DEVELOPMENT AT DR TO ABG & DR FOR FIELD CHECK OF SURVEY MONUMENTS NO LUCK FINDING ~~EACH~~ THEM. WILL GET HELP WITH LOCATES FROM TOM B. OR JIM H. MONDAY.

200 LUNCH

TO MH#327 DUMPED 250 GAL± OF GROUND WATER.

TO SWL FOR WELL DEVELOPMENT

1650 RETURN TO TRAILER DECON EQUIPMENT

WELL DEVELOPED 10.25.98

SITE	WELL
DR	06C05
DR	06C06
DR	06C06P2
DR	06C07
SWL	MW 18
SWL	MW 201

(6)

ALSO CHECKED WL@ MW1A & WES 14393 @ SWL BOTH DRY.

DEPART BASE FOR HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE R/S Simpson DATE 10.25.98

WITNESS DATE

21

TITLE NSWC CRANE PROJECT NO. 7651

MONDAY 10.26.98 BOOK 2397

Work continued from Page WEATHER: OVERCAST 45-70°F

0700 RS, SN ON SITE, TO BLD 3260 COPY NOTES, TOM B. IS STILL OFF SICK
TO TRAILER, CLEANED OUT SHED TOOK OLD COMPUTER TO JAN @ BLD 3260
CALLED QED & TALKED TO SUNITA WHITEHEAD WE WILL NOT RECEIVE PUMP UNTIL NEXT SHIFT.
CALL BOC GASES AND ORDERED NITROGEN 3 T CYL & 2 Q CYL + 2 REGULATORS. WILL BE DELIVERED MONDAY 11/2/98.
CALLED RALPH B. DISCUSSED JOB PROGRESS.
TO BLD 3260 PICK-UP REPORTS FOR RALPH B. TO BLD 41 PICK-UP FED EX SUPPLIES. RETURN TO TRAILER
PUT 2 TT NUS SIGNS UP ON TRAILER LOADED TRUCKS TO SWL FOR WELL DEVELOPMENT
1745 RETURN TO TRAILER, UNLOAD/ CLEAN EQUIPMENT

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE R. E. Simpson DATE 10.26.98

WITNESS DATE

TITLE NSWC CRANE PROJECT NO. 7651

10.26.98 BOOK 2397

Work continued from Page 22

WELLS DEVELOPED 10.26.98 (6)

SITE	WELL	
SWL	MW 2A	
SWL	MW 3A	
SWL	MW 3B	SLOW RECHARGE
SWL	MW 20B	- DRY -
SWL	MW 4A	SLOW RECHARGE
SWL	MW 4B	

1750 CALLED RALPH B. TO CHECK IF WELL WES 14-5-93 IS ON THE SWL PERMIT. IT IS, A PUMP WAS NOT ORDERED FOR THAT WELL WE MAY USE A PUMP FROM ONE OF THE DRY WELL.

DEPART BASE FOR HOTEL

NOTE:
TOM BRENT WILL BE OFF SICK FOR 4-6 WEEKS

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE R. E. Simpson DATE 10.26.98

WITNESS DATE

TITLE NSWC CRANE PROJECT NO. 7651

TUESDAY 10.27.98 BOOK 2397

Work continued from Page WEATHER: NICE 50-74°F, SUNNY

0710	RS, SN ON SITE STOP AT BLD 3260 COPY NOTES. CHRIS FREEMAN GAVE US THE OK TO BRING WATER SAMPLES THAT WERE STORED IN ~~OF~~ THE TRAILER FRIDGE TO BLD 3260 FOR DISPOSAL. TOOK 13-½ GAL GLASS + 2 VOA's TO BLD 3260 CAL. PID & HORIBA LOADED TRUCKS
0815	TO SWL FOR WELL DEVELOPMENT. COMPLETED 4 WELLS TO MH #327 DUMPED ≈280 GAL. OF GW.
1215	LUNCH
	RETURN TO SWL FOR WELL DEVELOPMENT
1730	RETURN TO TRAILER UNLOAD TRUCKS CLEAN EQUIPMENT AND CATCH-UP ON PAPER WORK. PACKED M-SCOPE FOR SHIPPMENT TO PGH WAREHOUSE IT NEEDS REPAIRED. (SHIPPED FROM HOTEL)
1820	DEPART BASE TO HOTEL

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE R. S. Simpson DATE 10.27.98

WITNESS DATE

TITLE NSWC CRANE PROJECT NO. 7651

10.27.98 BOOK 2397

Work continued from Page 24

WELLS DEVELOPED 10.27.98 (9)

SITE	WELL
SWL	MW5A
SWL	MW5B
SWL	MW6A
SWL	MW6B
SWL	MW7A
SWL	WES 14793
SWL	WES 14193
SWL	WES 14293
SWL	WES 14693

VOID RES

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE R. S. Simpson DATE 10.27.98

WITNESS DATE

TITLE NSWC CRANE
WED. 10.28.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page

WEATHER. LT. RAIN OVERNITE.
NO RAIN OVERCAST 60-68°F

0710 KS, SN ON SITE, TO BLD 3260 TALKED WITH CHRIS F. SHE WILL MEET WITH US, NOEL K. NEXT WEEK AT ABG AND TRY TO FIT PUMP & TRANSDUCER BOTH INTO WELLS.
TO TRAILER CAL. EQUIPMENT
LOAD TRUCKS
0810 TO MH # 327 DUMP ≈ 80 GAL. OF G.W.
0830 TO SWC FOR WELL DEVELOPMENT
1000 RETURNED TO TRAILER, UNLOAD TRUCK CLEAN EQUIPMENT
1050 TO BLD 3260 PARK PICK-UP FOR WEEKEND
KS, SN OFFSITE TO AIRPORT

— END OF SHIFT —

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-L S Simpson
WITNESS

DATE 10-28-98
DATE

26

TITLE NSWC CRANE
SUNDAY 11.1.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page

KEITH SIMPSON, SCOTT NEIL AND CLYDE SNYDER AT PGH AIRPORT
TO IN. PICK-UP CAR FROM LONG TERM PARKING DRIVE TO BASE / BOQ

SNYDER

VOID
KFS

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-L S Simpson
WITNESS

DATE 11.1.98
DATE

27

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

MONDAY 11.2.98

Work continued from Page WEATHER: OVERCAST 50-65°F

0700 KS, SN & CS AT TRAILER
CLYDE UP-DATED H&S PLAN
PLUS CHECKED TRAILER FOR
H&S SUPPLIES AND POSTERS
CS & SN TO MH 327 DRAIN
TANK AND REMOVE IT FROM
PICK-UP TRUCK WE WILL STORE
IT, FOR NOW BEHIND TRAILER.
CALLED NOEL K. JENNIFER
WILL MEET ME ON TUESDAY
TO TRY AND FIT PUMP &
TRANSDUCER.
UNPACKING EQUIPMENT FROM QED
1ST SHIPPMENT.
KS, CS, SN TO ABG - OJT TO
INSTALL PUMPS & CHECK SURFACE
SAMPLE LOCATIONS.
INSTALLED 4 PUMPS AT ABG
RETURN TO TRAILER UNLOAD
TRUCKS.
SN, CS TO HARDWARE STORE FOR
SUPPLIES
KS PAPER WORK
1840 TO BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson

WITNESS

DATE 11.2.98

DATE

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

TUES 11.3.98

Work continued from Page WEATHER: LT RAIN 40-50°F

0700 KS, SN, CS AT TRAILER.
INSTALLED TWO SHELF UNITS
IN TRAILER. INSTALLED HOOKS AND
CHAIN IN SHED TO SECURE
NITROGEN CYL.
LOAD TRUCKS FOR PUMP INSTALLATION
AT ABG
TO ABG MET JENNIFER S. AT
OBCP2 AND INSTALLED TRANSDUCER
AND PUMP. WERE NOT ABLE
TO LOCK WELL WITH TRANSDUCER
CS & SN TO ABG INSTALLING
PUMPS. KS AT TRAILER CAL.
FLOW THRU CELL.
KS TO ABG ALL PUMPS INSTALLED
AT ABG
TO TRAILER UNLOAD TRUCK.
1905 DEPART TO BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson

WITNESS

DATE 11.3.98

DATE

TITLE NSWC CRANE
WED 4.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page WEATHER: CLEAR 30-55°F

0700 KS SN, CS AT TRAILER
SN & CS TO ORR & DR TO
INSTALL PUMPS.
KS PREP. BOTTLES FOR 11.5.98
SAMPLING
0845 KS TO BIO 3241 FOR MEETING
RB WILL SEND MEETING MIN. OUT
EMAIL. ADDRESSED FOR THIS
FIELD EFFORT. - CHANGES -
- ADD A 2ND CREEK SAMPLE
JUST DOWN STREAM OF
SPRING A (TO THE SOUTH)
- THE OTHER CREEK (LITTLE
SULPHUR CREEK) SAMPLE
WILL BE TAKEN WHERE THE
CREEK EXITS THE NAVY
PROPERTY AT THE FENCE LINE
- A WELL WAS ADDED TO
THE ORR. ONE WELL WILL
BE PICKED 06C19 OF 06C19P2
ON THE WEST SIDE OF THE
ORR. IT WILL BE DEVELOPED
AND A PUMP WILL BE ORDERED
- JIM H. WANTS LOCKING WELL
CAPS MADE FOR THE 5 WELLS

USE BOTH WELLS

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page 34

SIGNATURE K-15 Simp
WITNESS

DATE 11-4-98
DATE

TITLE NSWC CRANE

PROJECT NO. 7651
BOOK 2397

Work continued from Page

PUMP INSTALLATION DATA

WELL ID	DATE	AMOUNT OF RISER CUT OFF	COMMENTS
ABG 03C17	11.2.98	— 0" —	
ABG 03C25	↓	— 3.5± —	
ABG 03B04	↓	— 3 —	
ABG 03B02	↓	— 1 —	
ABG 03C30	11.3.98	1	
ABG 03C03	11.3.98	0	
ABG 03C10	11.3.98	0	
ABG 03C11	11.3.98	0	
ABG 03C12	11.3.98	0	TRANSDUCER INST.
ABG 03C04	11.3.98	1.5	
ABG 03C07	11.3.98	0	
ABG 03C15	11.3.98	1.5	
ABG 03C20	11.3.98	5	
ABG 03C26	11.3.98	1.5	
ABG 03C27	11.3.98	2.5	
ABG 03C02P2	11.3.98	1.25	TRANSDUCER INST.
ABG 03C08P2	11.3.98	1.5	
ABG 03C09P2	11.3.98	0	TRANSDUCER INST.

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K-15 Simp
WITNESS

DATE 11.3.98
DATE

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

Work continued from Page

PUMP INSTALLATION DATA

WELL ID	DATE	AMOUNT OF RISER CUT OFF	COMMENTS
DR/ORR06C08	11.4.98	2.5	
ORR06C14P2		3.5	
ORR06C11P2		2.5	
ORR06C13P2		2.5	
ORR06C18P2		2.5	
ORR06C11		2.5	
ORR06C12		3.5	
ORR06C13		2.5	
ORR06C14		3.5	
ORR06C15		3.5	
ORR06C16		2.75	
ORR06C18		2.5	
DR06C08P2		3.5	
DR06C03P2		3	
DR06C04P2		2	
DR06C06P2		2.75	
DR06C06		3	
DR06C02		3	
DR06C03		3	
DR06C04		3	
DR06C05		3	
DR06C07		3	

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. E. Simp

DATE

WITNESS

DATE

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

Work continued from Page

PUMP INSTALLATION DATA

WELL ID	DATE	AMOUNT OF RISER CUT OFF	COMMENTS
SWL 1B			
2A			
3A			
4B			
5A			
5B			
6A			
6B			
7A			
14 1 93			
14 2 93			
14 5 93			
14 6 93			
14 7 93			

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. E. Simp

DATE

WITNESS

DATE

TITLE NSWC CRANE 11.4.98

PROJECT NO. 7651

BOOK 2397

Work continued from Page 30

JIM RECOMMENDED I CALL KEN SKINNER @ 812 384 8676 TO HAVE CAPS MADE.

- I ASK FOR MORE WORK SPACE (500 SQFT ±) JIM WILL NEED PRICES AND JUSTIFICATION FROM ME, AND HE WILL SEE IF WE CAN RENT A LARGER TRAILER.

1300 SITE TOUR WITH THE GROUP FROM THE MEETING.
KS RETURN TO TRAILER PAPER-WORK
CS & SN COMPLETE PUMP INSTALLATION AT ORR & DR.
AT TRAILER PREP. TO START SAMPLING AT ABG

1855 DEPART TRAILER TO BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE K-1 S. Skinner

WITNESS

DATE 11.4.98

DATE

TITLE NSWC CRANE THUR. 11.5.98

PROJECT NO. 7651

BOOK 2397

Work continued from Page WEATHER: OVERCAST, COOL 26 - 55°F

0650 CS, SN, KS @ TRAILER CAL. EQUIPMENT
LOAD TRUCKS FOR SAMPLING AT ABG SW & GW
STARTING: DOWNSTREAM, UPSTREAM, SPRING A & SPRING C
KS STARTED WELL 03B02
CS & SN TO SPRING A.
MEET KEN SKINNER @ TRAILER TOUR HIM TO ABG KEN WILL WORK ON CAP FOR WELLS WITH TRANSDUCERS & PUMPS.

1235 CS & SN TO TRAILER & LUNCH
KS SAMPLING WELL 03B02 ALSO SAMPLED FOR DUP & MS/MSD AT THIS WELL.
SN RETURNED TO ABG SAMPLED SPRING C.

