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LETTER WORK PLAN FOR SUPPLEMENTAL MONITORED NATURAL ATTENUATION SAMPLING SITE 8 NAVAL UNDERSEA SYSTEMS CENTER DISPOSAL AREA NS NEWPORT RI
03/02/2011
TETRA TECH

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C-NAVY-03-11-4215W

March 2, 2011

Project Number 112G02124

Ms. Ginny Lombardo
U.S. Environmental Protection Agency (EPA) Region I
5 Post Office Square, Suite 100
Mail Code OSRR07-3
Boston MA, 02109-3912

Mr. Gary Jablonski
Rhode Island Department of Environmental Management (RIDEM)
235 Promenade St.
Providence RI 02908-5767

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order No. WE19

Subject: Work Plan for Supplemental Monitored Natural Attenuation Sampling
Site 08, NUSC Disposal Area, Naval Station Newport, Newport RI

Dear Ms. Lombardo and Mr. Jablonski:

On behalf of Ms. Maritza Montegross, Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, Tetra Tech NUS, Inc. (Tetra Tech) is providing this work plan for supplemental groundwater sampling at the Naval Undersea Systems Center (NUSC) Disposal Area (Site 8) at the Naval Station Newport, Rhode Island. This plan was prepared in response to EPA comments noting that additional sampling is needed to provide evidence in support of remedial alternatives which incorporate monitored natural attenuation (MNA). As requested during the February 17, 2011 conference call, past MNA sampling results are also summarized herein for your reference.

This work is considered a supplemental sampling event performed for informational purposes and will use sampling procedures which are consistent with previous work plans already approved by EPA and RIDEM for Site 8. Tetra Tech would like to begin this supplemental groundwater sampling event on March 14, 2011 and therefore requests that you contact us right away should you have any questions or concerns.

Background

Past groundwater sampling events at Site 8 included an initial round in September 2003 for the Study Area Screening Evaluation (SASE) (Tetra Tech, 2005), a more detailed round in May-June 2008 and August-September 2008 for the Remedial Investigation (RI) (Tetra Tech, 2010a), and a round in August 2010 for the Supplemental RI (SRI) (Tetra Tech, 2010b). The RI concluded that three chlorinated volatile organic compounds (CVOCs) [tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride]; and two other contaminants (benzo[b]fluoranthene and arsenic) are associated with unacceptable risks under future site worker and residential scenarios.

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The SRI was conducted in 2010 to fill data gaps identified in the RI and to support the ongoing Feasibility Study (FS). Due to the identified groundwater cleanup goals (e.g., drinking water standards) and the presence of CVOCs within a fractured bedrock aquifer, Tetra Tech and the Navy believe that MNA is likely to be a component of the overall cleanup strategy. Therefore, the Navy will be conducting this additional groundwater sampling for CVOCs and MNA parameters in order to assist with development of remedial alternatives in the FS.

MNA Analyte Summary

Some MNA parameters are measured in the field during the course of sample collection and are available for past NUSC groundwater sampling results. These parameters generally include pH, oxidation-reduction potential (ORP), and dissolved oxygen (DO). Table 1 summarizes the past groundwater stabilization measurements during low-flow sampling and notes whether the geochemistry is indicative of reducing, oxidizing, or intermediate conditions. These results are consistent with MNA summaries presented in the SRI [Section 3.1.1 for the North Meadow, 3.2.1 for the Building 179 area, and Section 3.3.2 for the Building 185 complex (Tetra Tech, 2010b)].

Table 2 summarizes laboratory analyses and field test kit results (ferrous iron) for past groundwater samples. MNA (geochemical) parameters were included in a subset of these samples, as follows:

- 2003 – no samples were analyzed for MNA parameters
- 2008 – 23 out of 51 samples were analyzed for MNA parameters
- 2010 – 13 of 26 samples were analyzed for MNA parameters

MNA parameter concentrations and the presence of CVOC daughter products (e.g., cis-1,2-dichloroethene) were used to evaluate whether CVOC degradation had occurred and if geochemical conditions were conducive to degradation. These factors were combined for a general assessment of the degradation potential (Yes, No, or Limited) at each well with MNA data (Table 2).

This additional sampling event will be used to help evaluate trends for CVOC concentrations and to provide information for wells which have not been recently sampled for MNA parameters.

Sampling Plan

A total of 21 wells are planned to be sampled March 14 to 18, 2011 (Table 3, Figure 1). Twenty of those samples will be analyzed for VOCs and 11 of those samples will be analyzed for MNA parameters. These locations were selected based on which wells had been sampled in the past and on other considerations, as summarized in Table 3. In 2010, a total of 28 wells had been sampled. Of these, 10 wells also had been sampled in 2008 and these are retained for contaminant concentration trend analyses. Monitoring wells that are located within 50 feet of another well being sampled were omitted. Similarly, only one sample will be collected from each of the downgradient couplets in the North Meadow. Three wells that were not analyzed in 2010 were selected for re-sampling because relatively high concentrations of at least one chlorinated ethene were detected and either no other wells with high concentrations were nearby, or they represent the outer edge of the plume.

Field work will be performed in accordance with the previously approved RI Work Plan Addendum (Tetra Tech, June 2010c) which was used during the SRI. In the Work Plan Addendum, details for some field task protocols are referred back to Section 3.2.1 of the RI Work Plan, Revision 2 (Tetra Tech, 2007). The March 2011 field work will include the following:

- Well Redevelopment: No well redevelopment will be conducted at this time because the wells were recently redeveloped in 2010.

- Well Sampling: The selected 21 wells will be sampled using low-flow methods as described in Section 3.2.1.11 of the RI Work Plan. The samples will be sent for laboratory analysis of VOCs and/or the following MNA parameters: ammonia, nitrite, nitrate, orthophosphate, sulfate, sulfide, total organic carbon, and dissolved gases (methane, ethene, and ethane). Ferrous iron will be measured in the field using test kits. Analytical methods, project action limits, sample handling, control and documentation, laboratory procedures, validation, and analytical reports will be the same as those listed in the RI Work Plan. The same sample nomenclature methodology will be used. Quality control samples will include one duplicate per 10 field samples and one trip blank per 20 samples (or per cooler shipped to the lab). Applicable tables from the RI Work Plan include Table 3-2 (field quality control sample summary) and Table 3-3 (sample container, preservative, and holding time requirements).

- Support Activities: Provisions outlined in the RI Work Plan will be followed for additional field activities including management of investigation-derived waste (IDW), cleaning and decontamination of field equipment, field equipment calibration, and inspection and acceptance requirements for supplies and sample containers, as described in Sections 3.3.3, 3.3.4, 3.3.5, and 3.3.6, respectively.

Health and Safety

The existing site-specific Health and Safety Plan (Tetra Tech, 2010d) used during the SRI will be followed during these supplemental field activities.

Reporting

Upon completion of field activities and laboratory analyses, Tetra Tech will perform data validation in accordance with the Work Plan Addendum and will summarize the results in a brief technical memorandum for EPA and RIDEM review. This information will be incorporated into the FS.