1520 KS TO TRAILER HELP CLYDE PACK

1700 SCOTT COMPLETED WELL 03B02 AT TRAILER PACKING FOR FED EX.
CS & SN TO FED EX IN BLOOMINGTON

1705 R.B. AT TRAILER WE WILL DEVELOP WELL 06C19 & 06C19P2 THIS WEEKEND THEN PICK ONE & INSTALL PUMP.

1845 TO BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE K-1 S. Skinner

WITNESS

DATE 11.5.98

DATE

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

FRIDAY 11.6.98

Work continued from Page WEATHER: OVERCAST 30-47°F

0650 KS, SN, CS @ TRAILER LOAD EQ. AND CAL. EQ. TO ABG — START SAMPLING GW

1130 KS & CS TO TRAILER THEN LUNCH SCOTT STAYED AT ABG TO PURGE WELL. KS, CS RETURN TO ABG THEN KS TO TRAILER - PHONE CALL, PAPER WORK

1710 CS, SN RETURN TO TRAILER UNLOAD/CLEAN EQUIPMENT PACK FOR FED EX.

1915 TO FED EX IN BLOOMINGTON. RETURN TO BCQ

VOID KES

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson

WITNESS

DATE 11.6.98

DATE

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

Work continued from Page

ROUND 1 ABG SAMPLING

	SAMPLE		
WELL ID	DATE	QA	COMMENTS
03B02	11.5.98	DUP-MS/MSD	1
03C11	11.6.98	—	2
03C03	11.6.98	—	3
03C25	11.7.98	—	4
03C10	11.8.98	DUP	5
03C09P2	11.8.98	DUP-MS/MSD	6
03C12	11.8.98	—	7
03B04	11.9.98	—	8
03C17	11.9.98	—	9
03C27	11.9.98	—	10
03B2P2	11.9.98	—	11
03C30	11.11.98		12
03C04	11.11.98		13
03C07	11.11.98		14
03C15	11.10.98	—	15
03C20	11.10.98	—	16
03C26	11.10.98	—	17
03C09P2	11.10.98	—	18
UP. LS CREEK	11.5.98	—	
DWN. LS CREEK	11.5.98	—	
SPRING A	11.5.98	—	
SPRING C	11.5.98	—	

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson

WITNESS

DATE

DATE

TITLE NSWC CRANE PROJECT NO. 7651

SAT. 11.7.98 BOOK 2397

Work continued from Page WEATHER: SUNNY 30-48°F

0650 KS CS SN @ TRAILER CAL. EQUIPMENT AND LOAD TRUCKS TO ORR TO DEVELOP 2 WELLS 06C19 & 06C19R2.

0900 TO MH #327 DUMP DEVELOPMENT WATER.

RETURN TO TRAILER LOAD TRUCKS FOR OFF ROAD WELL 03C25 CARRIED EQUIPMENT TO WELL

1430 RETURN TO TRAILER PACK FOR FED EX & PAPERWORK

1500 SN & CS TO FED EX, DROP OFF SHIPPMENT TO LAUCKS & PICK-UP CONTROL BOX AND FLOW THRU -CELL (WE NOW HAVE 2 OF EACH) SAMPLES FOR MICROSEEPS WILL BE HELD AND SHIPPED ON MONDAY

1640 SN & CS RETURN TO TRAILER UNPACK EQUIPMENT & PREP FOR SUNDAY SAMPLING. MAKE-UP BOTTLE SETS FOR SUNDAY SAMPLING CLEAN TRAILER

1850 RETURN TO BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE K-1 S. Simpson DATE 11.7.98

WITNESS DATE

TITLE NSWC CRANE PROJECT NO. 7651

SUNDAY 11.8.98 BOOK 2397

Work continued from Page WEATHER: AM - OVERCAST 37°F

PM - OVERCAST 55°F

0650 CS, SN, KS @ TRAILER LOAD EQUIP. & CAL. METERS FOR ABG SAMPLING. HOOKED OUTDOOR LIGHT TO TRAILER. TO ABG

1600 CS TO TRAILER TO PREP. FOR MONDAY SAMPLING

KS & SN @ ABG SAMPLING GW

1825 RETURN TO TRAILER UNLOAD TRUCKS PUT SAMPLES IN FRIDGE

KS PREP FOR MUNDAY SAMPLING

2000 RETURN TO BOQ

VOID KFS

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605 Work continued to Page

SIGNATURE K-1 S. Simpson DATE 11.8.98

WITNESS DATE

TITLE NSWC CRANE PROJECT NO. 7651

MONDAY 11.9.98 BOOK 2397

Work continued from Page WEATHER: AM OVERCAST 38-43°F

PM OVERCAST 55°F

0645 AT TRAILER KS, SN, CS PREP TB FOR 11.9.98, TAKE GWRB - 110998-1 ON WATER LEVEL METER.

CALLED MICROSEEPS TO ORDER 10 BOTTLE SETS + COOLERS FOR OVERNITE SHIPMENT TALKED WITH BECKY.

CS, SN LOAD TRUCKS TO ABG FOR GW SAMPLING

CALLED POH OFFICE FRAN M. ASK IF WE SHOULD INSURE RENTED EQUIPMENT WHEN WE RETURN IT. NO ANSWER

1010 TALKED WITH JENNIFER STEADMAN FROM IU SHE WILL MEET ME AT OUR TRAILER @ 10:30 ON TUES. WE WILL RUN A RB ON A TRANSDUCER THEN GO TO THE ABG AND INSTALL 4 TRANDUCERS. SEE PG 31

1115 SN TO TRAILER DROP OFF SAMPLES KS, SN TO LUNCH, PICK-UP ICE FOR SAMPLES

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson DATE 11.9.98

WITNESS DATE

TITLE NSWC CRANE PROJECT NO. 7651

11.9.98 BOOK 2397

Work continued from Page 40

1135 SN RETURN TO ABG FOR GW SAMPLING KS @ TRAILER PACKING SAMPLES

1210 CS @ TRAILER DROP OF SAMPLES, LUNCH RETURN TO ABG KS PACKED FOR FED EX PICK-UP @ 1630.

1635 CS RETURNS FORM SAMPLING UNLOAD TRUCK DECON EQUIPMENT

1715 SN RETURNS FROM ABG RECAL SONDE, CLEAN EQUIPMENT PREP FOR TUES. SAMPLING

1805 DEPART TRAILER FOR BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE K. S. Simpson DATE 11.9.98

WITNESS DATE

TITLE NSWC CRANE
TUESDAY 11.10.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page WEATHER AM: HIGH WIND OVERCAST 55°F

RAIN STARTING @ 0800. PM RAIN ENDING 1400

0700 KS, CS, SN @ TRAILER LOAD TRUCKS CAL. EQUIPMENT.

CS, SN TO ABG FOR GW SAMPLING. KS @ TRAILER PAPER WORK & PHONE CALLS

1035 JENNIFER STEADMAN FROM I.U. STOP AT TRAILER. WE RAN A RINSATE BLANK ON ONE TRANSDUCER THEN WE WILL BE INSTALLING AT THE ABG (GWRB 1110981) TO ABG RAINING TO HAND TO INSTALL TRANSDUCERS JENNIFER WILL MEET ME AT ABG WED. AM.

1230 KS TO TRAILER

CS, SN RETURN TO TRAILER ALL 3 OF US HEAD TO ABG FOR GW SAMPLING

1550 KS RETURNS TO TRAILER PACKS FOR FED EX, CLEAN TRAILER & SHED

1720 TO FED EX IN BLOOMINGTON

1915 CS & SN TO TRAILER

1930 RETURN TO BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE R-J-S Simpson

DATE 11.10.98

WITNESS

DATE

42

TITLE NSWC CRANE
WED. 11.11.98

PROJECT NO. 7651
BOOK 2397

Work continued from Page WEATHER: 45°F OVERCAST

0630 KS @ TRAILER CAL. EQUIPMENT CALL FED EX TO MAKE SURE THEY MAKE DELIVERYS TO TRAILER, VETERANS DAY & BASE IS CLOSED.

0700 CS, SN @ TRAILER, ALL 3 OF US TO ABG FOR GW SAMPLING AND TO MEET JENNIFER & INSTALL TRANSDUCERS

0755 TOOK ~~GWABH09~~ KS GWAB111198 1 @ 0755 INSTALLED TRANSDUCERS IN 3 WELLS 03C12 - 03C02P2 & 03C09P2

1030 KS, CS TO TRAILER PICK-UP 300' M-SCOPE FOR WELL 03C30 ALSO BOUGHT 12 BAGS OF ICE RETURNED TO ABG.

BOTH WELL PUMPING SLOW 03C04 @ 15 ML/MIN. CS COMPLETE WELL 03C30 @ 1910. ALL 3 OF US MEET AT "SCOTTS" WELL 03C04 AT THIS RATE WILL BE FILLING BOTTLES FOR 15 HRS. SN & KS STAY AT WELL TO SAMPLE CS TO TRAILER & BOQ.

2050 KS & SN TO TRAILER THEN BOQ

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE R-J-S Simpson

DATE 11.11.98

WITNESS

DATE

43

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

THUR 11.12.98

Work continued from Page WEATHER SUNNY 28-45°F

0625 SN TO ABG TO COMPLETE SAMPLING OF WELL 03C04.

0700 KS, CS TO TRAILER PACKING RENTED EQUIPMENT TO RETURN VIA FED EX TO AIRPORT FOR FLT TO PGH. HOME

END OF 1ST ROUND OF GW SAMPLING AT ABG

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE R L S Simpson

DATE 11.12.98

WITNESS

DATE

TITLE NSWC CRANE

PROJECT NO. 7651

BOOK 2397

Work continued from Page

SCIENTIFIC BINDERY PRODUCTIONS CHICAGO 60605

Work continued to Page

SIGNATURE

DATE

WITNESS

DATE

ATTACHMENT 11

Tabular Listing of Ground Water/Surface Water Data

Ammunition Burning Ground Monitoring Event No. 1

November 1998

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03B02GW01	GWFD110598-1	ABG03B02GW01-F	GWFD110598-1-F	ABG03B04GW01	ABG03B04GW01-F	ABG03C02P2GW01
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/09/98	11/09/98	11/09/98
LOCATION:	03B02	03B02	03B02	03B02	03B04	03B04	03C02P2
DUPLICATE:		ABG03B02GW01		ABG03B02GW01-F			
AQUIFER:	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	BEECH CREEK
VOLATILES (µg/L)							
1,1-DICHLOROETHENE	0.5 U	0.5 U			0.5 U		0.5 U
CIS-1,2-DICHLOROETHENE	0.5 U	0.5 U			0.5 U		1.7
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U			0.5 U		0.5 U
TRICHLOROETHENE	0.5 U	0.5 U			0.5 U		28
VINYL CHLORIDE	0.5 U	0.5 U			0.5 U		0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE	0.53 U	1.4 U			0.42 U		0.48 U
1,3-DINITROBENZENE	0.53 U	1.4 U			0.42 U		0.48 U
2,4-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
2,6-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
NITROBENZENE	0.53 U	1.4 U			0.42 U		0.48 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
2,4-DIAMINO-6-NITROTOLUENE	0.53 U	1.4 U			0.42 U		
2,6-DIAMINO-4-NITROTOLUENE	0.53 U	1.4 U			0.42 U		
2-AMINO-4,6-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
2-NITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
3,5-DINITROANILINE	2.9 U	7.3 U			2.2 U		
3-NITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
4,4'-TN-AZOXY	0.53 U	1.4 U			0.42 U		
4-AMINO-2,6-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
4-NITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
HMX	0.53 U	1.4 U			0.42 U		28
MNX	0.53 U	1.4 U			0.42 U		
NITROCELLULOSE	1.0 U	1.0 U			1.0 U		1.1 U
NITROGLYCERIN	5.3 U	14 U			4.2 U		4.8 U
PETN	2.6 U	6.7 U			2 U		2.4 U
PICRIC ACID	1.1 U	1.2 U			1.0 U		
RDX	0.53 U	1.4 U			0.42 U		21

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03B02GW01	GWFD110598-1	ABG03B02GW01-F	GWFD110598-1-F	ABG03B04GW01	ABG03B04GW01-F	ABG03C02P2GW01
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/09/98	11/09/98	11/09/98
LOCATION:	03B02	03B02	03B02	03B02	03B04	03B04	03C02P2
DUPLICATE:		ABG03B02GW01		ABG03B02GW01-F			
AQUIFER:	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	BEECH CREEK
ENERGETICS (µg/L)							
TETRYL	0.53 U	1.4 U			0.42 U		0.48 U
TNX	0.53 U	1.4 U			0.42 U		
DISSOLVED GASES (µg/L)							
ETHANE	0.092 U	0.078 U			0.033 U		
ETHENE	0.005 U	0.005 U			0.009		
METHANE	7.723 J	6.77 J			2.667 U		
INORGANICS (µg/L)							
ANTIMONY	1.1 U	1.1 U			1.1 U		1.1 U
ARSENIC	9.8	9.4			2.4		1.1 U
BARIUM	87.4	85.8			69.8		96.2
BERYLLIUM	1.1 U	1.1 U			1.1 U		1.1 U
CADMIUM	1.1 U	1.1 U			1.1 U		1.1 U
CHROMIUM	5.6 U	5.6 U			5.6 U		5.6 U
COBALT	3.3 U	3.3 U			3.3 U		3.3 U
COPPER	2.2 U	2.2 U			2.2 U		2.2 U
CYANIDE	0.01 U	0.01 U			0.01 U		0.01 U
IRON	12400 J	12000 J			2890 J		148
LEAD	1.1 UR	1.1 UR			1.1 UR		1.1 U
MERCURY	0.20 U	0.20 U			0.20 U		0.20 U
NICKEL	11.1 U	11.1 U			11.1 U		11.1 U
SELENIUM	1.1 U	1.1 U			1.1 U		2.3
SILVER	3.3 U	3.3 U			3.3 U		3.3 U
THALLIUM	1.1 U	1.1 U			1.1 U		1.1 U
TIN	11.1 U	11.1 U			11.1 U		11.1 U
VANADIUM	2.2 U	2.2 U			2.2 U		2.2 U
ZINC	11.1 U	11.1 U			11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED			1.1 U	1.1 U		1.1 U	
ARSENIC, FILTERED			10.2	10.0		2.6	
BARIUM, FILTERED			86.9	90.6		72.2	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03B02GW01	GWFD110598-1	ABG03B02GW01-F	GWFD110598-1-F	ABG03B04GW01	ABG03B04GW01-F	ABG03C02P2GW01
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/09/98	11/09/98	11/09/98
LOCATION:	03B02	03B02	03B02	03B02	03B04	03B04	03C02P2
DUPLICATE:		ABG03B02GW01		ABG03B02GW01-F			
AQUIFER:	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	BEECH CREEK
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED			1.1 U	1.1 U		1.1 U	
CADMIUM, FILTERED			1.1 U	1.1 U		1.1 U	
CALCIUM, FILTERED			44700	43700		56000	
CHROMIUM, FILTERED			5.6 U	5.6 U		5.6 U	
COBALT, FILTERED			3.3 U	3.3 U		3.3 U	
COPPER, FILTERED			2.2 U	2.2 U		2.2 U	
LEAD, FILTERED			1.1 U	1.1 U		1.1 U	
MAGNESIUM, FILTERED			6080	5960		10400	
MANGANESE, FILTERED			1390	1350		1120	
MERCURY, FILTERED			0.20 U	0.20 U		0.20 U	
NICKEL, FILTERED			11.1 U	11.1 U		11.1 U	
POTASSIUM, FILTERED			1120	1120		1110 U	
SELENIUM, FILTERED			1.1 U	1.1 U		1.1 U	
SILVER, FILTERED			3.3 U	3.3 U		3.3 U	
SODIUM, FILTERED			10200	9920		4480	
THALLIUM, FILTERED			1.1 U	1.1 U		1.1 U	
TIN, FILTERED			11.1 U	11.1 U		11.1 U	
VANADIUM, FILTERED			2.2 U	2.2 U		2.2 U	
ZINC, FILTERED			11.1 U	11.1 U		11.1 U	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3	130 J	120 J			150 J		220 J
BICARBONATE ALKALINITY	130 J	120 J			150 J		220 J
CARBONATE ALKALINITY	2.0 U	2.0 U			2.0 U		2 U
CHLORIDE	4.0	4.0			3.0		
CONDUCTIVITY (MS/CM)	0.417				0.446		0.765
DISSOLVED OXYGEN	0.45				1.34		6.55
NITRATE, AS NITROGEN	0.20 U	0.20 U			0.20 U		3.4
NITRITE, AS NITROGEN	0.10 U	0.10 U			0.10 U		
OXIDATION REDUCTION POTENTIAL	-146.0				-74.6		169.4