Tetra Tech plans to begin this supplemental groundwater sampling event on March 14, 2011. Please contact me at (978) 474-8449 or jim.ropp@tetratech.com should you have any questions or concerns about the work to be performed.

Sincerely,

James Ropp, P.E.
Project Manager

JL/SSP

Encl. Tables 1 to 3, Figure 1 (1 hardcopy, email)

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References

Tetra Tech (Tetra Tech NUS, Inc.), 2005. Study Area Screening Evaluation for NUSC Disposal Area, Naval Undersea Warfare Center, Middletown, Rhode Island. January.

Tetra Tech, 2007. Work Plan for Remedial Investigation, Revision 2, for Site 08 – NUSC Disposal Area, Naval Station Newport, Middletown, Rhode Island. January.

Tetra Tech, 2010a. Remedial Investigation for Site 08, Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Rhode Island. January.

Tetra Tech, 2010b. Technical Memorandum, Supplemental Remedial Investigation for Site 08, Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Rhode Island. December.

Tetra Tech, 2010c. Work Plan Addendum, Supplemental Remedial Investigation for Site 08, Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Rhode Island. June.

Tetra Tech, 2010d. Health and Safety Plan, Remedial Investigation for Site 08, Naval Undersea Systems Center (NUSC) Disposal Area, Naval Station Newport, Rhode Island. June.

Wiedemeier, T. H., Swanson, M. A., Moutoux, D. E., Kampbell, D. H., Haas, P. E., Miller, R. N., Hansen, J. E., and Chappelle, F. H., 1998. Technical protocol for evaluating natural attenuation of chlorinated solvents in ground water. EPA/600/R-98/128, September.

TABLE 1
GROUNDWATER SAMPLING STABILIZATION RECORDS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

Well ID	Sample Date	Depth Sampled	Water Depth Below MP (ft)	Temp (^oC)	Spec. Cond. (mS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Reducing conditions?
Groundwater Sampling - 2010										
MW-03B	6/28/2010	25	23.70	22.41	0.265	6.21	203.4	2.91	3.00	N
MW-04B	6/30/2010	30	18.69	16.74	0.345	7.00	-2.4	1.31	4.45	intermediate
MW-6A	6/23/2010	10.8	DRY	17.73	0.153	6.37	-43.0	0.65	111	intermediate
MW-6B	6/17/2010	30.4	11.00	16.25	0.429	9.27	144.7	9.12	156	N
MW-7A	6/23/2010	7.4	6.75	19.56	0.443	6.06	-60.0	0.88	2.68	Y
MW-7B	6/22/2010	23.7	6.47	17.83	0.247	7.65	-176.8	0.31	139	Y
MW-8A	6/29/2010	6.6	7.45	20.63	0.370	6.20	-29.6	4.68	24.2	intermediate
MW-8B	6/22/2010	12.1	6.20	15.27	0.271	7.32	-188.0	0.43	66.2	Y
MW-9B	6/29/2010	18	11.72	22.14	0.614	7.26	-304.2	0.75	17.7	Y
MW-11	6/29/2010	10.9	DRY	19.68	0.587	6.12	34.2	1.83	11.60	N
MW-12	6/30/2010	5.3	3.95	19.72	0.227	5.46	113.0	1.18	1.62	N
MW-13B	6/30/2010	18	4.35	13.38	0.331	7.81	-214.3	0.24	65.40	Y
MW-101B	6/23/2010	45	12.35	19.09	0.605	7.33	69.1	1.09	48.6	N
MW-103B	7/1/2010	34.9	17.95	12.38	0.452	6.97	-202.9	0.48	147	Y
MW-104B	6/18/2010	32.5	15.50	14.92	0.344	6.77	-34.9	0.71	52.7	intermediate
MW-105B	6/28/2010	35	18.45	13.90	0.337	6.60	-14.4	0.61	9.37	intermediate
MW-116-D1	8/6/2010	25	9.51	17.40	0.218	5.98	-3.5	1.03	4.64	intermediate
MW-116B-D2	8/6/2010	35	9.80	15.71	0.228	6.41	-20.7	0.30	0.15	intermediate
MW-117B-D1	8/11/2010	25	22.90	14.39	0.201	7.95	-30.0	0.27	0.00	intermediate
MW-117B-D2	8/11/2010	34	23.18	14.02	0.248	6.07	-20.3	0.25	1.74	intermediate
MW-118-D1	8/10/2010	32	27.07	15.90	0.283	6.08	44.8	1.56	29.9	N
MW-118-D2	8/10/2010	42	26.40	14.98	0.195	6.16	68.7	0.37	0.00	N
MW-122	6/30/2010	5.82	4.30	16.09	0.329	6.18	-32.1	0.60	0.00	intermediate
MW-124B	8/11/2010	45	6.00	MW	0.542	6.44	-75.1	0.40	7.86	Y
MW-127B	8/10/2010	41	22.84	13.60	0.390	6.44	-33.1	0.50	5.37	intermediate
MW-128B	8/9/2010	40	24.65	13.38	0.348	6.29	34.8	0.20	3.10	N
MW-129B	8/10/2010	13.5	5.20	15.56	0.651	6.63	35.7	0.25	0.00	N
MW-130B	8/9/2010	23	7.20	18.22	0.918	6.41	78.3	2.69	20.1	N
Groundwater Sampling - 2008 (discrete interval sampling)										
MW-109B	5/8/2008	19.0-24.0	11.16	14.27	0.652	7.27	-205.8	0.43	35	Y
MW-109B	5/8/2008	30.0-35.0	8.80	6.96	0.337	6.96	-68.2	0.48	120	Y
MW-109B	5/8/2008	36.0-41.0	9.37	14.17	0.342	7.06	-91.2	0.48	120	Y
MW-114B	5/5/2008	29.0-34.0	21.46	13.63	0.478	6.37	19.4	0.85	7	N
MW-114B	5/5/2008	34.0-39.0	21.64	13.16	0.373	6.50	-35	1.94	65	intermediate
MW-114B	5/5/2008	53.0-61.0	23.20	15.41	0.350	6.14	26.4	2.29	80	N
MW-115B	5/7/2008	19.0-24.0	4.90	11.96	0.423	7.09	-182.5	0.12	160	Y
MW-115B	5/7/2008	26.0-31.0	4.68	13.63	0.427	7.01	-172.2	0.33	160	Y
MW-124B	8/1/2008	10.0-20.0	3.42	25.81	0.884	7.69	-381.8	0.28	90	Y
MW-124B	8/4/2008	35.0-45.0	7.32	15.87	0.698	6.49	-110.8	0.88	100	Y
MW-125B	7/31/2008	26.0-36.0	10.41	17.55	0.463	7.15	-170.5	0.32	30	Y
MW-125B	8/1/2008	36.0-43.0	11.80	15.39	0.419	7.19	270	0.15	190	N
MW-126B	7/30/2008	22.0-27.0	7.26	19.38	0.282	7.44	-179.2	0.45	95	Y
MW-126B	7/30/2008	42.0-46.0	7.01	19.91	0.244	7.44	-199.8	0.40	150	Y
MW-126B	7/30/2008	50.0-55.0	7.54	16.42	0.229	7.44	-181.9	6.77	35	intermediate

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GROUNDWATER SAMPLING STABILIZATION RECORDS
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

Well ID	Sample Date	Depth Sampled	Water Depth Below MP (ft)	Temp (^oC)	Spec. Cond. (mS/cm)	pH	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Reducing conditions?
Groundwater Sampling - 2008										
MW-100B	9/18/2008	30.21	9.29	17.45	0.497	7.24	-133.2	0.30	1.4	Y
MW-101B	5/30/2008	45.22	12.94	13.64	0.921	6.76	367	0.34	160	N
MW-101B	7/31/2008	45.2	14.73	16.15	0.501	7.11	274.9	0.22	5	N
MW-102B	5/27/2008	14.25	12.34	16.24	0.732	6.79	-56.8	0.67	25	Y
MW-102B	8/1/2008	16.25	16.35	14.70	0.388	6.12	-41.4	0.15	5	intermediate
MW-103B	5/23/2008	32.9	14.66	11.37	0.571	6.50	-60.1	0.33	5.8	Y
MW-103S	5/26/2008	14.89	14.39	14.86	1.433	7.01	-178.2	0.13	>1100	Y
MW-104B	5/20/2008	17.99	14.39	10.97	0.519	6.85	-90.1	0.30	65	Y
MW-105B	5/20/2008	43.07	16.65	10.45	0.509	6.99	35.1	0.34	0	N
MW-106B	5/21/2008	35.08	0.53	12.74	0.554	7.11	336.8	0.27	40	N
MW-106S	5/21/2008	14.52	2.15	11.95	0.378	6.15	49	1.96	23	N
MW-107B	6/4/2008	22.43	4.74	15.49	0.589	7.03	-113.6	0.21	16	Y
MW-108B	6/3/2008	N/R	7.68	17.84	0.658	7.21	-242.9	PE	22	Y
MW-109B	6/2/2008	27.45	7.58	18.32	0.644	6.81	-141.9	0.32	14	Y
MW-110B	5/19/2008	45.07	11.85	12.12	0.516	6.84	-202	0.19	30	Y
MW-111B	5/16/2008	40.74	11.64	10.50	0.312	5.98	11.3	1.75	21	N
MW-112B	5/16/2008	44.84	11.34	11.76	0.468	6.92	-20.1	0.54	0	intermediate
MW-112S	5/19/2008	13.45	11.68	10.10	0.351	6.06	129.6	0.20	130	N
MW-113B	5/16/2008	27.09	10.97	10.62	0.397	6.44	-15.7	0.35	107.6	intermediate
MW-114B	5/16/2008	58.45	19.41	9.96	0.216	6.19	114.7	2.78	2.2	N
MW-115B	5/15/2008	27.83	3.54	12.41	0.418	6.76	-129.6	0.34	21	Y
MW-116B	5/15/2008	34.87	5.99	11.88	0.364	6.43	-113.3	0.29	3.6	Y
MW-117B	5/15/2008	23	21.31	12.07	0.337	6.58	-58.4	0.37	0	Y
MW-118B	5/15/2008	31.09	24.19	12.32	0.276	6.29	156.8	0.38	4.6	N
MW-119B	5/14/2008	29.9	13.61	13.81	0.734	6.78	-172.1	0.42	0	Y
MW-120B	5/14/2008	53.63	19.73	13.61	0.767	6.08	-17.6	0.62	3.6	intermediate
MW-123	6/3/2008	4.34	2.54	20.82	0.956	6.47	349.6	2.26	3.2	N
MW-122	6/4/2008	4.15	1.36	13.20	0.486	6.29	156.8	0.77	4.9	N
MW-07A	5/28/2008	7.98	6.82	16.94	1.620	7.05	-185.2	PE	4.3	Y
MW-02B	5/27/2008	28.24	5.96	16.02	0.406	6.35	-79.9	2.15	4.5	intermediate
MW-03B	5/22/2008	17.81	20.42	11.01	0.403	6.72	188.2	3.56	2.6	N
MW-04B	5/23/2008	28.12	16.22	14.63	0.527	6.85	427.4	0.15	3.1	N
MW-07B	5/29/2008	24.29	7.5	13.11	0.676	7.58	-216	0.11	120	Y
MW-09B	5/28/2008	N/R	4.14	19.10	0.929	7.41	-50.3	1.48	170	intermediate
MW-13A	8/4/2008	1.31	0.35	19.42	0.223	4.76	598	0.82	4.7	N

Notes:
1. N/R = Not Recorded on Field Form
2. PE = Probe Error
3. ft = feet
4. mS/cm = microsiemens per centimeter
5. mV = millivolts
6. mg/L = milligrams per Liter
7. NTU = nephelometric turbidity units