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03B02GW01	GWFD110598-1	ABG03B02GW01-F	GWFD110598-1-F	ABG03B04GW01	ABG03B04GW01-F	ABG03C02P2GW01
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/09/98	11/09/98	11/09/98
LOCATION:	03B02	03B02	03B02	03B02	03B04	03B04	03C02P2
DUPLICATE:		ABG03B02GW01		ABG03B02GW01-F			
AQUIFER:	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	BEECH CREEK
MISCELLANEOUS PARAMETERS ()							
PH ()	7.23				7.17		6.89
SULFATE	27.0	26.0			23.0		58 J
TEMPERATURE (C)	15				14		13.89
TOTAL ORGANIC CARBON	1.0 UJ	1.0 UJ			1.0 UJ		1.6
TOTAL ORGANIC HALOGENS	0.02 U	0.02 U			0.02 U		0.02 U
TOTAL PHOSPHORUS AS P	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.04
TURBIDITY (NTU)	0.9				0		3

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C02P2GW01-F	ABG03C03GW01	ABG03C03GW01-F	ABG03C04GW01	ABG03C07GW01	ABG03C07GW01-F	ABG03C08P2GW01
COLLECTION DATE:	11/09/98	11/06/98	11/06/98	11/11/98	11/11/98	11/11/98	11/10/98
LOCATION:	03C02P2	03C03	03C03	03C04	03C07	03C07	03C08P2
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEAVER BEND	BEAVER BEND	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
1,1-DICHLOROETHENE		0.5 U		0.5 U	0.5 U		0.5 U
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U	0.5 U		12
TRANS-1,2-DICHLOROETHENE		0.5 U		0.5 U	0.5 U		0.5 U
TRICHLOROETHENE		0.5 U		0.5 U	4.1		59
VINYL CHLORIDE		0.5 U		0.5 U	0.5 U		0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.78 U		0.71 U	0.65 U		1.2 U
1,3-DINITROBENZENE		0.78 U		0.71 U	0.65 U		1.2 U
2,4-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
2,6-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
NITROBENZENE		0.78 U		0.71 U	0.65 U		1.2 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
2,4-DIAMINO-6-NITROTOLUENE		0.78 U		0.71 U			
2,6-DIAMINO-4-NITROTOLUENE		0.78 U		0.71 U			
2-AMINO-4,6-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		2.1
2-NITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
3,5-DINITROANILINE		4.2 U		3.9 U			
3-NITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
4,4'-TN-AZOXY		0.78 U		0.71 U			
4-AMINO-2,6-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		3.7 J
4-NITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
HMX		0.78 U		0.71 U	7.3		33
MNX		0.78 U		0.71 U			
NITROCELLULOSE		1.0 U		1.2 U	1.4 U		1.2 U
NITROGLYCERIN		7.8 U		7.2 U	6.5 U		12 U
PETN		3.8 U		3.5 U	3.2 U		5.9 U
PICRIC ACID		1.0 U		1 U			
RDX		0.78 U		0.71 U	36		100

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C02P2GW01-F	ABG03C03GW01	ABG03C03GW01-F	ABG03C04GW01	ABG03C07GW01	ABG03C07GW01-F	ABG03C08P2GW01
COLLECTION DATE:	11/09/98	11/06/98	11/06/98	11/11/98	11/11/98	11/11/98	11/10/98
LOCATION:	03C02P2	03C03	03C03	03C04	03C07	03C07	03C08P2
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEAVER BEND	BEAVER BEND	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
ENERGETICS (µg/L)							
TETRYL		0.78 U		0.71 U	0.65 U		1.2 U
TNX		0.78 U		0.71 U			
DISSOLVED GASES (µg/L)							
ETHANE		0.140 J		0.024 U			
ETHENE		0.005 U		0.017			
METHANE		13.897 J		37.82 J			
INORGANICS (µg/L)							
ANTIMONY		1.1 U		1.1 U	1.1 U		1.1 U
ARSENIC		1.1 U		1.2	1.1 U		1.1 U
BARIUM		40.3		41.8	29.0		68.6
BERYLLIUM		1.1 U		1.1 U	1.1 U		1.1 U
CADMIUM		1.1 U		1.1 U	1.1 U		1.1 U
CHROMIUM		5.6 U		5.6 U	5.6 U		5.6 U
COBALT		3.3 U		3.3 U	3.3 U		3.3 U
COPPER		2.2 U		2.2 U	2.2 U		2.2 U
CYANIDE		0.01 U		0.01 U	0.01 U		0.01 U
IRON		169 J		531	107		129
LEAD		1.2 UR		1.1 U	1.1 U		1.1 U
MERCURY		0.20 U		0.20 U	0.20 U		0.20 U
NICKEL		11.1 U		11.1 U	11.1 U		11.1 U
SELENIUM		1.1 U		3.6	2.0		1.3
SILVER		3.3 U		3.3 U	3.3 U		3.3 U
THALLIUM		1.1 U		1.1 U	1.1 U		1.1 U
TIN		11.1 U		11.1 U	11.1 U		11.1 U
VANADIUM		2.2 U		2.2 U	2.2 U		2.2 U
ZINC		11.1 U		11.1 U	11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED	1.1 U		1.1 U			1.1 U	
ARSENIC, FILTERED	1.1 U		1.1 U			1.1 U	
BARIUM, FILTERED	94.8		42.1			29.1	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C02P2GW01-F	ABG03C03GW01	ABG03C03GW01-F	ABG03C04GW01	ABG03C07GW01	ABG03C07GW01-F	ABG03C08P2GW01
COLLECTION DATE:	11/09/98	11/06/98	11/06/98	11/11/98	11/11/98	11/11/98	11/10/98
LOCATION:	03C02P2	03C03	03C03	03C04	03C07	03C07	03C08P2
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEAVER BEND	BEAVER BEND	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED	1.1 U		1.1 U			1.1 U	
CADMIUM, FILTERED	1.1 U		1.1 U			1.1 U	
CALCIUM, FILTERED	119000		1200			102000	
CHROMIUM, FILTERED	5.6 U		5.6 U			5.6 U	
COBALT, FILTERED	3.3 U		3.3 U			3.3 U	
COPPER, FILTERED	2.2 U		2.2 U			5.4	
LEAD, FILTERED	1.1 U		1.1 U			1.1 U	
MAGNESIUM, FILTERED	17900		1110 U			48700	
MANGANESE, FILTERED	16.7 U		16.7 U			34.3	
MERCURY, FILTERED	0.20 U		0.20 U			0.20 U	
NICKEL, FILTERED	11.1 U		11.1 U			11.1 U	
POTASSIUM, FILTERED	2860		1110 U			1740	
SELENIUM, FILTERED	2.1		1.1 U			1.9	
SILVER, FILTERED	3.3 U		3.3 U			3.3 U	
SODIUM, FILTERED	33000		240000			23200	
THALLIUM, FILTERED	1.1 U		1.1 U			1.1 U	
TIN, FILTERED	11.1 U		11.1 U			11.1 U	
VANADIUM, FILTERED	2.2 U		2.2 U			2.2 U	
ZINC, FILTERED	11.1 U		11.1 U			11.1 U	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		370 J		350 J	350 J		340 J
BICARBONATE ALKALINITY		270 J		350 J	350 J		340 J
CARBONATE ALKALINITY		100		2 U	2 U		2 U
CHLORIDE		2.0		7			
CONDUCTIVITY (MS/CM)		1.050		1.598	0.874		1.024
DISSOLVED OXYGEN		0.29		10.68	4.43		3.15
NITRATE, AS NITROGEN		0.20 U		0.2 U	0.8		2.7 J
NITRITE, AS NITROGEN		0.10 U		0.1 UR			
OXIDATION REDUCTION POTENTIAL		-45.2		-30.3	117.2		145.9

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C02P2GW01-F	ABG03C03GW01	ABG03C03GW01-F	ABG03C04GW01	ABG03C07GW01	ABG03C07GW01-F	ABG03C08P2GW01
COLLECTION DATE:	11/09/98	11/06/98	11/06/98	11/11/98	11/11/98	11/11/98	11/10/98
LOCATION:	03C02P2	03C03	03C03	03C04	03C07	03C07	03C08P2
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEAVER BEND	BEAVER BEND	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
MISCELLANEOUS PARAMETERS ()							
PH ()		9.62		7.27	7.15		7.10
SULFATE		400		770 J	78 J		110 J
TEMPERATURE (C)		13.70		11.3	11.2		12.4
TOTAL ORGANIC CARBON		1.0 UJ		1.6	1.0 U		3.7
TOTAL ORGANIC HALOGENS		0.02 U		0.02 U	0.05		0.06
TOTAL PHOSPHORUS AS P	0.04	0.03 U	0.03 U	0.01 U	0.01 U	0.01 U	0.01 U
TURBIDITY (NTU)		5		1	1		0

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C08P2GW01-F	ABG03C09P2GW01	GWFD110898-2	ABG03C09P2GW01-F	GWFD110898-2-F	ABG03C10GW01	GWFD110898-3
COLLECTION DATE:	11/10/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98
LOCATION:	03C08P2	03C09P2	03C09P2	03C09P2	03C09P2	03C10	03C10
DUPLICATE:			ABG03C09P2GW01		ABG03C09P2GW01-F		ABG03C10GW01
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
1,1-DICHLOROETHENE		0.5 U	0.5 U			0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE		0.5 U	0.5 U			0.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE		0.5 U	0.5 U			0.5 U	0.5 U
TRICHLOROETHENE		160 J	150			59	66
VINYL CHLORIDE		0.5 U	0.5 U			0.5 U	0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		1.2 U	0.58 U			1.4 U	0.49 U
1,3-DINITROBENZENE		1.2 U	0.58 U			1.4 U	0.49 U
2,4-DINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
2,6-DINITROTOLUENE		1.2 U	0.94			1.4 U	0.58 J
NITROBENZENE		1.2 U	0.58 U			1.4 U	0.49 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
2,4-DIAMINO-6-NITROTOLUENE						1.4 U	1.4 R
2,6-DIAMINO-4-NITROTOLUENE						1.4 U	0.49 U
2-AMINO-4,6-DINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
2-NITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
3,5-DINITROANILINE						7.3 U	2.7 U
3-NITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
4,4'-TN-AZOXY						1.4 U	0.49 U
4-AMINO-2,6-DINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.71 R
4-NITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
HMX		3.8 J	3.8 J			6.3	6.5
MNX						2.8	2.5
NITROCELLULOSE		1.3 U	1.0 U			1.0 U	1.8 U
NITROGLYCERIN		12 U	5.8 U			14 U	4.9 U
PETN		5.8 U	2.9 U			6.7 U	2.4 U
PICRIC ACID						1.0 U	1.0 U
RDX		170	140			130	140

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C08P2GW01-F	ABG03C09P2GW01	GWFD110898-2	ABG03C09P2GW01-F	GWFD110898-2-F	ABG03C10GW01	GWFD110898-3
COLLECTION DATE:	11/10/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98
LOCATION:	03C08P2	03C09P2	03C09P2	03C09P2	03C09P2	03C10	03C10
DUPLICATE:			ABG03C09P2GW01		ABG03C09P2GW01-F		ABG03C10GW01
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
ENERGETICS (µg/L)							
TETRYL		1.2 U	0.58 U			1.4 U	0.49 U
TNX						1.4 U	0.57
DISSOLVED GASES (µg/L)							
ETHANE						0.053 U	0.037 U
ETHENE						0.005 U	0.005 U
METHANE						1.833 U	1.465 U
INORGANICS (µg/L)							
ANTIMONY		1.1 U	1.1 U			1.1 U	1.1 U
ARSENIC		1.1 U	1.1 U			1.1 U	1.1 U
BARIUM		15.8	14.3			42.2	42.0
BERYLLIUM		1.1 U	1.1 U			1.1 U	1.1 U
CADMIUM		1.1 U	1.1 U			1.1 U	1.1 U
CHROMIUM		5.6 U	5.6 U			5.6 U	5.6 U
COBALT		3.3 U	3.3 U			3.3 U	3.3 U
COPPER		2.2 U	2.2 U			2.2 U	2.2 U
CYANIDE		0.01 U	0.01 U			0.01 U	0.01 U
IRON		477 J	419 J			207 J	208 J
LEAD		1.1 UR	1.1 UR			1.1 UR	1.1 UR
MERCURY		0.20 U	0.20 U			0.20 U	0.20 U
NICKEL		11.1 U	11.1 U			11.1 U	11.1 U
SELENIUM		1.2	1.4			2.0	1.8
SILVER		3.3 U	3.3 U			3.3 U	3.3 U
THALLIUM		1.1 U	1.1 U			1.1 U	1.1 U
TIN		11.1 U	11.1 U			11.1 U	11.1 U
VANADIUM		2.2 U	2.2 U			2.2 U	2.2 U
ZINC		20.8	11.1 U			11.1 U	11.1 U
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED	1.1 U			1.1 U	1.1 U		
ARSENIC, FILTERED	1.1 U			1.1 U	1.1 U		
BARIUM, FILTERED	62.9			13.6	13.4		