TABLE 2
GROUNDWATER ANAYLTICAL RESULT SUMMARY (VOCS AND MNA)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

LOCATION ID	DA-MW01B	DA-MW02B	DA-MW02B	DA-MW03B	DA-MW03B	DA-MW03B	DA-MW04B	DA-MW04B	DA-MW04B	DA-MW06A	DA-MW06B	DA-MW07A	DA-MW07A	DA-MW07B	DA-MW07B	DA-MW08A	DA-MW08B	DA-MW09B
DATE SAMPLED	09/04/03	09/03/03	05/27/08	09/05/03	05/22/08	06/28/10	09/04/03	05/23/08	06/30/10	06/23/10	06/17/10	05/28/08	06/22/10	05/29/08	06/23/10	06/29/10	06/22/10	05/28/08
SAMPLE ID	DA-A-MW01B-01-AVG	DA-A-MW02B-01	DA-MW02B-52708	DA-A-MW03B-01	DA-MW03B-52208	DA-MW-03B-062810-AVG	DA-A-MW04B-01	DA-MW04B-52308	DA-MW-04B-063010	DA-MW6A-062310	DA-MW6B-061710	DA-MW07A-52808	DA-MW7A-062210	DA-MW07B-52908	DA-MW7B-062310	DA-MW-08A-062910	DA-MW8B-062210	DA-MW09B-52808
SACODE	AVG					AVG												
AQUIFER	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	OVERBURDEN	BEDROCK	OB-BR INTERFACE	OB-BR INTERFACE	BEDROCK	BEDROCK	OVERBURDEN	BEDROCK	BEDROCK
WELL DEPTH	40	45	45	24	24	24	45	45	45			10	10	28.72	28.72			21.41
FIELD (UG/L)																		
FERROUS IRON	NA	NA	22000	NA	0 U	NA	NA	0 U	NA	NA	NA	6800	NA	1060	NA	NA	NA	1000
MISCELLANEOUS PARAMETERS (MG/L)																		
AMMONIA-N	NA	NA	3	NA	0.1 U	0.05 U	NA	0.1 U	NA	NA	NA	2.1	2.4	0.1 U	0.05 U	NA	NA	0.1 U
NITRATE-N	NA	NA	0.05 U	NA	1.1	0.695	NA	0.05 U	NA	NA	NA	0.05 U	0.025 U	0.05 U	0.02 J	NA	NA	0.05 U
NITRITE-N	NA	NA	0.05 U	NA	0.05 U	0.025 U	NA	0.05 U	NA	NA	NA	0.05 U	0.025 U	0.05 U	0.025 U	NA	NA	0.05 U
ORTHOPHOSPHATE-P	NA	NA	0.055	NA	0.07	0.05 U	NA	0.016 J	NA	NA	NA	0.019 J	0.05 U	0.079	0.05 U	NA	NA	0.018 J
SULFATE	NA	NA	6.5	NA	25	21	NA	30	NA	NA	NA	9.5	9	11	5.4	NA	NA	2
SULFIDE	NA	NA	1 U	NA	1 U	1.45	NA	1 U	NA	NA	NA	1 U	1	1 U	0.8 U	NA	NA	1 U
TOTAL ORGANIC CARBON	NA	NA	5	NA	1.3	1.7	NA	0.41 J	NA	NA	NA	5.8	10	1.3	1.8	NA	NA	0.92 J
VOLATILE GASES (UG/L)																		
ETHANE	NA	NA	10 U	NA	10 U	2 U	NA	10 U	NA	NA	NA	10 U	2 U	10 U	2 U	NA	NA	10 U
ETHENE	NA	NA	10 U	NA	10 U	2 U	NA	10 U	NA	NA	NA	10 U	2 U	10 U	2 U	NA	NA	10 U
METHANE	NA	NA	260	NA	10 U	1.6 J	NA	8.8 J	NA	NA	NA	3.2 J	160 J	22	14 J	NA	NA	500
VOLATILES (UG/L)																		
1,1,1-TRICHLOROETHANE	0.25 U	0.25 U	1 U	6.2 U	2	1.95	0.46 J	0.4 J	0.29 J	0.5 U	0.5 U	260	290	1600	440	0.5 U	0.5 U	76
1,1,2-TRICHLOROETHANE	0.16 U	0.16 U	1 U	4 U	1 U	0.5 U	0.16 U	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	1 U
1,1-DICHLOROETHANE	0.19 U	0.19 U	1 U	4.7 U	2	2.95	49	23	24	0.5 U	0.5 U	380	440	1000	1000	0.5 U	0.5 U	47
1,1-DICHLOROETHENE	0.38 U	0.38 U	1 U	9.4 U	0.5 J	0.505 J	0.38 U	1	0.77 J	0.5 UJ	0.5 U	4	15	58 J	11 J	0.5 U	0.5 U	14
CHLOROETHANE	0.36 U	0.36 U	2 U	9 U	2 U	1 U	0.36 U	2 U	1 U	1 U	1 U	85	1 U	22 J	1000	1 U	1 U	0.4 J
CIS-1,2-DICHLOROETHENE	2.2	0.61	0.3 J	4.6 U	1 J	1.19 J	6.4	0.6 J	0.41 J	0.5 U	0.5 U	1	0.5 U	1 U	2.2	0.5 U	0.5 U	1 U
TETRACHLOROETHENE	2.2	0.43 U	1 U	11 U	1 U	0.66 J	8.4	1 U	0.5 U	0.5 U	0.5 U	2	0.53 J	2 J	8.3	0.5 U	0.5 U	1 U
TOTAL 1,2-DICHLOROETHENE	2.2	0.61	0.3 J	6.6 U	1 J	1.19 J	6.4	0.6 J	0.41 J	0.5 U	0.5 U	1	0.5 U	1 U	2.2	0.5 U	0.5 U	1 U
TOTAL CHLORINATED ETHENES	5.85	1.03 J	0.3 J	1500	191 J	152 J	19.06 J	0.6 J	1.18 J	0.6 UJ	0.6 U	3.9 J	17.2 J	6.8 J	25.4 J	0.6 U	0.6 U	0.5 J
TOTAL CHLORINATED VOCS	5.85	1.03 J	0.3 J	1500 J	197.5 J	158 J	68.52 J	25 J	25.5 J	0.602 UJ	0.602 U	732.9 J	747 J	2687.1 J	2470 J	0.37 J	0.602 UJ	137.9 J
TRANS-1,2-DICHLOROETHENE	0.34 U	0.34 U	1 U	8.5 U	1 U	0.5 U	0.34 U	1 U	0.5 U	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	1 U
TRICHLOROETHENE	1.45	0.42 J	1 U	1500	190	150 J	3.6	1 U	0.5 U	0.5 U	0.5 U	0.9 J	1 J	4 J	3.9	0.5 U	0.5 U	0.5 J
VINYL CHLORIDE	0.27 U	0.27 U	2 U	6.8 U	2 U	1 U	0.66 J	2 U	1 U	1 U	1 U	2 U	0.7 J	0.8 J	1 U	1 U	1 U	2 U
CONDITIONS CONDUCIVE TO OR INDICATIVE OF MNA?	NA	NA	Y	NA	N	limited	NA	N	NA	NA	NA	Y	Y	Y	Y	NA	NA	Y

Shaded - Detected; U - Not Detected; J - Quantitation is approximate; R - Rejected; NA - Not Analyzed

TABLE 2
GROUNDWATER ANAYLTICAL RESULT SUMMARY (VOCS AND MNA)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

LOCATION ID	DA-MW09B	DA-MW11	DA-MW12	DA-MW13A	DA-MW13B	DA-MW100B	DA-MW100B	DA-MW101B	DA-MW101B	DA-MW101B	DA-MW102B	DA-MW102B	DA-MW103B	DA-MW103B	DA-MW103S	DA-MW104B	DA-MW104B
DATE SAMPLED	06/29/10	06/29/10	06/30/10	08/04/08	06/30/10	05/13/08	09/18/08	05/30/08	07/31/08	06/23/10	05/27/08	08/01/08	05/23/08	07/01/10	05/26/08	05/20/08	06/18/10
SAMPLE ID	DA-MW-09B-062910	DA-MW-11-062910-AVG	DA-MW-12-063010	DA-GW-MW13A-080408	DA-MW-13B-063010	DA-MW100B-51308	DA-MW-100B-091908	DA-MW101B-53008-AVG	DA-GW-MW101B-073108	DA-MW101B-062310	DA-MW102B-52708	DA-GW-MW102B-080408	DA-MW103B-52308	DA-MW-103B-070110	DA-MW103S-52608	DA-MW104B-52008	DA-MW104B-061810
SACODE		AVG		AVG				AVG									
AQUIFER	BEDROCK	OVERBURDEN	OB-BR INTERFACE	OB-BR INTERFACE	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	OB-BR INTERFACE	BEDROCK	BEDROCK
WELL DEPTH	21.41		4	6	24.73	45	45	50	50	50	44	44	50	50	19.5	42	42
FIELD (UG/L)																	
FERROUS IRON	NA	NA	NA	NA	NA	NA	NA	70	NA	NA	3010	NA	2450	NA	2330	1730	NA
MISCELLANEOUS PARAMETERS (MG/L)																	
AMMONIA-N	4.9	0.039 J	0.05 U	NA	NA	NA	NA	0.1 U	NA	0.05 U	0.1 U	NA	0.06 J	0.05 U	1.8	0.1 U	NA
NITRATE-N	0.018 J	0.0192 J	3.4	NA	NA	NA	NA	0.0315 J	NA	0.025 U	0.05 U	NA	0.81	0.07	0.05 U	0.3	NA
NITRITE-N	0.025 U	0.025 U	0.025 U	NA	NA	NA	NA	0.05 U	NA	0.025 U	0.05 U	NA	0.05 U	0.025 U	0.05 U	0.037 J	NA
ORTHOPHOSPHATE-P	0.05 U	0.05 U	0.05 U	NA	NA	NA	NA	0.0795 J	NA	0.05 U	0.024 J	NA	0.05 U	0.05 U	0.032 J	0.061	NA
SULFATE	1.1	20	23	NA	NA	NA	NA	14	NA	14	5.1	NA	11	8.1	46	19	NA
SULFIDE	0.8 U	0.8 U	0.73 J	NA	NA	NA	NA	1.05	NA	2.2	0.8 J	NA	1 U	0.8 U	1 U	1.4	NA
TOTAL ORGANIC CARBON	2.8	1.1	1	NA	NA	NA	NA	0.615 J	NA	1.1	1.3	NA	1.7	1.1	14	0.94 J	NA
VOLATILE GASES (UG/L)																	
ETHANE	3.5 J	2 U	2 U	NA	NA	NA	NA	10 U	NA	2 U	10 U	NA	10 U	2 U	10 U	10 U	NA
ETHENE	2 U	2 U	2 U	NA	NA	NA	NA	10 U	NA	2 U	10 U	NA	10 U	2 U	10 U	10 U	NA
METHANE	6000 J	83.5 J	5.9 J	NA	NA	NA	NA	810	NA	400 J	2.8 J	NA	49	73 J	150	9.8 J	NA
VOLATILES (UG/L)																	
1,1,1-TRICHLOROETHANE	41	0.5 U	0.5 U	1 U	0.5 U	50 U	NA	110	88	96	1 U	1 U	1	7.9	1 U	4	7.5
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	1 U	0.5 U	50 U	NA	1 U	1 U	0.5 U	1 U	1 U	1 U	0.5 U	1 U	1 U	0.5 U
1,1-DICHLOROETHANE	82 J	0.5 U	0.5 U	1 U	0.5 U	310	NA	805	740	510	1	2	19	160	1 U	130	230 J
1,1-DICHLOROETHENE	18	0.5 U	0.5 U	1 U	0.5 U	50 U	NA	79	78	52 J	1 U	1 U	1	12	1 U	7	14
CHLOROETHANE	24	1 U	1 U	2 U	1 U	130	NA	270	240	94	2 U	2 U	2 U	1.9 J	2 U	2 U	1 U
CIS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.23 J	1 U	0.51 J	50 U	NA	0.4 J	0.4 J	0.37 J	2	3	4	21	1 U	8	8.9
TETRACHLOROETHENE	0.5 U	0.5 U	4.5	1 UJ	1.1	50 U	NA	1 U	1 U	0.5 U	1 U	1 UJ	1 U	0.5 U	1 U	0.5 J	2.7
TOTAL 1,2-DICHLOROETHENE	0.5 U	0.5 U	0.23 J	1 U	0.51 J	50 U	NA	0.4 J	0.4 J	0.37 J	2	3	4	21	1 U	8	8.9
TOTAL CHLORINATED ETHENES	19.6 J	0.6 U	5.83 J	0.4 J	1.98 J	62 U	NA	4.4 J	11.4 J	57.5 J	7	14.4 J	10	51.7	1.2 U	16.5 J	33.3 J
TOTAL CHLORINATED VOCS	167 J	0.602 U	5.83 J	0.4 J	1.98 J	440	9 U	1268.4 J	1161.4 J	757 J	8 J	16.4 J	31	222 J	1.3 U	157.5 J	271 J
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	1 U	0.5 U	50 U	NA	1 U	1 U	0.5 U	1 U	1 U	1 U	0.5 U	1 U	1 U	0.5 U
TRICHLOROETHENE	1.2	0.5 U	1.1	0.40 J	0.37 J	50 U	NA	4	5	3.5	5	11	6	15	1 U	7	6.3
VINYL CHLORIDE	0.37 J	1 U	1 U	2 U	1 U	100 U	NA	2 U	6	1.6 J	2 U	0.4 J	2 U	3.7	2 U	1 J	1.4 J
CONDITIONS CONDUCIVE TO OR INDICATIVE OF MNA?	Y	limited	limited	NA	NA	NA	NA	Y	NA	limited	Y	NA	Y	Y	Y	Y	NA

Shaded - Detected; U - Not Detected; J - Quantitation is approximate; R - Rejected; NA - Not Analyzed