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C08P2GW01-F	ABG03C09P2GW01	GWFD110898-2	ABG03C09P2GW01-F	GWFD110898-2-F	ABG03C10GW01	GWFD110898-3
COLLECTION DATE:	11/10/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98
LOCATION:	03C08P2	03C09P2	03C09P2	03C09P2	03C09P2	03C10	03C10
DUPLICATE:			ABG03C09P2GW01		ABG03C09P2GW01-F		ABG03C10GW01
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED	1.1 U			1.1 U	1.1 U		
CADMIUM, FILTERED	1.1 U			1.1 U	1.1 U		
CALCIUM, FILTERED	123000			76700	84100		
CHROMIUM, FILTERED	5.6 U			5.6 U	5.6 U		
COBALT, FILTERED	3.3 U			3.3 U	3.3 U		
COPPER, FILTERED	2.2 U			2.2 U	2.2 U		
LEAD, FILTERED	1.1 U			1.1 U	1.1 U		
MAGNESIUM, FILTERED	41900			15200	15900		
MANGANESE, FILTERED	16.7 U			16.7 U	16.7 U		
MERCURY, FILTERED	0.20 U			0.20 U	0.20 U		
NICKEL, FILTERED	11.1 U			11.1 U	11.1 U		
POTASSIUM, FILTERED	10400			1200	1260		
SELENIUM, FILTERED	1.3			1.1 U	1.1 U		
SILVER, FILTERED	3.3 U			3.3 U	3.3 U		
SODIUM, FILTERED	16900			4730	4870		
THALLIUM, FILTERED	1.1 U			1.1 U	1.1 U		
TIN, FILTERED	11.1 U			11.1 U	11.1 U		
VANADIUM, FILTERED	2.2 U			2.2 U	2.2 U		
ZINC, FILTERED	11.1 U			11.1 U	11.1 U		
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		190 J	190 J			210 J	200 J
BICARBONATE ALKALINITY		190 J	190 J			210 J	200 J
CARBONATE ALKALINITY		2.0 U	2.0 U			2.0 U	2.0 U
CHLORIDE						9.0	9.0
CONDUCTIVITY (MS/CM)		0.469				0.642	
DISSOLVED OXYGEN		4.73				3.76	
NITRATE, AS NITROGEN		4.7	4.7			2.1	2.1
NITRITE, AS NITROGEN						0.10 U	0.10 U
OXIDATION REDUCTION POTENTIAL		245.1				141.9	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C08P2GW01-F	ABG03C09P2GW01	GWFD110898-2	ABG03C09P2GW01-F	GWFD110898-2-F	ABG03C10GW01	GWFD110898-3
COLLECTION DATE:	11/10/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98
LOCATION:	03C08P2	03C09P2	03C09P2	03C09P2	03C09P2	03C10	03C10
DUPLICATE:			ABG03C09P2GW01		ABG03C09P2GW01-F		ABG03C10GW01
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
MISCELLANEOUS PARAMETERS ()							
PH ()		6.80				6.45	
SULFATE		43.0	43.0			56.0	55.0
TEMPERATURE (C)		13.4				14.11	
TOTAL ORGANIC CARBON		1.0 UJ	1.0 UJ			1.0 UJ	1.0 UJ
TOTAL ORGANIC HALOGENS		0.11	0.09			0.06	0.06
TOTAL PHOSPHORUS AS P	0.01 U	0.06 J	0.05 U	0.03 U	0.03 U	0.02 U	0.02 U
TURBIDITY (NTU)		17				2	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C10GW01-F	GWFD110898-3-F	ABG03C11GW01	ABG03C11GW01-F	ABG03C12GW01	ABG03C12GW01-F	ABG03C15GW01
COLLECTION DATE:	11/08/98	11/08/98	11/06/98	11/06/98	11/08/98	11/08/98	11/10/98
LOCATION:	03C10	03C10	03C11	03C11	03C12	03C12	03C15
DUPLICATE:		ABG03C10GW01-F					
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
1,1-DICHLOROETHENE			0.5 U		0.5 U		0.5 U
CIS-1,2-DICHLOROETHENE			18		0.7 J		0.5 U
TRANS-1,2-DICHLOROETHENE			0.5 U		0.5 U		0.5 U
TRICHLOROETHENE			1500		21		0.5 U
VINYL CHLORIDE			0.5 U		0.5 U		0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE			1.2 U		0.68 U		0.75 U
1,3-DINITROBENZENE			1.2 U		0.68 U		0.75 U
2,4-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
2,6-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
NITROBENZENE			1.2 U		0.68 U		0.75 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE			1.2 U		0.68 U		0.75 U
2,4-DIAMINO-6-NITROTOLUENE			1.2 U		0.68 U		
2,6-DIAMINO-4-NITROTOLUENE			1.2 U		0.68 U		
2-AMINO-4,6-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
2-NITROTOLUENE			1.2 U		0.68 U		0.75 U
3,5-DINITROANILINE			6.7 U		3.6 U		
3-NITROTOLUENE			1.2 U		0.68 U		0.75 U
4,4'-TN-AZOXY			1.2 U		0.68 U		
4-AMINO-2,6-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
4-NITROTOLUENE			1.2 U		0.68 U		0.75 U
HMX			4.6		35		0.75 U
MNX			1.2 U		0.68 U		
NITROCELLULOSE			1.0 U		1.6 U		1.3 U
NITROGLYCERIN			12 U		6.8 U		7.5 U
PETN			6.1 U		3.3 U		3.7 U
PICRIC ACID			1.1 U		1.2 U		
RDX			27		32		0.75 U

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C10GW01-F	GWFD110898-3-F	ABG03C11GW01	ABG03C11GW01-F	ABG03C12GW01	ABG03C12GW01-F	ABG03C15GW01
COLLECTION DATE:	11/08/98	11/08/98	11/06/98	11/06/98	11/08/98	11/08/98	11/10/98
LOCATION:	03C10	03C10	03C11	03C11	03C12	03C12	03C15
DUPLICATE:		ABG03C10GW01-F					
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
ENERGETICS (µg/L)							
TETRYL			1.2 U		0.68 U		0.75 U
TNX			1.2 U		0.68 U		
DISSOLVED GASES (µg/L)							
ETHANE			0.403 J		0.037 U		
ETHENE			0.005 U		0.005 U		
METHANE			2220 J		1.446 U		
INORGANICS (µg/L)							
ANTIMONY			1.1 U		1.1 U		1.1 U
ARSENIC			1.1 U		1.1 U		1.2
BARIUM			24.7		90.7		28.4
BERYLLIUM			1.1 U		1.1 U		1.1 U
CADMIUM			1.1 U		1.1 U		1.1 U
CHROMIUM			5.6 U		5.6 U		5.6 U
COBALT			3.3 U		3.3 U		3.3 U
COPPER			2.2 U		2.2 U		2.2 U
CYANIDE			0.01 U		0.01 U		0.01 U
IRON			272 J		120 J		528
LEAD			1.1 UR		1.1 UR		1.1 U
MERCURY			0.20 U		0.20 U		0.20 U
NICKEL			11.1 U		11.1 U		11.1 U
SELENIUM			2.2		1.1 U		1.1
SILVER			3.3 U		3.3 U		3.3 U
THALLIUM			1.1 U		1.1 U		1.1 U
TIN			11.1 U		11.1 U		11.1 U
VANADIUM			2.2 U		2.2 U		2.2 U
ZINC			11.1 U		11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
ARSENIC, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
BARIUM, FILTERED	42.2	43.9		24.3		90.9	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C10GW01-F	GWFD110898-3-F	ABG03C11GW01	ABG03C11GW01-F	ABG03C12GW01	ABG03C12GW01-F	ABG03C15GW01
COLLECTION DATE:	11/08/98	11/08/98	11/06/98	11/06/98	11/08/98	11/08/98	11/10/98
LOCATION:	03C10	03C10	03C11	03C11	03C12	03C12	03C15
DUPLICATE:		ABG03C10GW01-F					
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
CADMIUM, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
CALCIUM, FILTERED	93600	93600		213000		102000	
CHROMIUM, FILTERED	5.6 U	5.6 U		5.6 U		5.6 U	
COBALT, FILTERED	3.3 U	3.3 U		3.3 U		3.3 U	
COPPER, FILTERED	2.2 U	2.2 U		2.2 U		2.2 U	
LEAD, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
MAGNESIUM, FILTERED	12000	12500		122000		7210	
MANGANESE, FILTERED	16.7 U	16.7 U		16.7 U		16.7 U	
MERCURY, FILTERED	0.20 U	0.20 U		0.20 U		0.20 U	
NICKEL, FILTERED	11.1 U	11.1 U		11.1 U		11.1 U	
POTASSIUM, FILTERED	1110 U	1110 U		2640		1960	
SELENIUM, FILTERED	2.0	1.6		2.6		1.1 U	
SILVER, FILTERED	3.3 U	3.3 U		3.3 U		3.3 U	
SODIUM, FILTERED	7210	7680		110000		12300	
THALLIUM, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
TIN, FILTERED	11.1 U	11.1 U		11.1 U		11.1 U	
VANADIUM, FILTERED	2.2 U	2.2 U		2.2 U		2.2 U	
ZINC, FILTERED	11.1 U	11.1 U		11.1 U		11.1 U	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3			320 J		190 J		280 J
BICARBONATE ALKALINITY			320 J		190 J		280 J
CARBONATE ALKALINITY			2.0 U		2.0 U		2 U
CHLORIDE			43.0		29.0		
CONDUCTIVITY (MS/CM)			2.220		0.850		0.862
DISSOLVED OXYGEN			7.75		10.12		2.02
NITRATE, AS NITROGEN			1.3		1.5		0.2 U
NITRITE, AS NITROGEN			0.10 U		0.10 U		
OXIDATION REDUCTION POTENTIAL			-49.6		115.0		12.5

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C10GW01-F	GWFD110898-3-F	ABG03C11GW01	ABG03C11GW01-F	ABG03C12GW01	ABG03C12GW01-F	ABG03C15GW01
COLLECTION DATE:	11/08/98	11/08/98	11/06/98	11/06/98	11/08/98	11/08/98	11/10/98
LOCATION:	03C10	03C10	03C11	03C11	03C12	03C12	03C15
DUPLICATE:		ABG03C10GW01-F					
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
MISCELLANEOUS PARAMETERS ()							
PH ()			7.19		7.14		7.12
SULFATE			740		56.0		140 J
TEMPERATURE (C)			12.47		13.0		13.8
TOTAL ORGANIC CARBON			3.2 J		1.0 UJ		1.0 U
TOTAL ORGANIC HALOGENS			1.1		0.02 U		0.02 U
TOTAL PHOSPHORUS AS P	0.02 U	0.01 U	0.01 U	0.02 U	0.02 U	0.03 U	0.01
TURBIDITY (NTU)			0		0		2

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C15GW01-F	ABG03C17GW01	ABG03C17GW01-F	ABG03C20GW01	ABG03C20GW01-F	ABG03C25GW01	ABG03C25GW01-F
COLLECTION DATE:	11/10/98	11/09/98	11/09/98	11/10/98	11/10/98	11/07/98	11/07/98
LOCATION:	03C15	03C17	03C17	03C20	03C20	03C25	03C25
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
1,1-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	
CIS-1,2-DICHLOROETHENE		0.5 U		59		0.5 U	
TRANS-1,2-DICHLOROETHENE		0.5 U		8.8		0.5 U	
TRICHLOROETHENE		0.5 U		3400		0.5 U	
VINYL CHLORIDE		0.5 U		0.5 U		0.5 U	
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.95 U		6.5 J		1.4 U	
1,3-DINITROBENZENE		0.95 U		0.39 U		1.4 U	
2,4-DINITROTOLUENE		0.95 U		0.39 U		1.4 U	
2,6-DINITROTOLUENE		0.95 U		0.39 U		1.4 U	
NITROBENZENE		0.95 U		0.39 U		1.4 U	
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.95 U		0.54		1.4 U	
2,4-DIAMINO-6-NITROTOLUENE						1.4 U	
2,6-DIAMINO-4-NITROTOLUENE						1.4 U	
2-AMINO-4,6-DINITROTOLUENE		0.95 U		12		1.4 U	
2-NITROTOLUENE		0.95 U		0.39 U		1.4 U	
3,5-DINITROANILINE						7.3 U	
3-NITROTOLUENE		0.95 U		0.39 U		1.4 U	
4,4'-TN-AZOXY						1.4 U	
4-AMINO-2,6-DINITROTOLUENE		0.95 U		17		1.4 U	
4-NITROTOLUENE		0.95 U		0.39 U		1.4 U	
HMX		0.95 U		27		1.4 U	
MNX						1.4 U	
NITROCELLULOSE		1.0 U		1.4 U		1.0 U	
NITROGLYCERIN		9.5 U		3.9 U		14 U	
PETN		4.7 U		1.9 U		6.7 U	
PICRIC ACID						1.0 U	
RDX		0.95 U		190		1.4 U	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C15GW01-F	ABG03C17GW01	ABG03C17GW01-F	ABG03C20GW01	ABG03C20GW01-F	ABG03C25GW01	ABG03C25GW01-F
COLLECTION DATE:	11/10/98	11/09/98	11/09/98	11/10/98	11/10/98	11/07/98	11/07/98
LOCATION:	03C15	03C17	03C17	03C20	03C20	03C25	03C25
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
ENERGETICS (µg/L)							
TETRYL		0.95 U		0.39 U		1.4 U	
TNX						1.4 U	
DISSOLVED GASES (µg/L)							
ETHANE						0.132 J	
ETHENE						0.005 U	
METHANE						53.68 J	
INORGANICS (µg/L)							
ANTIMONY		1.1 U		1.1 U		1.1 U	
ARSENIC		2.4		1.1 U		1.1 U	
BARIUM		12.8		30.6		16.8	
BERYLLIUM		1.1 U		1.1 U		1.1 U	
CADMIUM		1.1 U		1.1 U		1.1 U	
CHROMIUM		5.6 U		5.6 U		5.6 U	
COBALT		3.3 U		3.3 U		3.3 U	
COPPER		2.2 U		2.2 U		2.2 U	
CYANIDE		0.01 U		0.01 U		0.01 U	
IRON		1810 J		112		263 J	
LEAD		1.1 UR		1.1 U		1.1 UR	
MERCURY		0.20 U		0.20 U		0.20 U	
NICKEL		11.1 U		11.1 U		11.1 U	
SELENIUM		1.1 U		1.2		1.1 U	
SILVER		3.3 U		3.3 U		3.3 U	
THALLIUM		1.1 U		1.1 U		1.1 U	
TIN		11.1 U		11.1 U		11.1 U	
VANADIUM		2.2 U		2.2 U		2.2 U	
ZINC		11.1 U		11.1 U		11.1 U	
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
ARSENIC, FILTERED	1.2		2.2		1.1 U		1.1 U
BARIUM, FILTERED	27.4		12.9		30.9		16.4