TABLE 2
GROUNDWATER ANAYLTICAL RESULT SUMMARY (VOCS AND MNA)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

LOCATION ID	DA-MW105B	DA-MW105B	DA-MW106B	DA-MW106S	DA-MW107B	DA-MW108B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW109B	DA-MW110B	DA-MW111B	DA-MW112B	DA-MW112S	DA-MW113B	DA-MW114B	DA-MW114B
DATE SAMPLED	05/20/08	06/28/10	05/21/08	05/22/08	06/04/08	06/03/08	05/08/08	05/08/08	05/08/08	06/02/08	05/19/08	05/16/08	05/16/08	05/19/08	05/16/08	05/05/08	05/05/08
SAMPLE ID	DA-MW105B-52008	DA-MW-105B-062810	DA-MW106B-52108	DA-MW106S-52208	DA-MW107B-6408	DA-MW108B-6308-AVG	DA-MW109-1924	DA-MW109-3035	DA-MW109-3641	DA-MW109B-6208	DA-MW110B-51908	DA-MW111B-51608	DA-MW112B-51608-AVG	DA-MW112S-51908	DA-MW113B-51608	DA-MW114-2934	DA-MW114-3439
SACODE						AVG							AVG				
AQUIFER	BEDROCK	BEDROCK	BEDROCK	OB-BR INTERFACE	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	OB-BR INTERFACE	BEDROCK	BEDROCK	BEDROCK
WELL DEPTH	48	48	50	20	45	45	45	45	45	45	49	44	47	20	46	61	61
FIELD (UG/L)																	
FERROUS IRON	0 U	NA	3800	NA	3780	3220	NA	NA	NA	2370	3040	750	10	60	600	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)																	
AMMONIA-N	0.1 U	0.05 U	0.1 U	0.042 J	0.1 U	0.1 U	NA	NA	NA	0.04 J	0.1 U	0.1 U	0.1 U	0.084 J	0.047 J	NA	NA
NITRATE-N	0.048 J	0.099	0.05 U	4.9	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.078	1.7	0.05 U	2.7	0.55	NA	NA
NITRITE-N	0.05 U	0.025 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA	0.05 U	0.0064 J	0.05 U	0.05 U	0.1 U	0.05 U	NA	NA
ORTHOPHOSPHATE-P	0.023 J	0.05 U	0.061	0.05 U	0.049 J	0.0245 J	NA	NA	NA	0.025 J	0.063	0.034 J	0.023 J	0.048 J	0.02 J	NA	NA
SULFATE	28	28	41	34	44	29	NA	NA	NA	36	33	27	33	27	32	NA	NA
SULFIDE	1 U	0.7 J	1.3	1 U	1 U	1 U	NA	NA	NA	1.2	2	1 U	1 U	1.4	1 U	NA	NA
TOTAL ORGANIC CARBON	0.96 J	0.76 J	0.83 J	0.64 J	0.36 J	1.8	NA	NA	NA	1.1	0.59 J	1.3	0.59 J	1.1	0.67 J	NA	NA
VOLATILE GASES (UG/L)																	
ETHANE	10 U	2 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U	10 UJ	10 U	10 U	10 U	10 U	NA	NA
ETHENE	10 U	2 U	10 U	10 U	10 U	10 U	NA	NA	NA	10 U	10 UJ	10 U	10 U	10 U	10 U	NA	NA
METHANE	14	110 J	10 U	1.8 J	10 U	1.35 J	NA	NA	NA	13	8.7 J	10 U	4.75 J	72	2.4 J	NA	NA
VOLATILES (UG/L)																	
1,1,1-TRICHLOROETHANE	3	3.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2-TRICHLOROETHANE	1 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
1,1-DICHLOROETHANE	100	110	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.7 J	1 U	1 J	1 UJ	1 UJ	1 J	1 UJ
1,1-DICHLOROETHENE	5	7.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
CHLOROETHANE	2 U	1 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
CIS-1,2-DICHLOROETHENE	3	3.8	1 U	1 U	1 U	9.5	4	6	4	3	2 J	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
TETRACHLOROETHENE	3	2.6	1 U	1 U	1 U	7	2 J	5 J	4 J	3	7 J	1 U	1 UJ	0.5 J	0.6 J	1 UJ	1 UJ
TOTAL 1,2-DICHLOROETHENE	3	3.8	1 U	1 U	1 U	9.5	4	6	4	3	2 J	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
TOTAL CHLORINATED ETHENES	8.6 J	16.8 J	1.2 U	1.2 U	1.2 U	18.9 J	7 J	13.6 J	9 J	7.4 J	12 J	1.2 U	1.2 UJ	0.5 J	0.6 J	1.2 UJ	1.2 UJ
TOTAL CHLORINATED VOCS	116.6 J	130 J	1.3 U	1.3 U	1.3 U	18.9 J	7 J	13.6 J	9 J	8.4 J	12.7 J	1.3 U	1 J	0.5 J	0.6 J	1 J	1.3 UJ
TRANS-1,2-DICHLOROETHENE	1 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
TRICHLOROETHENE	2	2.4	1 U	1 U	1 U	2	1	2	1	1	3 J	1 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
VINYL CHLORIDE	0.6 J	0.64 J	2 U	2 U	2 U	0.4 J	2 U	0.6 J	2 U	0.4 J	2 UJ	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
CONDITIONS CONDUCIVE TO OR INDICATIVE OF MNA?	limited	limited	limited	N	limited	limited	NA	NA	NA	limited	limited	N	N	limited	N	NA	NA

Shaded - Detected; U - Not Detected; J - Quantitation is approximate; R - Rejected; NA - Not Analyzed

TABLE 2
GROUNDWATER ANAYLTICAL RESULT SUMMARY (VOCS AND MNA)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

LOCATION ID	DA-MW114B	DA-MW114B	DA-MW115B	DA-MW115B	DA-MW115B	DA-MW116B	DA-MW116B-D1	DA-MW116B-D2	DA-MW117B	DA-MW117B-D1	DA-MW117B-D2	DA-MW118B	DA-MW118B-D1	DA-MW118B-D2	DA-MW119B	DA-MW120B	DA-MW122
DATE SAMPLED	05/06/08	05/16/08	05/07/08	05/07/08	05/15/08	05/15/08	08/06/10	08/06/10	05/15/08	08/11/10	08/11/10	05/15/08	08/10/10	08/10/10	05/14/08	05/14/08	06/03/08
SAMPLE ID	DA-MW114-5261	DA-MW114B-51608	DA-MW115-1924	DA-MW115-2631	DA-MW115B-51508	DA-MW116B-51508	DA-GW-MW116B-D1-0810	DA-GW-MW116B-D2-0810	DA-MW117B-51508	DA-MW-117B-D1-081110	DA-MW-117B-D2-081110	DA-MW118B-51508	DA-MW-118B-D1-081010	DA-MW-118B-D2-081010	DA-MW119B-51408	DA-MW120B-51408	DA-MW122B-6308-AVG
SACODE																	AVG
AQUIFER	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	OB-BR INTERFACE
WELL DEPTH	61	61	48	48	48	40	29	39	40	29	39	49	37	47	45	60	5
FIELD (UG/L)																	
FERROUS IRON	NA	0 U	NA	NA	1830	2980	NA	NA	2410	NA	NA	0 U	NA	NA	3270	3060	0 U
MISCELLANEOUS PARAMETERS (MG/L)																	
AMMONIA-N	NA	0.1 U	NA	NA	0.1 U	0.1 U	NA	NA	0.1 U	0.05 U	0.05 U	0.1 U	NA	NA	1.1	0.1 U	0.1 U
NITRATE-N	NA	0.25	NA	NA	0.05 U	0.05 U	NA	NA	0.05 U	0.21	0.025 U	0.05 U	NA	NA	0.05 U	0.05 U	1.7
NITRITE-N	NA	0.05 U	NA	NA	0.05 U	0.05 U	NA	NA	0.05 U	0.025 U	0.025 U	0.05 U	NA	NA	0.05 U	0.05 U	0.05 U
ORTHOPHOSPHATE-P	NA	0.12	NA	NA	0.022 J	0.038 J	NA	NA	0.032 J	0.05 U	0.05 U	0.063	NA	NA	0.12	0.046 J	0.043 J
SULFATE	NA	16	NA	NA	25	29	NA	NA	23	18	29	14	NA	NA	5	65	24
SULFIDE	NA	1 U	NA	NA	3.1	1 U	NA	NA	1 U	0.8 U	0.8 U	1 U	NA	NA	3.1	1 U	1 U
TOTAL ORGANIC CARBON	NA	1.1	NA	NA	0.38 J	0.28 J	NA	NA	0.41 J	0.59 J	0.57 J	0.28 J	NA	NA	2.1	0.49 J	2.2
VOLATILE GASES (UG/L)																	
ETHANE	NA	10 U	NA	NA	10 U	10 U	NA	NA	10 U	2 U	2 U	10 U	NA	NA	50 U	10 U	10 U
ETHENE	NA	10 U	NA	NA	10 U	10 U	NA	NA	10 U	2 U	2 U	10 U	NA	NA	50 U	10 U	10 U
METHANE	NA	10 U	NA	NA	1.3 J	10 U	NA	NA	10 U	1.4 J	1.5 J	10 U	NA	NA	2300	2 J	10 U
VOLATILES (UG/L)																	
1,1,1-TRICHLOROETHANE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	1 U	1
1,1,2-TRICHLOROETHANE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 UJ	0.4 J	0.7 J	0.6 J	0.8 J	1 U	0.5 U	0.5 U	0.4 J	0.28 J	0.7 J	1 U	0.5 U	0.5 U	1 U	1 U	0.4 J
1,1-DICHLOROETHENE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 J	0.45 J	0.5 U	1 U	1.4	0.59 J	1 U	1 U	1 U
CHLOROETHANE	2 UJ	2 U	2 UJ	2 UJ	2 U	2 UJ	1 U	1 U	2 UJ	1 U	1 U	2 U	1 U	1 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	2	1.4	0.79 J	0.4 J	3.2	1.8	1 U	1 U	1 U
TETRACHLOROETHENE	1 UJ	1 U	1 U	0.5 J	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	1 U	1 U
TOTAL 1,2-DICHLOROETHENE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	2	1.4	0.79 J	0.4 J	3.56 J	1.8	1 U	1 U	1 U
TOTAL CHLORINATED ETHENES	1.2 UJ	1.2 U	1.2 U	0.5 J	1.2 U	1.2 U	0.6 U	0.6 U	732	142 J	131 J	18.4 J	205 J	162 J	2 J	1.2 U	1.2 U
TOTAL CHLORINATED VOCS	1.3 UJ	0.4 J	0.7 J	1.1 J	0.8 J	1.3 UJ	0.602 U	0.602 U	733.4 J	142 J	131 J	18.4 J	205 J	162 J	2 J	1.3 U	1.4 J
TRANS-1,2-DICHLOROETHENE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	1 U	0.36 J	0.5 U	1 U	1 U	1 U
TRICHLOROETHENE	1 UJ	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	730	140	130	18	200	160	1 U	1 U	1 U
VINYL CHLORIDE	2 UJ	2 U	2 U	2 U	2 U	2 U	1 U	1 U	2 U	1 U	1 U	2 U	1 U	1 U	2 J	2 U	2 U
CONDITIONS CONDUCIVE TO OR INDICATIVE OF MNA?	NA	N	NA	NA	limited	N	NA	NA	limited	limited	limited	N	NA	NA	Y	N	N

Shaded - Detected; U - Not Detected; J - Quantitation is approximate; R - Rejected; NA - Not Analyzed

TABLE 2
GROUNDWATER ANAYLTICAL RESULT SUMMARY (VOCS AND MNA)
SITE 08, NUSC DISPOSAL AREA
NAVAL STATION NEWPORT, RHODE ISLAND

LOCATION ID	DA-MW122	DA-MW123	DA-MW124B	DA-MW124B	DA-MW125B	DA-MW125B	DA-MW126B	DA-MW126B	DA-MW126B	DA-MW127B	DA-MW128B	DA-MW129B	DA-MW130B
DATE SAMPLED	06/30/10	06/04/08	08/01/08	08/04/08	07/31/08	08/01/08	07/30/08	07/30/08	07/30/08	08/10/10	08/09/10	08/10/10	08/09/10
SAMPLE ID	DA-MW-122-063010	DA-MW123B-6408	DA-MW124B-1020	DA-MW124B-3545	DA-MW125B-2636	DA-MW125B-3646	DA-MW126B-2227	DA-MW126B-4246	DA-MW126B-5055	DA-MW-127B-081010	DA-GW-MW128B-080910	DA-MW-129B-081010-AVG	DA-GW-MW130B-080910
SACODE												AVG	
AQUIFER	OB-BR INTERFACE	OB-BR INTERFACE	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK	BEDROCK
WELL DEPTH	5	8	48.75	48.75	50.5	50.5	60	60	60	46	45	58	60.5
FIELD (UG/L)													
FERROUS IRON	NA	0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)													
AMMONIA-N	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	0.17	NA
NITRATE-N	NA	0.34	NA	NA	NA	NA	NA	NA	NA	0.02 J	0.02 J	0.325	NA
NITRITE-N	NA	0.014 J	NA	NA	NA	NA	NA	NA	NA	0.025 U	0.025 U	0.025 U	NA
ORTHOPHOSPHATE-P	NA	0.049 J	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	0.05 U	NA
SULFATE	NA	26	NA	NA	NA	NA	NA	NA	NA	39	25	11	NA
SULFIDE	NA	1 J	NA	NA	NA	NA	NA	NA	NA	0.8 U	0.8 U	0.8 U	NA
TOTAL ORGANIC CARBON	NA	1.9	NA	NA	NA	NA	NA	NA	NA	0.66 J	0.6 J	1.9	NA
VOLATILE GASES (UG/L)													
ETHANE	NA	10 U	NA	NA	NA	NA	NA	NA	NA	2 UJ	2 U	2 U	NA
ETHENE	NA	10 U	NA	NA	NA	NA	NA	NA	NA	2 UJ	2 U	2 U	NA
METHANE	NA	4.9 J	NA	NA	NA	NA	NA	NA	NA	16 J	1.7 J	79.5	NA
VOLATILES (UG/L)													
1,1,1-TRICHLOROETHANE	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	1 J	140	10
1,1,2-TRICHLOROETHANE	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.48 J	0.5 U	0.5 U
1,1-DICHLOROETHANE	0.84 J	1 U	1	18	1 U	0.5 J	1 U	1 U	1 U	0.5 U	1.6	64.5	9.2
1,1-DICHLOROETHENE	0.5 U	1 U	1 U	0.8 J	1 U	1 U	1 U	1 U	1 U	0.5 U	13	6.15	1.3
CHLOROETHANE	1 U	2 U	2 U	1 J	2 U	2 U	2 U	2 U	2 U	1 U	1 U	75.5	1 U
CIS-1,2-DICHLOROETHENE	0.53 J	0.4 J	5	26	4	3	1 U	1 U	1 U	0.53 J	26	0.76 J	0.5 U
TETRACHLOROETHENE	0.58 J	2	1 U	1 U	12	8	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
TOTAL 1,2-DICHLOROETHENE	0.53 J	0.4 J	5.5 J	29	4	3	1 U	1 U	1 U	0.53 J	29.7	0.76 J	0.5 U
TOTAL CHLORINATED ETHENES	1.68 J	3.3 J	8.5 J	64	20.3 J	13	1.2 U	1.2 U	1.2 U	6.02 J	1240 J	11.4 J	2.01 J
TOTAL CHLORINATED VOCS	2.52 J	3.3 J	9.8 J	83.8 J	20.3 J	13.5 J	7 J	1.3 UJ	16	6.02 J	1250 J	291 J	21.2 J
TRANS-1,2-DICHLOROETHENE	0.5 U	1 U	0.5 J	3	1 U	1 U	1 U	1 U	1 U	0.5 U	3.7	0.5 U	0.5 U
TRICHLOROETHENE	0.57 J	0.9 J	2	16	4	2	1 U	1 U	1 U	4.8	1200	4.5	0.71 J
VINYL CHLORIDE	1 U	2 U	1 J	19	0.3 J	2 U	2 U	2 U	2 U	0.69 J	0.31 J	1 U	1 U
CONDITIONS CONDUCIVE TO OR INDICATIVE OF MNA?	NA	limited	NA	NA	NA	NA	NA	NA	NA	limited	limited	Y	NA