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C15GW01-F	ABG03C17GW01	ABG03C17GW01-F	ABG03C20GW01	ABG03C20GW01-F	ABG03C25GW01	ABG03C25GW01-F
COLLECTION DATE:	11/10/98	11/09/98	11/09/98	11/10/98	11/10/98	11/07/98	11/07/98
LOCATION:	03C15	03C17	03C17	03C20	03C20	03C25	03C25
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
CADMIUM, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
CALCIUM, FILTERED	104000		201000		88400		99600
CHROMIUM, FILTERED	5.6 U		5.6 U		5.6 U		5.6 U
COBALT, FILTERED	3.3 U		3.3 U		3.3 U		3.3 U
COPPER, FILTERED	2.2 U		2.2 U		2.2 U		2.2 U
LEAD, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
MAGNESIUM, FILTERED	39600		205000		31700		59800
MANGANESE, FILTERED	32.7		137		16.7 U		23.2
MERCURY, FILTERED	0.20 U		0.20 U		0.20 U		0.20 U
NICKEL, FILTERED	11.1 U		11.1 U		11.1 U		11.1 U
POTASSIUM, FILTERED	1630		3140		1950		2550
SELENIUM, FILTERED	1.1 U		1.1 U		1.2		1.1 U
SILVER, FILTERED	3.3 U		3.3 U		3.3 U		3.3 U
SODIUM, FILTERED	18300		119000		12700		69300
THALLIUM, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
TIN, FILTERED	11.1 U		11.1 U		11.1 U		11.1 U
VANADIUM, FILTERED	2.2 U		2.2 U		2.2 U		2.2 U
ZINC, FILTERED	11.1 U		11.1 U		11.1 U		11.1 U
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		420 J		230 J		360 J	
BICARBONATE ALKALINITY		420 J		230 J		360 J	
CARBONATE ALKALINITY		2.0 U		2 U		2.0 U	
CHLORIDE						2.0	
CONDUCTIVITY (MS/CM)		2.084		0.626		1.229	
DISSOLVED OXYGEN		2.00		2.46		1.09	
NITRATE, AS NITROGEN		0.20 U		2.1 J		0.20 U	
NITRITE, AS NITROGEN						0.10 U	
OXIDATION REDUCTION POTENTIAL		-7.7		159.8		-88.0	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C15GW01-F	ABG03C17GW01	ABG03C17GW01-F	ABG03C20GW01	ABG03C20GW01-F	ABG03C25GW01	ABG03C25GW01-F
COLLECTION DATE:	11/10/98	11/09/98	11/09/98	11/10/98	11/10/98	11/07/98	11/07/98
LOCATION:	03C15	03C17	03C17	03C20	03C20	03C25	03C25
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
MISCELLANEOUS PARAMETERS ()							
PH ()		6.98		7.18		7.16	
SULFATE		830		91 J		220	
TEMPERATURE (C)		12.1		13.40		11.6	
TOTAL ORGANIC CARBON		1.0 UJ		1.5		1.0 UJ	
TOTAL ORGANIC HALOGENS		0.02 U		1.5		0.02 U	
TOTAL PHOSPHORUS AS P	0.01 U	0.01 U	0.01 U	0.01	0.01	0.01 U	0.01 U
TURBIDITY (NTU)		0		1		2.0	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C26GW01	ABG03C26GW01-F	ABG03C27GW01	ABG03C27GW01-F	ABG03C30GW01	ABG03C30GW01-F	ABGCRELSDSW01
COLLECTION DATE:	11/10/98	11/10/98	11/09/98	11/09/98	11/11/98	11/11/98	11/05/98
LOCATION:	03C26	03C26	03C27	03C27	03C30	03C30	CREEK
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	
VOLATILES (µg/L)							
1,1-DICHLOROETHENE	0.5 U		0.5 U		0.5 U		0.5 U
CIS-1,2-DICHLOROETHENE	0.5 U		0.5 U		0.5 U		0.5 U
TRANS-1,2-DICHLOROETHENE	0.5 U		0.5 U		0.5 U		0.5 U
TRICHLOROETHENE	8.1		4.9		0.5 U		0.5 U
VINYL CHLORIDE	0.5 U		0.5 U		0.5 U		0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE	0.65 U		0.92 U		1.4 U		0.71 U
1,3-DINITROBENZENE	0.65 U		0.92 U		1.4 U		0.71 U
2,4-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
2,6-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
NITROBENZENE	0.65 U		0.92 U		1.4 U		0.71 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
2,4-DIAMINO-6-NITROTOLUENE							0.71 U
2,6-DIAMINO-4-NITROTOLUENE							0.71 U
2-AMINO-4,6-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
2-NITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
3,5-DINITROANILINE							3.9 U
3-NITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
4,4'-TN-AZOXY							0.71 U
4-AMINO-2,6-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
4-NITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
HMX	0.65 U		0.92 U		1.4 U		8.1
MNX							0.71 U
NITROCELLULOSE	1.1 U		1.2 U		1.1 U		1.0 U
NITROGLYCERIN	6.5 U		9.2 U		14 U		7.2 U
PETN	3.2 U		4.5 U		7 U		3.5 U
PICRIC ACID							1.0 U
RDX	0.70		0.92 U		1.4 U		28

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C26GW01	ABG03C26GW01-F	ABG03C27GW01	ABG03C27GW01-F	ABG03C30GW01	ABG03C30GW01-F	ABGCRELSDSW01
COLLECTION DATE:	11/10/98	11/10/98	11/09/98	11/09/98	11/11/98	11/11/98	11/05/98
LOCATION:	03C26	03C26	03C27	03C27	03C30	03C30	CREEK
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	
ENERGETICS (µg/L)							
TETRYL	0.65 U		0.92 U		1.4 U		0.71 U
TNX							0.71 U
DISSOLVED GASES (µg/L)							
ETHANE							0.018 U
ETHENE							0.005 U
METHANE							9.4 J
INORGANICS (µg/L)							
ANTIMONY	1.1 U		1.1 U		1.1 U		1.1 U
ARSENIC	1.1 U		1.1 U		1.1 U		1.1 U
BARIUM	39.4		34.0		65.1		158
BERYLLIUM	1.1 U		1.1 U		1.1 U		1.1 U
CADMIUM	1.1 U		1.1 U		1.1 U		1.1 U
CHROMIUM	5.6 U		5.6 U		5.6 U		5.6 U
COBALT	3.3 U		3.3 U		3.3 U		3.3 U
COPPER	2.2 U		2.2 U		2.2 U		2.2 U
CYANIDE	0.01 U		0.01 U		0.01 U		0.01 U
IRON	110		145		184		192 J
LEAD	1.1 U		1.1 U		1.1 U		1.1 UR
MERCURY	0.20 U		0.20 U		0.20 U		0.20 U
NICKEL	11.1 U		11.1 U		11.1 U		11.1 U
SELENIUM	1.1 U		1.1 U		1.1 U		1.1 U
SILVER	3.3 U		3.3 U		3.3 U		3.3 U
THALLIUM	1.1 U		1.1 U		1.1 U		1.1 U
TIN	11.1 U		11.1 U		11.1 U		11.1 U
VANADIUM	2.2 U		2.2 U		2.2 U		2.2 U
ZINC	16.4		11.1 U		11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED		1.1 U		1.1 U		1.1 U	
ARSENIC, FILTERED		1.1 U		1.1 U		1.1 U	
BARIUM, FILTERED		38.6		32.9		64.6	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C26GW01	ABG03C26GW01-F	ABG03C27GW01	ABG03C27GW01-F	ABG03C30GW01	ABG03C30GW01-F	ABGCRELSDSW01
COLLECTION DATE:	11/10/98	11/10/98	11/09/98	11/09/98	11/11/98	11/11/98	11/05/98
LOCATION:	03C26	03C26	03C27	03C27	03C30	03C30	CREEK
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED		1.1 U		1.1 U		1.1 U	
CADMIUM, FILTERED		1.1 U		1.1 U		1.1 U	
CALCIUM, FILTERED		98500		58400		69400	
CHROMIUM, FILTERED		5.6 U		5.6 U		5.6 U	
COBALT, FILTERED		3.3 U		3.3 U		3.3 U	
COPPER, FILTERED		2.2 U		2.2 U		2.2 U	
LEAD, FILTERED		1.1 U		1.1 U		1.1 U	
MAGNESIUM, FILTERED		54500		3420		38600	
MANGANESE, FILTERED		54.8		16.7 U		55.3	
MERCURY, FILTERED		0.20 U		0.20 U		0.20 U	
NICKEL, FILTERED		11.1 U		11.1 U		11.1 U	
POTASSIUM, FILTERED		1800		1190		3090	
SELENIUM, FILTERED		1.1 U		1.2		1.1 U	
SILVER, FILTERED		3.3 U		3.3 U		3.3 U	
SODIUM, FILTERED		17400		7210		68200	
THALLIUM, FILTERED		1.1 U		1.1 U		1.1 U	
TIN, FILTERED		11.1 U		11.1 U		11.1 U	
VANADIUM, FILTERED		2.2 U		2.2 U		2.2 U	
ZINC, FILTERED		11.1 U		11.1 U		11.1 U	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3	360 J		150 J		300 J		130 J
BICARBONATE ALKALINITY	360 J		150 J		300 J		130 J
CARBONATE ALKALINITY	2 U		2 U		2 U		2.0 U
CHLORIDE							8.0
CONDUCTIVITY (MS/CM)	0.760		0.373		0.730		0.495
DISSOLVED OXYGEN	2.92		13.11		1.06		9.75
NITRATE, AS NITROGEN	0.2 U		0.2 U		0.2 U		0.20
NITRITE, AS NITROGEN							0.10 U
OXIDATION REDUCTION POTENTIAL	151.8		140.4		-115.1		37.9

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABG03C26GW01	ABG03C26GW01-F	ABG03C27GW01	ABG03C27GW01-F	ABG03C30GW01	ABG03C30GW01-F	ABGCRELSDSW01
COLLECTION DATE:	11/10/98	11/10/98	11/09/98	11/09/98	11/11/98	11/11/98	11/05/98
LOCATION:	03C26	03C26	03C27	03C27	03C30	03C30	CREEK
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	
MISCELLANEOUS PARAMETERS ()							
PH ()	7.09		7.66		8.43		7.72
SULFATE	89 J		8 J		130 J		46.0
TEMPERATURE (C)	15.11		12.2		12.22		7.12
TOTAL ORGANIC CARBON	3.3		1.0 U		1.0 U		1.4 J
TOTAL ORGANIC HALOGENS	0.02 U		0.02 U		0.02		0.02 U
TOTAL PHOSPHORUS AS P	0.01	0.01	0.04	0.03	0.02	0.01	0.01 U
TURBIDITY (NTU)	0		8		2		2.4

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	ABGSPRASW01	ABGSPRASW01-F	ABGSPRCSW01	ABGSPRCSW01-F
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98
LOCATION:	CREEK	CREEK	CREEK	SPRING A	SPRING A	SPRING C	SPRING C
DUPLICATE:							
AQUIFER:							
VOLATILES (µg/L)							
1,1-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	
TRANS-1,2-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	
TRICHLOROETHENE		0.5 U		0.5 U		0.5 U	
VINYL CHLORIDE		0.5 U		0.5 U		0.5 U	
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.90 U		0.86 U		0.79 U	
1,3-DINITROBENZENE		0.90 U		0.86 U		0.79 U	
2,4-DINITROTOLUENE		0.90 U		0.86 U		0.79 U	
2,6-DINITROTOLUENE		0.90 U		0.86 U		0.79 U	
NITROBENZENE		0.90 U		0.86 U		0.79 U	
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.90 U		0.86 U		0.79 U	
2,4-DIAMINO-6-NITROTOLUENE		0.90 U		0.86 U		0.79 U	
2,6-DIAMINO-4-NITROTOLUENE		0.90 U		0.86 U		0.79 U	
2-AMINO-4,6-DINITROTOLUENE		0.90 U		1.8		0.79 U	
2-NITROTOLUENE		0.90 U		0.86 U		0.79 U	
3,5-DINITROANILINE		4.8 U		4.6 U		4.3 U	
3-NITROTOLUENE		0.90 U		0.86 U		0.79 U	
4,4'-TN-AZOXY		0.90 U		0.86 U		0.79 U	
4-AMINO-2,6-DINITROTOLUENE		1.2 J		3.4 J		0.79 U	
4-NITROTOLUENE		0.90 U		0.86 U		0.79 U	
HMX		9.3		26		0.79 U	
MNX		0.90 U		0.86 U		0.79 U	
NITROCELLULOSE		1.0 U		1.0 U		1.0 U	
NITROGLYCERIN		9 U		8.6 U		7.9 U	
PETN		4.4 U		4.2 U		3.9 U	
PICRIC ACID		1.0 U		1.0 U		1.0 U	
RDX		20		63		1.4	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	ABGSPRASW01	ABGSPRASW01-F	ABGSPRCSW01	ABGSPRCSW01-F
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98
LOCATION:	CREEK	CREEK	CREEK	SPRING A	SPRING A	SPRING C	SPRING C
DUPLICATE:							
AQUIFER:							
ENERGETICS (µg/L)							
TETRYL		0.90 U		0.86 U		0.79 U	
TNX		0.90 U		0.86 U		0.79 U	
DISSOLVED GASES (µg/L)							
ETHANE		0.005 U				0.005 U	
ETHENE		0.005 U				0.005 U	
METHANE		1.074 U				0.687 U	
INORGANICS (µg/L)							
ANTIMONY		1.1 U		1.1 U		1.1 U	
ARSENIC		1.1 U		1.1 U		1.1 U	
BARIUM		131		126		62.2	
BERYLLIUM		1.1 U		1.1 U		1.1 U	
CADMIUM		1.1 U		1.1 U		1.1 U	
CHROMIUM		5.6 U		5.6 U		5.6 U	
COBALT		3.3 U		3.3 U		3.3 U	
COPPER		2.2 UJ		3.7 J		2.2 U	
CYANIDE		0.02		0.06		0.01 U	
IRON		106 J		148 J		93.0 J	
LEAD		1.1 UR		3.8 J		1.1 UR	
MERCURY		0.20 U		0.20 U		0.20 U	
NICKEL		11.1 U		11.1 U		11.1 U	
SELENIUM		1.1 U		1.3		1.1 U	
SILVER		3.3 U		3.3 U		3.3 U	
THALLIUM		1.1 U		1.1 U		1.1 U	
TIN		11.1 U		11.1 U		11.1 U	
VANADIUM		2.2 U		2.2 U		2.2 U	
ZINC		11.1 U		11.9		11.1 U	
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
ARSENIC, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
BARIUM, FILTERED	146		130		122		64.2

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	ABGSPRASW01	ABGSPRASW01-F	ABGSPRCSW01	ABGSPRCSW01-F
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98
LOCATION:	CREEK	CREEK	CREEK	SPRING A	SPRING A	SPRING C	SPRING C
DUPLICATE:							
AQUIFER:							
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
CADMIUM, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
CALCIUM, FILTERED	53900		57800		64500		60100
CHROMIUM, FILTERED	5.6 U		5.6 U		5.6 U		5.6 U
COBALT, FILTERED	3.3 U		3.3 U		3.3 U		3.3 U
COPPER, FILTERED	2.2 U		2.2 U		2.2 U		2.2 U
LEAD, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
MAGNESIUM, FILTERED	11300		11100		15000		13600
MANGANESE, FILTERED	110		16.7 U		16.7 U		16.7 U
MERCURY, FILTERED	0.20 U		0.20 U		0.20 U		0.20 U
NICKEL, FILTERED	11.1 U		11.1 U		11.1 U		11.1 U
POTASSIUM, FILTERED	2400		3010		5870		1130
SELENIUM, FILTERED	1.1 U		1.1 U		1.1		1.1 U
SILVER, FILTERED	3.3 U		3.3 U		3.3 U		3.3 U
SODIUM, FILTERED	7470		7110		10500		7490
THALLIUM, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
TIN, FILTERED	11.1 U		11.1 U		11.1 U		11.1 U
VANADIUM, FILTERED	2.2 U		2.2 U		2.2 U		2.2 U
ZINC, FILTERED	11.1 U		11.1 U		11.1 U		11.1 U
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		130 J		140 J		150 J	
BICARBONATE ALKALINITY		130 J		140 J		150 J	
CARBONATE ALKALINITY		2.0 U		2.0 U		2.0 U	
CHLORIDE		9.0		14.0		5.0	
CONDUCTIVITY (MS/CM)		0.468		0.531		0.475	
DISSOLVED OXYGEN		10.03		10.38		10.53	
NITRATE, AS NITROGEN		0.90		2.9		0.50	
NITRITE, AS NITROGEN		0.20		0.30		0.10 U	
OXIDATION REDUCTION POTENTIAL		155.8		1412		191.8	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	ABGSPRASW01	ABGSPRASW01-F	ABGSPRCSW01	ABGSPRCSW01-F
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98
LOCATION:	CREEK	CREEK	CREEK	SPRING A	SPRING A	SPRING C	SPRING C
DUPLICATE:							
AQUIFER:							
MISCELLANEOUS PARAMETERS ()							
PH ()		7.73		8.36		7.95	
SULFATE		43.0		58.0		56.0	
TEMPERATURE (C)		9.31		10.86		11.38	
TOTAL ORGANIC CARBON		1.8 J		4.1 J		1.0 UJ	
TOTAL ORGANIC HALOGENS		0.02 U		0.02 U		0.02 U	
TOTAL PHOSPHORUS AS P	0.01 U	0.02 U	0.02 U	0.05 U	0.04 U	0.02 U	0.02 U
TURBIDITY (NTU)		5.9		10.3		1.8	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
ROUND 1

SAMPLE NUMBER:	SWNABGSPRASW01	/ /	/ /	/ /	/ /	/ /	/ /
COLLECTION DATE:	11/05/98						
LOCATION:	SPRING A						
DUPLICATE:							
AQUIFER:							
DISSOLVED GASES (µg/L)							
ETHANE	0.005 U						
ETHENE	0.005 U						
METHANE	1.178 U						

ATTACHMENT 11-1

Original Laucks Testing
Electronic Data Deliverable

TtNUS Database File
Electronic File

Monitoring Event No. 1
(CRA01 and CRA02)

(Available In NSWC Crane
Ground Water Monitoring
Information Repository)

ATTACHMENT 12

Positive Detections for Ground Water/Surface Water Data

Ammunition Burning Ground Monitoring Event No. 1

November 1998

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03B02GW01	GWFD110598-1	ABG03B02GW01-F	GWFD110598-1-F	ABG03B04GW01	ABG03B04GW01-F	ABG03C02P2GW01
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/09/98	11/09/98	11/09/98
LOCATION:	03B02	03B02	03B02	03B02	03B04	03B04	03C02P2
DUPLICATE:		ABG03B02GW01		ABG03B02GW01-F			
AQUIFER:	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	BEECH CREEK
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE	0.5 U	0.5 U			0.5 U		1.7
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U			0.5 U		0.5 U
TRICHLOROETHENE	0.5 U	0.5 U			0.5 U		28
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE	0.53 U	1.4 U			0.42 U		0.48 U
2,6-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
2-AMINO-4,6-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
4-AMINO-2,6-DINITROTOLUENE	0.53 U	1.4 U			0.42 U		0.48 U
HMX	0.53 U	1.4 U			0.42 U		28
MNX	0.53 U	1.4 U			0.42 U		
RDX	0.53 U	1.4 U			0.42 U		21
TNX	0.53 U	1.4 U			0.42 U		
DISSOLVED GASES (µg/L)							
ETHANE	0.092 U	0.078 U			0.033 U		
ETHENE	0.005 U	0.005 U			0.009		
METHANE	7.723 J	6.77 J			2.667 U		
INORGANICS (µg/L)							
ARSENIC	9.8	9.4			2.4		1.1 U
BARIUM	87.4	85.8			69.8		96.2
COPPER	2.2 U	2.2 U			2.2 U		2.2 U
CYANIDE	0.01 U	0.01 U			0.01 U		0.01 U
IRON	12400 J	12000 J			2890 J		148
LEAD	1.1 UR	1.1 UR			1.1 UR		1.1 U
SELENIUM	1.1 U	1.1 U			1.1 U		2.3
ZINC	11.1 U	11.1 U			11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED			10.2	10.0		2.6	
BARIUM, FILTERED			86.9	90.6		72.2	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03B02GW01	GWFD110598-1	ABG03B02GW01-F	GWFD110598-1-F	ABG03B04GW01	ABG03B04GW01-F	ABG03C02P2GW01
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/09/98	11/09/98	11/09/98
LOCATION:	03B02	03B02	03B02	03B02	03B04	03B04	03C02P2
DUPLICATE:		ABG03B02GW01		ABG03B02GW01-F			
AQUIFER:	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	ALLUVIUM	BEECH CREEK
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED			44700	43700		56000	
COPPER, FILTERED			2.2 U	2.2 U		2.2 U	
MAGNESIUM, FILTERED			6080	5960		10400	
MANGANESE, FILTERED			1390	1350		1120	
POTASSIUM, FILTERED			1120	1120		1110 U	
SELENIUM, FILTERED			1.1 U	1.1 U		1.1 U	
SODIUM, FILTERED			10200	9920		4480	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3	130 J	120 J			150 J		220 J
BICARBONATE ALKALINITY	130 J	120 J			150 J		220 J
CARBONATE ALKALINITY	2.0 U	2.0 U			2.0 U		2 U
CHLORIDE	4.0	4.0			3.0		
CONDUCTIVITY (MS/CM)	0.417				0.446		0.765
DISSOLVED OXYGEN	0.45				1.34		6.55
NITRATE, AS NITROGEN	0.20 U	0.20 U			0.20 U		3.4
NITRITE, AS NITROGEN	0.10 U	0.10 U			0.10 U		
OXIDATION REDUCTION POTENTIAL	-146.0				-74.6		169.4
PH ()	7.23				7.17		6.89
SULFATE	27.0	26.0			23.0		58 J
TEMPERATURE (C)	15				14		13.89
TOTAL ORGANIC CARBON	1.0 UJ	1.0 UJ			1.0 UJ		1.6
TOTAL ORGANIC HALOGENS	0.02 U	0.02 U			0.02 U		0.02 U
TOTAL PHOSPHORUS AS P	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.04
TURBIDITY (NTU)	0.9				0		3

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C02P2GW01-F	ABG03C03GW01	ABG03C03GW01-F	ABG03C04GW01	ABG03C07GW01	ABG03C07GW01-F	ABG03C08P2GW01
COLLECTION DATE:	11/09/98	11/06/98	11/06/98	11/11/98	11/11/98	11/11/98	11/10/98
LOCATION:	03C02P2	03C03	03C03	03C04	03C07	03C07	03C08P2
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEAVER BEND	BEAVER BEND	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U	0.5 U		12
TRANS-1,2-DICHLOROETHENE		0.5 U		0.5 U	0.5 U		0.5 U
TRICHLOROETHENE		0.5 U		0.5 U	4.1		59
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.78 U		0.71 U	0.65 U		1.2 U
2,6-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.78 U		0.71 U	0.65 U		1.2 U
2-AMINO-4,6-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		2.1
4-AMINO-2,6-DINITROTOLUENE		0.78 U		0.71 U	0.65 U		3.7 J
HMX		0.78 U		0.71 U	7.3		33
MNX		0.78 U		0.71 U			
RDX		0.78 U		0.71 U	36		100
TNX		0.78 U		0.71 U			
DISSOLVED GASES (µg/L)							
ETHANE		0.140 J		0.024 U			
ETHENE		0.005 U		0.017			
METHANE		13.897 J		37.82 J			
INORGANICS (µg/L)							
ARSENIC		1.1 U		1.2	1.1 U		1.1 U
BARIUM		40.3		41.8	29.0		68.6
COPPER		2.2 U		2.2 U	2.2 U		2.2 U
CYANIDE		0.01 U		0.01 U	0.01 U		0.01 U
IRON		169 J		531	107		129
LEAD		1.2 UR		1.1 U	1.1 U		1.1 U
SELENIUM		1.1 U		3.6	2.0		1.3
ZINC		11.1 U		11.1 U	11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED	1.1 U		1.1 U			1.1 U	
BARIUM, FILTERED	94.8		42.1			29.1	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C02P2GW01-F	ABG03C03GW01	ABG03C03GW01-F	ABG03C04GW01	ABG03C07GW01	ABG03C07GW01-F	ABG03C08P2GW01
COLLECTION DATE:	11/09/98	11/06/98	11/06/98	11/11/98	11/11/98	11/11/98	11/10/98
LOCATION:	03C02P2	03C03	03C03	03C04	03C07	03C07	03C08P2
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEAVER BEND	BEAVER BEND	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED	119000		1200			102000	
COPPER, FILTERED	2.2 U		2.2 U			5.4	
MAGNESIUM, FILTERED	17900		1110 U			48700	
MANGANESE, FILTERED	16.7 U		16.7 U			34.3	
POTASSIUM, FILTERED	2860		1110 U			1740	
SELENIUM, FILTERED	2.1		1.1 U			1.9	
SODIUM, FILTERED	33000		240000			23200	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		370 J		350 J	350 J		340 J
BICARBONATE ALKALINITY		270 J		350 J	350 J		340 J
CARBONATE ALKALINITY		100		2 U	2 U		2 U
CHLORIDE		2.0		7			
CONDUCTIVITY (MS/CM)		1.050		1.598	0.874		1.024
DISSOLVED OXYGEN		0.29		10.68	4.43		3.15
NITRATE, AS NITROGEN		0.20 U		0.2 U	0.8		2.7 J
NITRITE, AS NITROGEN		0.10 U		0.1 UR			
OXIDATION REDUCTION POTENTIAL		-45.2		-30.3	117.2		145.9
PH ()		9.62		7.27	7.15		7.10
SULFATE		400		770 J	78 J		110 J
TEMPERATURE (C)		13.70		11.3	11.2		12.4
TOTAL ORGANIC CARBON		1.0 UJ		1.6	1.0 U		3.7
TOTAL ORGANIC HALOGENS		0.02 U		0.02 U	0.05		0.06
TOTAL PHOSPHORUS AS P	0.04	0.03 U	0.03 U	0.01 U	0.01 U	0.01 U	0.01 U
TURBIDITY (NTU)		5		1	1		0

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C08P2GW01-F	ABG03C09P2GW01	GWFD110898-2	ABG03C09P2GW01-F	GWFD110898-2-F	ABG03C10GW01	GWFD110898-3
COLLECTION DATE:	11/10/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98
LOCATION:	03C08P2	03C09P2	03C09P2	03C09P2	03C09P2	03C10	03C10
DUPLICATE:			ABG03C09P2GW01		ABG03C09P2GW01-F		ABG03C10GW01
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE		0.5 U	0.5 U			0.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE		0.5 U	0.5 U			0.5 U	0.5 U
TRICHLOROETHENE		160 J	150			59	66
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		1.2 U	0.58 U			1.4 U	0.49 U
2,6-DINITROTOLUENE		1.2 U	0.94			1.4 U	0.58 J
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
2-AMINO-4,6-DINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.49 U
4-AMINO-2,6-DINITROTOLUENE		1.2 U	0.58 U			1.4 U	0.71 R
HMX		3.8 J	3.8 J			6.3	6.5
MNX						2.8	2.5
RDX		170	140			130	140
TNX						1.4 U	0.57
DISSOLVED GASES (µg/L)							
ETHANE						0.053 U	0.037 U
ETHENE						0.005 U	0.005 U
METHANE						1.833 U	1.465 U
INORGANICS (µg/L)							
ARSENIC		1.1 U	1.1 U			1.1 U	1.1 U
BARIUM		15.8	14.3			42.2	42.0
COPPER		2.2 U	2.2 U			2.2 U	2.2 U
CYANIDE		0.01 U	0.01 U			0.01 U	0.01 U
IRON		477 J	419 J			207 J	208 J
LEAD		1.1 UR	1.1 UR			1.1 UR	1.1 UR
SELENIUM		1.2	1.4			2.0	1.8
ZINC		20.8	11.1 U			11.1 U	11.1 U
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED	1.1 U			1.1 U	1.1 U		
BARIUM, FILTERED	62.9			13.6	13.4		

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C08P2GW01-F	ABG03C09P2GW01	GWFD110898-2	ABG03C09P2GW01-F	GWFD110898-2-F	ABG03C10GW01	GWFD110898-3
COLLECTION DATE:	11/10/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98	11/08/98
LOCATION:	03C08P2	03C09P2	03C09P2	03C09P2	03C09P2	03C10	03C10
DUPLICATE:			ABG03C09P2GW01		ABG03C09P2GW01-F		ABG03C10GW01
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED	123000			76700	84100		
COPPER, FILTERED	2.2 U			2.2 U	2.2 U		
MAGNESIUM, FILTERED	41900			15200	15900		
MANGANESE, FILTERED	16.7 U			16.7 U	16.7 U		
POTASSIUM, FILTERED	10400			1200	1260		
SELENIUM, FILTERED	1.3			1.1 U	1.1 U		
SODIUM, FILTERED	16900			4730	4870		
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		190 J	190 J			210 J	200 J
BICARBONATE ALKALINITY		190 J	190 J			210 J	200 J
CARBONATE ALKALINITY		2.0 U	2.0 U			2.0 U	2.0 U
CHLORIDE						9.0	9.0
CONDUCTIVITY (MS/CM)		0.469				0.642	
DISSOLVED OXYGEN		4.73				3.76	
NITRATE, AS NITROGEN		4.7	4.7			2.1	2.1
NITRITE, AS NITROGEN						0.10 U	0.10 U
OXIDATION REDUCTION POTENTIAL		245.1				141.9	
PH ()		6.80				6.45	
SULFATE		43.0	43.0			56.0	55.0
TEMPERATURE (C)		13.4				14.11	
TOTAL ORGANIC CARBON		1.0 UJ	1.0 UJ			1.0 UJ	1.0 UJ
TOTAL ORGANIC HALOGENS		0.11	0.09			0.06	0.06
TOTAL PHOSPHORUS AS P	0.01 U	0.06 J	0.05 U	0.03 U	0.03 U	0.02 U	0.02 U
TURBIDITY (NTU)		17				2	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C10GW01-F	GWFD110898-3-F	ABG03C11GW01	ABG03C11GW01-F	ABG03C12GW01	ABG03C12GW01-F	ABG03C15GW01
COLLECTION DATE:	11/08/98	11/08/98	11/06/98	11/06/98	11/08/98	11/08/98	11/10/98
LOCATION:	03C10	03C10	03C11	03C11	03C12	03C12	03C15
DUPLICATE:		ABG03C10GW01-F					
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE			18		0.7 J		0.5 U
TRANS-1,2-DICHLOROETHENE			0.5 U		0.5 U		0.5 U
TRICHLOROETHENE			1500		21		0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE			1.2 U		0.68 U		0.75 U
2,6-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE			1.2 U		0.68 U		0.75 U
2-AMINO-4,6-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
4-AMINO-2,6-DINITROTOLUENE			1.2 U		0.68 U		0.75 U
HMX			4.6		35		0.75 U
MNX			1.2 U		0.68 U		
RDX			27		32		0.75 U
TNX			1.2 U		0.68 U		
DISSOLVED GASES (µg/L)							
ETHANE			0.403 J		0.037 U		
ETHENE			0.005 U		0.005 U		
METHANE			2220 J		1.446 U		
INORGANICS (µg/L)							
ARSENIC			1.1 U		1.1 U		1.2
BARIUM			24.7		90.7		28.4
COPPER			2.2 U		2.2 U		2.2 U
CYANIDE			0.01 U		0.01 U		0.01 U
IRON			272 J		120 J		528
LEAD			1.1 UR		1.1 UR		1.1 U
SELENIUM			2.2		1.1 U		1.1
ZINC			11.1 U		11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED	1.1 U	1.1 U		1.1 U		1.1 U	
BARIUM, FILTERED	42.2	43.9		24.3		90.9	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C10GW01-F	GWFD110898-3-F	ABG03C11GW01	ABG03C11GW01-F	ABG03C12GW01	ABG03C12GW01-F	ABG03C15GW01
COLLECTION DATE:	11/08/98	11/08/98	11/06/98	11/06/98	11/08/98	11/08/98	11/10/98
LOCATION:	03C10	03C10	03C11	03C11	03C12	03C12	03C15
DUPLICATE:		ABG03C10GW01-F					
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED	93600	93600		213000		102000	
COPPER, FILTERED	2.2 U	2.2 U		2.2 U		2.2 U	
MAGNESIUM, FILTERED	12000	12500		122000		7210	
MANGANESE, FILTERED	16.7 U	16.7 U		16.7 U		16.7 U	
POTASSIUM, FILTERED	1110 U	1110 U		2640		1960	
SELENIUM, FILTERED	2.0	1.6		2.6		1.1 U	
SODIUM, FILTERED	7210	7680		110000		12300	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3			320 J		190 J		280 J
BICARBONATE ALKALINITY			320 J		190 J		280 J
CARBONATE ALKALINITY			2.0 U		2.0 U		2 U
CHLORIDE			43.0		29.0		
CONDUCTIVITY (MS/CM)			2.220		0.850		0.862
DISSOLVED OXYGEN			7.75		10.12		2.02
NITRATE, AS NITROGEN			1.3		1.5		0.2 U
NITRITE, AS NITROGEN			0.10 U		0.10 U		
OXIDATION REDUCTION POTENTIAL			-49.6		115.0		12.5
PH ()			7.19		7.14		7.12
SULFATE			740		56.0		140 J
TEMPERATURE (C)			12.47		13.0		13.8
TOTAL ORGANIC CARBON			3.2 J		1.0 UJ		1.0 U
TOTAL ORGANIC HALOGENS			1.1		0.02 U		0.02 U
TOTAL PHOSPHORUS AS P	0.02 U	0.01 U	0.01 U	0.02 U	0.02 U	0.03 U	0.01
TURBIDITY (NTU)			0		0		2

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C15GW01-F	ABG03C17GW01	ABG03C17GW01-F	ABG03C20GW01	ABG03C20GW01-F	ABG03C25GW01	ABG03C25GW01-F
COLLECTION DATE:	11/10/98	11/09/98	11/09/98	11/10/98	11/10/98	11/07/98	11/07/98
LOCATION:	03C15	03C17	03C17	03C20	03C20	03C25	03C25
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE		0.5 U		59		0.5 U	
TRANS-1,2-DICHLOROETHENE		0.5 U		8.8		0.5 U	
TRICHLOROETHENE		0.5 U		3400		0.5 U	
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.95 U		6.5 J		1.4 U	
2,6-DINITROTOLUENE		0.95 U		0.39 U		1.4 U	
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.95 U		0.54		1.4 U	
2-AMINO-4,6-DINITROTOLUENE		0.95 U		12		1.4 U	
4-AMINO-2,6-DINITROTOLUENE		0.95 U		17		1.4 U	
HMX		0.95 U		27		1.4 U	
MNX						1.4 U	
RDX		0.95 U		190		1.4 U	
TNX						1.4 U	
DISSOLVED GASES (µg/L)							
ETHANE						0.132 J	
ETHENE						0.005 U	
METHANE						53.68 J	
INORGANICS (µg/L)							
ARSENIC		2.4		1.1 U		1.1 U	
BARIUM		12.8		30.6		16.8	
COPPER		2.2 U		2.2 U		2.2 U	
CYANIDE		0.01 U		0.01 U		0.01 U	
IRON		1810 J		112		263 J	
LEAD		1.1 UR		1.1 U		1.1 UR	
SELENIUM		1.1 U		1.2		1.1 U	
ZINC		11.1 U		11.1 U		11.1 U	
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED	1.2		2.2		1.1 U		1.1 U
BARIUM, FILTERED	27.4		12.9		30.9		16.4

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C15GW01-F	ABG03C17GW01	ABG03C17GW01-F	ABG03C20GW01	ABG03C20GW01-F	ABG03C25GW01	ABG03C25GW01-F
COLLECTION DATE:	11/10/98	11/09/98	11/09/98	11/10/98	11/10/98	11/07/98	11/07/98
LOCATION:	03C15	03C17	03C17	03C20	03C20	03C25	03C25
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED	104000		201000		88400		99600
COPPER, FILTERED	2.2 U		2.2 U		2.2 U		2.2 U
MAGNESIUM, FILTERED	39600		205000		31700		59800
MANGANESE, FILTERED	32.7		137		16.7 U		23.2
POTASSIUM, FILTERED	1630		3140		1950		2550
SELENIUM, FILTERED	1.1 U		1.1 U		1.2		1.1 U
SODIUM, FILTERED	18300		119000		12700		69300
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		420 J		230 J		360 J	
BICARBONATE ALKALINITY		420 J		230 J		360 J	
CARBONATE ALKALINITY		2.0 U		2 U		2.0 U	
CHLORIDE						2.0	
CONDUCTIVITY (MS/CM)		2.084		0.626		1.229	
DISSOLVED OXYGEN		2.00		2.46		1.09	
NITRATE, AS NITROGEN		0.20 U		2.1 J		0.20 U	
NITRITE, AS NITROGEN						0.10 U	
OXIDATION REDUCTION POTENTIAL		-7.7		159.8		-88.0	
PH ()		6.98		7.18		7.16	
SULFATE		830		91 J		220	
TEMPERATURE (C)		12.1		13.40		11.6	
TOTAL ORGANIC CARBON		1.0 UJ		1.5		1.0 UJ	
TOTAL ORGANIC HALOGENS		0.02 U		1.5		0.02 U	
TOTAL PHOSPHORUS AS P	0.01 U	0.01 U	0.01 U	0.01	0.01	0.01 U	0.01 U
TURBIDITY (NTU)		0		1		2.0	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C26GW01	ABG03C26GW01-F	ABG03C27GW01	ABG03C27GW01-F	ABG03C30GW01	ABG03C30GW01-F	ABGCRELSDSW01
COLLECTION DATE:	11/10/98	11/10/98	11/09/98	11/09/98	11/11/98	11/11/98	11/05/98
LOCATION:	03C26	03C26	03C27	03C27	03C30	03C30	CREEK
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE	0.5 U		0.5 U		0.5 U		0.5 U
TRANS-1,2-DICHLOROETHENE	0.5 U		0.5 U		0.5 U		0.5 U
TRICHLOROETHENE	8.1		4.9		0.5 U		0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE	0.65 U		0.92 U		1.4 U		0.71 U
2,6-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
2-AMINO-4,6-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
4-AMINO-2,6-DINITROTOLUENE	0.65 U		0.92 U		1.4 U		0.71 U
HMX	0.65 U		0.92 U		1.4 U		8.1
MNX							0.71 U
RDX	0.70		0.92 U		1.4 U		28
TNX							0.71 U
DISSOLVED GASES (µg/L)							
ETHANE							0.018 U
ETHENE							0.005 U
METHANE							9.4 J
INORGANICS (µg/L)							
ARSENIC	1.1 U		1.1 U		1.1 U		1.1 U
BARIUM	39.4		34.0		65.1		158
COPPER	2.2 U		2.2 U		2.2 U		2.2 U
CYANIDE	0.01 U		0.01 U		0.01 U		0.01 U
IRON	110		145		184		192 J
LEAD	1.1 U		1.1 U		1.1 U		1.1 UR
SELENIUM	1.1 U		1.1 U		1.1 U		1.1 U
ZINC	16.4		11.1 U		11.1 U		11.1 U
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED		1.1 U		1.1 U		1.1 U	
BARIUM, FILTERED		38.6		32.9		64.6	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABG03C26GW01	ABG03C26GW01-F	ABG03C27GW01	ABG03C27GW01-F	ABG03C30GW01	ABG03C30GW01-F	ABGCRELSDSW01
COLLECTION DATE:	11/10/98	11/10/98	11/09/98	11/09/98	11/11/98	11/11/98	11/05/98
LOCATION:	03C26	03C26	03C27	03C27	03C30	03C30	CREEK
DUPLICATE:							
AQUIFER:	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	BEECH CREEK	
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED		98500		58400		69400	
COPPER, FILTERED		2.2 U		2.2 U		2.2 U	
MAGNESIUM, FILTERED		54500		3420		38600	
MANGANESE, FILTERED		54.8		16.7 U		55.3	
POTASSIUM, FILTERED		1800		1190		3090	
SELENIUM, FILTERED		1.1 U		1.2		1.1 U	
SODIUM, FILTERED		17400		7210		68200	
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3	360 J		150 J		300 J		130 J
BICARBONATE ALKALINITY	360 J		150 J		300 J		130 J
CARBONATE ALKALINITY	2 U		2 U		2 U		2.0 U
CHLORIDE							8.0
CONDUCTIVITY (MS/CM)	0.760		0.373		0.730		0.495
DISSOLVED OXYGEN	2.92		13.11		1.06		9.75
NITRATE, AS NITROGEN	0.2 U		0.2 U		0.2 U		0.20
NITRITE, AS NITROGEN							0.10 U
OXIDATION REDUCTION POTENTIAL	151.8		140.4		-115.1		37.9
PH ()	7.09		7.66		8.43		7.72
SULFATE	89 J		8 J		130 J		46.0
TEMPERATURE (C)	15.11		12.2		12.22		7.12
TOTAL ORGANIC CARBON	3.3		1.0 U		1.0 U		1.4 J
TOTAL ORGANIC HALOGENS	0.02 U		0.02 U		0.02		0.02 U
TOTAL PHOSPHORUS AS P	0.01	0.01	0.04	0.03	0.02	0.01	0.01 U
TURBIDITY (NTU)	0		8		2		2.4

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	ABGSPRASW01	ABGSPRASW01-F	ABGSPRCSW01	ABGSPRCSW01-F
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98
LOCATION:	CREEK	CREEK	CREEK	SPRING A	SPRING A	SPRING C	SPRING C
DUPLICATE:							
AQUIFER:							
VOLATILES (µg/L)							
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	
TRANS-1,2-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	
TRICHLOROETHENE		0.5 U		0.5 U		0.5 U	
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.90 U		0.86 U		0.79 U	
2,6-DINITROTOLUENE		0.90 U		0.86 U		0.79 U	
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.90 U		0.86 U		0.79 U	
2-AMINO-4,6-DINITROTOLUENE		0.90 U		1.8		0.79 U	
4-AMINO-2,6-DINITROTOLUENE		1.2 J		3.4 J		0.79 U	
HMX		9.3		26		0.79 U	
MNX		0.90 U		0.86 U		0.79 U	
RDX		20		63		1.4	
TNX		0.90 U		0.86 U		0.79 U	
DISSOLVED GASES (µg/L)							
ETHANE		0.005 U				0.005 U	
ETHENE		0.005 U				0.005 U	
METHANE		1.074 U				0.687 U	
INORGANICS (µg/L)							
ARSENIC		1.1 U		1.1 U		1.1 U	
BARIUM		131		126		62.2	
COPPER		2.2 UJ		3.7 J		2.2 U	
CYANIDE		0.02		0.06		0.01 U	
IRON		106 J		148 J		93.0 J	
LEAD		1.1 UR		3.8 J		1.1 UR	
SELENIUM		1.1 U		1.3		1.1 U	
ZINC		11.1 U		11.9		11.1 U	
DISSOLVED METALS (µg/L)							
ARSENIC, FILTERED	1.1 U		1.1 U		1.1 U		1.1 U
BARIUM, FILTERED	146		130		122		64.2

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	ABGSPRASW01	ABGSPRASW01-F	ABGSPRCSW01	ABGSPRCSW01-F
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98	11/05/98
LOCATION:	CREEK	CREEK	CREEK	SPRING A	SPRING A	SPRING C	SPRING C
DUPLICATE:							
AQUIFER:							
DISSOLVED METALS (µg/L)							
CALCIUM, FILTERED	53900		57800		64500		60100
COPPER, FILTERED	2.2 U		2.2 U		2.2 U		2.2 U
MAGNESIUM, FILTERED	11300		11100		15000		13600
MANGANESE, FILTERED	110		16.7 U		16.7 U		16.7 U
POTASSIUM, FILTERED	2400		3010		5870		1130
SELENIUM, FILTERED	1.1 U		1.1 U		1.1		1.1 U
SODIUM, FILTERED	7470		7110		10500		7490
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		130 J		140 J		150 J	
BICARBONATE ALKALINITY		130 J		140 J		150 J	
CARBONATE ALKALINITY		2.0 U		2.0 U		2.0 U	
CHLORIDE		9.0		14.0		5.0	
CONDUCTIVITY (MS/CM)		0.468		0.531		0.475	
DISSOLVED OXYGEN		10.03		10.38		10.53	
NITRATE, AS NITROGEN		0.90		2.9		0.50	
NITRITE, AS NITROGEN		0.20		0.30		0.10 U	
OXIDATION REDUCTION POTENTIAL		155.8		1412		191.8	
PH ()		7.73		8.36		7.95	
SULFATE		43.0		58.0		56.0	
TEMPERATURE (C)		9.31		10.86		11.38	
TOTAL ORGANIC CARBON		1.8 J		4.1 J		1.0 UJ	
TOTAL ORGANIC HALOGENS		0.02 U		0.02 U		0.02 U	
TOTAL PHOSPHORUS AS P	0.01 U	0.02 U	0.02 U	0.05 U	0.04 U	0.02 U	0.02 U
TURBIDITY (NTU)		5.9		10.3		1.8	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - ROUND 1

SAMPLE NUMBER:	SWNABGSPRASW01	/ /	/ /	/ /	/ /	/ /	/ /
COLLECTION DATE:	11/05/98						
LOCATION:	SPRING A						
DUPLICATE:							
AQUIFER:							
DISSOLVED GASES (µg/L)							
ETHANE	0.005 U						
ETHENE	0.005 U						
METHANE	1.178 U						

ATTACHMENT 13

Rinsate, Trip, and Ambient Blanks

Ammunition Burning Ground Monitoring Event No. 1

November 1998

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
RINSATE, TRIP, AND AMBIENT BLANKS - ROUND 1

SAMPLE NUMBER:	GWAB111198-1	GWRB110998-1	GWRB110998-1-F	GWRB111098-1	GWRB111098-1-F	TB110598-1	TB110698-1
COLLECTION DATE:	11/11/98	11/09/98	11/09/98	11/10/98	11/10/98	11/05/98	11/06/98
LOCATION:	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
DUPLICATE:							
AQUIFER:							
VOLATILES (µg/L)							
1,1-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE		0.5 U		0.5 U		0.5 U	0.5 U
TRICHLOROETHENE		0.5 U		0.5 U		0.5 U	0.5 U
VINYL CHLORIDE		0.5 U		0.5 U		0.5 U	0.5 U
SEMIVOLATILES (µg/L)							
1,3,5-TRINITROBENZENE		0.86 U		0.88 U			
1,3-DINITROBENZENE		0.86 U		0.88 U			
2,4-DINITROTOLUENE		0.86 U		0.88 U			
2,6-DINITROTOLUENE		0.86 U		0.88 U			
NITROBENZENE		0.86 U		0.88 U			
ENERGETICS (µg/L)							
2,4,6-TRINITROTOLUENE		0.86 U		0.88 U			
2,4-DIAMINO-6-NITROTOLUENE		0.86 U		0.88 U			
2,6-DIAMINO-4-NITROTOLUENE		0.86 U		0.88 U			
2-AMINO-4,6-DINITROTOLUENE		0.86 U		0.88 U			
2-NITROTOLUENE		0.86 U		0.88 U			
3,5-DINITROANILINE		4.6 U		4.8 U			
3-NITROTOLUENE		0.86 U		0.88 U			
4,4'-TN-AZOXY		0.86 U		0.88 U			
4-AMINO-2,6-DINITROTOLUENE		0.86 U		0.88 U			
4-NITROTOLUENE		0.86 U		0.88 U			
HMX		0.86 U		0.88 U			
MNX		0.86 U		0.88 U			
NITROCELLULOSE		1.10		1.7			
NITROGLYCERIN		8.6 U		8.8 U			
PETN		4.2 U		4.4 U			
PICRIC ACID		1.0 U		1.1 U			
RDX		0.86 U		0.88 U			

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
RINSATE, TRIP, AND AMBIENT BLANKS - ROUND 1

SAMPLE NUMBER:	GWAB111198-1	GWRB110998-1	GWRB110998-1-F	GWRB111098-1	GWRB111098-1-F	TB110598-1	TB110698-1
COLLECTION DATE:	11/11/98	11/09/98	11/09/98	11/10/98	11/10/98	11/05/98	11/06/98
LOCATION:	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
DUPLICATE:							
AQUIFER:							
ENERGETICS (µg/L)							
TETRYL		0.86 U		0.88 U			
TNX		0.86 U		0.88 U			
DISSOLVED GASES (µg/L)							
ETHANE	0.023 U	0.026		0.018			
ETHENE	0.005 U	0.005 U		0.005 U			
METHANE	0.923 U	1.081		0.608			
INORGANICS (µg/L)							
ANTIMONY		1.1 U		1.1 U			
ARSENIC		1.1 U		1.1 U			
BARIUM		1.1 U		1.1 U			
BERYLLIUM		1.1 U		1.1 U			
CADMIUM		1.1 U		1.1 U			
CHROMIUM		5.6 U		5.6 U			
COBALT		3.3 U		3.3 U			
COPPER		2.2 U		2.2 U			
CYANIDE		0.01 U		0.01 U			
IRON		55.6 U		55.6 U			
LEAD		1.1 UR		1.1 U			
MERCURY		0.20 U		0.20 U			
NICKEL		11.1 U		11.1 U			
SELENIUM		1.1 U		1.1 U			
SILVER		3.3 U		3.3 U			
THALLIUM		1.1 U		1.1 U			
TIN		11.1 U		11.1 U			
VANADIUM		2.2 U		2.2 U			
ZINC		11.1 U		11.1 U			
DISSOLVED METALS (µg/L)							
ANTIMONY, FILTERED			1.1 U		1.1 U		
ARSENIC, FILTERED			1.1 U		1.1 U		
BARIUM, FILTERED			1.1 U		1.1 U		

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
RINSATE, TRIP, AND AMBIENT BLANKS - ROUND 1

SAMPLE NUMBER:	GWAB111198-1	GWRB110998-1	GWRB110998-1-F	GWRB111098-1	GWRB111098-1-F	TB110598-1	TB110698-1
COLLECTION DATE:	11/11/98	11/09/98	11/09/98	11/10/98	11/10/98	11/05/98	11/06/98
LOCATION:	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
DUPLICATE:							
AQUIFER:							
DISSOLVED METALS (µg/L)							
BERYLLIUM, FILTERED			1.1 U		1.1 U		
CADMIUM, FILTERED			1.1 U		1.1 U		
CALCIUM, FILTERED			1110 U		1110 U		
CHROMIUM, FILTERED			5.6 U		5.6 U		
COBALT, FILTERED			3.3 U		3.3 U		
COPPER, FILTERED			2.2 U		2.2 U		
LEAD, FILTERED			1.1 U		1.1 U		
MAGNESIUM, FILTERED			1110 U		1110 U		
MANGANESE, FILTERED			16.7 U		16.7 U		
MERCURY, FILTERED			0.20 U		0.20 U		
NICKEL, FILTERED			11.1 U		11.1 U		
POTASSIUM, FILTERED			1110 U		1110 U		
SELENIUM, FILTERED			1.1 U		1.1 U		
SILVER, FILTERED			3.3 U		3.3 U		
SODIUM, FILTERED			1110 U		1110 U		
THALLIUM, FILTERED			1.1 U		1.1 U		
TIN, FILTERED			11.1 U		11.1 U		
VANADIUM, FILTERED			2.2 U		2.2 U		
ZINC, FILTERED			11.1 U		11.1 U		
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3		4.0		3			
BICARBONATE ALKALINITY		4.0		3			
CARBONATE ALKALINITY		2.0 U		2 U			
CHLORIDE		1.0 U		1 U			
NITRATE, AS NITROGEN		0.20 U		0.2 U			
NITRITE, AS NITROGEN		0.10 U		0.1 U			
SULFATE		1.0 U		1 UR			
TOTAL ORGANIC CARBON		1.0 UJ		1.0 U			
TOTAL ORGANIC HALOGENS		0.02 U		0.02 U			

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
RINSATE, TRIP, AND AMBIENT BLANKS - ROUND 1

SAMPLE NUMBER:	GWAB111198-1	GWRB110998-1	GWRB110998-1-F	GWRB111098-1	GWRB111098-1-F	TB110598-1	TB110698-1
COLLECTION DATE:	11/11/98	11/09/98	11/09/98	11/10/98	11/10/98	11/05/98	11/06/98
LOCATION:	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK
DUPLICATE:							
AQUIFER:							
MISCELLANEOUS PARAMETERS (mg/L)							
TOTAL PHOSPHORUS AS P		0.01 U	0.01 U	0.01 U	0.01 U		

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
RINSATE, TRIP, AND AMBIENT BLANKS - ROUND 1

SAMPLE NUMBER:	TB110798-1	TB110898-1	TB110998-1	TB111098-1	TB111198-1	TB111298-1	
COLLECTION DATE:	11/07/98	11/08/98	11/09/98	11/10/98	11/11/98	11/12/98	/ /
LOCATION:	BLANK	BLANK	BLANK	BLANK	BLANK	BLANK	
DUPLICATE:							
AQUIFER:							
VOLATILES (µg/L)							
1,1-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
CIS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
TRICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
VINYL CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - CREEK A & B MONITORING POINTS - ROUND 1

SAMPLE NUMBER:	ABGCRELSDSW01	ABGCRELSDSW01-F	ABGCRELSUSW01	ABGCRELSUSW01-F	/ /	/ /	/ /
COLLECTION DATE:	11/05/98	11/05/98	11/05/98	11/05/98			
LOCATION:	CREEK	CREEK	CREEK	CREEK			
DUPLICATE:							
AQUIFER:							
ENERGETICS (µg/L)							
4-AMINO-2,6-DINITROTOLUENE	0.71 U		1.2 J				
HMX	8.1		9.3				
RDX	28		20				
DISSOLVED GASES (µg/L)							
METHANE	9.4 J		1.074 U				
INORGANICS (µg/L)							
BARIUM	158		131				
CYANIDE	0.01 U		0.02				
IRON	192 J		106 J				
DISSOLVED METALS (µg/L)							
BARIUM, FILTERED		146		130			
CALCIUM, FILTERED		53900		57800			
MAGNESIUM, FILTERED		11300		11100			
MANGANESE, FILTERED		110		16.7 U			
POTASSIUM, FILTERED		2400		3010			
SODIUM, FILTERED		7470		7110			
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3	130 J		130 J				
BICARBONATE ALKALINITY	130 J		130 J				
CHLORIDE	8.0		9.0				
CONDUCTIVITY (MS/CM)	0.495		0.468				
DISSOLVED OXYGEN	9.75		10.03				
NITRATE, AS NITROGEN	0.20		0.90				
NITRITE, AS NITROGEN	0.10 U		0.20				
OXIDATION REDUCTION POTENTIAL	37.9		155.8				
PH ()	7.72		7.73				
SULFATE	46.0		43.0				
TEMPERATURE (C)	7.12		9.31				
TOTAL ORGANIC CARBON	1.4 J		1.8 J				
TURBIDITY (NTU)	2.4		5.9				

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - SPRING A MONITORING POINTS - ROUND 1

SAMPLE NUMBER:	ABGSPRASW01	ABGSPRASW01-F	/ /	/ /	/ /	/ /	/ /
COLLECTION DATE:	11/05/98	11/05/98					
LOCATION:	SPRING A	SPRING A					
DUPLICATE:							
AQUIFER:							
ENERGETICS (µg/L)							
2-AMINO-4,6-DINITROTOLUENE	1.8						
4-AMINO-2,6-DINITROTOLUENE	3.4 J						
HMX	26						
RDX	63						
INORGANICS (µg/L)							
BARIUM	126						
COPPER	3.7 J						
CYANIDE	0.06						
IRON	148 J						
LEAD	3.8 J						
SELENIUM	1.3						
ZINC	11.9						
DISSOLVED METALS (µg/L)							
BARIUM, FILTERED		122					
CALCIUM, FILTERED		64500					
MAGNESIUM, FILTERED		15000					
POTASSIUM, FILTERED		5870					
SELENIUM, FILTERED		1.1					
SODIUM, FILTERED		10500					
MISCELLANEOUS PARAMETERS (mg/L)							
ALKALINITY AS CACO3	140 J						
BICARBONATE ALKALINITY	140 J						
CHLORIDE	14.0						
CONDUCTIVITY (MS/CM)	0.531						
DISSOLVED OXYGEN	10.38						
NITRATE, AS NITROGEN	2.9						
NITRITE, AS NITROGEN	0.30						
OXIDATION REDUCTION POTENTIAL	1412						
PH ()	8.36						
SULFATE	58.0						

AMMUNITION BURNING GROUNDS
GROUNDWATER / SURFACE WATER DATA
NSWC CRANE
SUMMARY OF POSITIVE DETECTIONS - SPRING A MONITORING POINTS - ROUND 1

SAMPLE NUMBER:	ABGSPRASW01	ABGSPRASW01-F	/ /	/ /	/ /	/ /	/ /
COLLECTION DATE:	11/05/98	11/05/98					
LOCATION:	SPRING A	SPRING A					
DUPLICATE:							
AQUIFER:							
MISCELLANEOUS PARAMETERS ()							
TEMPERATURE (C)	10.86						
TOTAL ORGANIC CARBON	4.1 J						
TURBIDITY (NTU)	10.3						

ATTACHMENT 14

Laucks Testing Data Packages

(Available in NSWC Crane Ground Water Monitoring Information Repository) Monitoring Event No. 1

ATTACHMENT 15

Data Validation Letter
for Laucks Testing Data

(Available in NSWC Crane Ground Water
Monitoring Information Repository)
Monitoring Event No. 1

ATTACHMENT 16

Microseeps Data Packages and Tetra Tech NUS, Inc. Data Validation Letter

(Available in NSWC Crane Ground Water Monitoring Information Repository)
Monitoring Event No. 1