Shaded - Detected; U - Not Detected; J - Quantitation is approximate; R - Rejected; NA - Not Analyzed

TABLE 3
GROUNDWATER SAMPLING MATRIX
SITE 08, NUSC DISPOSAL AREA
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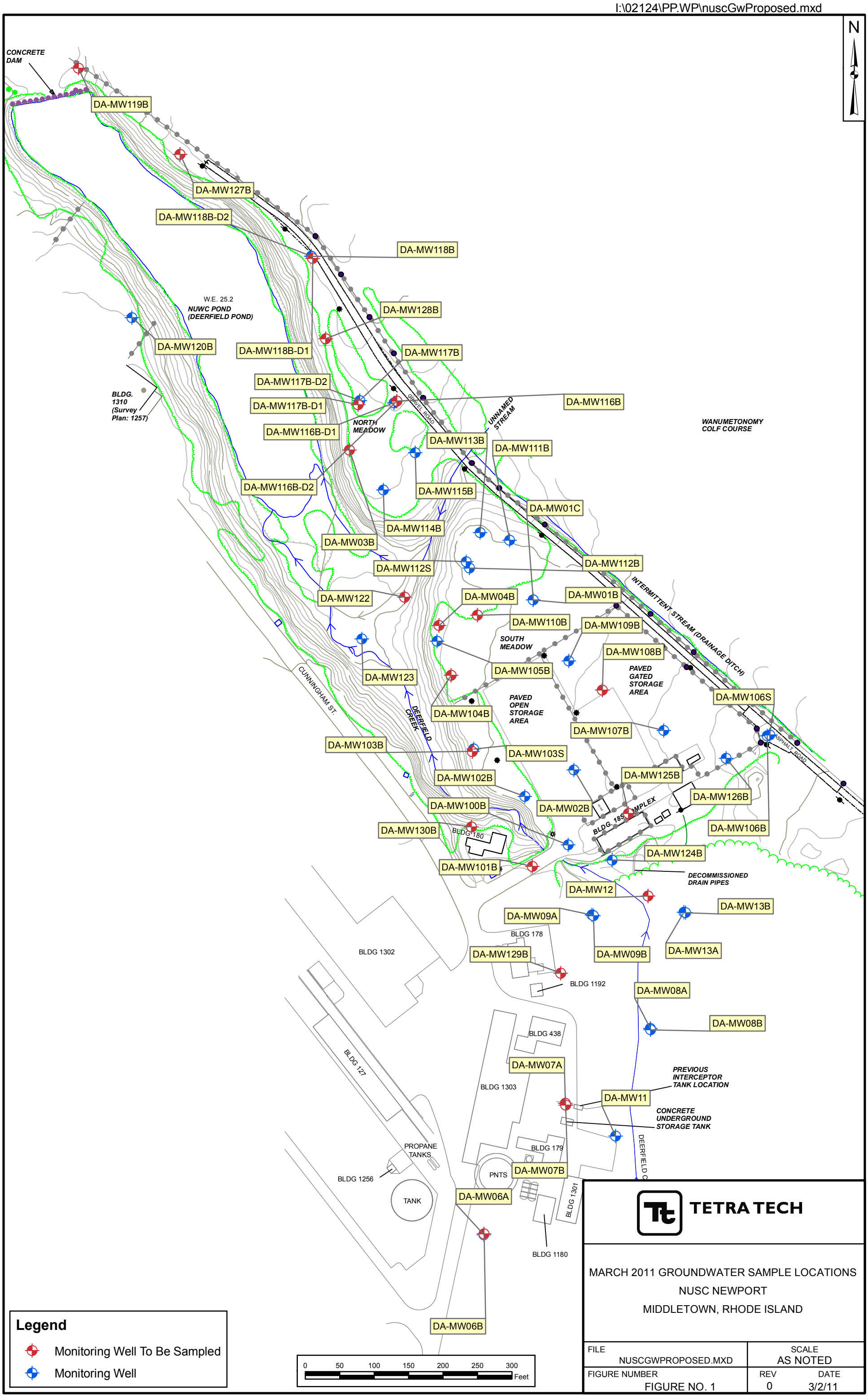
MONITORING WELL	SAMPLED IN 2010	SAMPLED IN 2008	OTHER CONSIDERATIONS	2011 SAMPLING PLAN		
				Y/N	VOC	MNA
MW01B	N			N	--	--
MW02B	N			N	--	--
MW03B	Y	Y	already have 2 rounds MNA sampling; used for VOC trends only	Y	Y	N
MW04B	Y	Y	have 2008 round of MNA only; will collect MNA here	Y	Y	Y
MW06A	Y	N	upgradient well; not included in sampling plan	N	--	--
MW06B	Y	N	upgradient well; collect MNA only	Y	N	Y
MW07A	Y	N	already have 2 rounds MNA sampling; used for VOC trends only	Y	Y	N
MW07B	Y	N	already have 2 rounds MNA sampling; used for VOC trends only	Y	Y	N
MW08A	Y	N	cross-gradient well; not included in sampling plan	N	--	--
MW08B	Y	N	cross-gradient well; not included in sampling plan	N	--	--
MW09B	Y	Y	in same area as MW-129B; not included in sampling plan	N	--	--
MW11	Y	N	side and upgradient; not included in sampling plan	N	--	--
MW12	Y	N	Sampled for MNA in 2010; no MNA sample	Y	Y	N
MW13A	N			N	--	--
MW13B	Y	N	in same area as MW-12; not included in sampling plan	N	--	--
MW100B	N			N	--	--
MW101B	Y	Y	already have 2 rounds MNA sampling; used for VOC trends only	Y	Y	N
MW102B	N			N	--	--
MW103B	Y	Y	already have 2 rounds MNA sampling; used for VOC trends only	Y	Y	N
MW103S	N			N	--	--
MW104B	Y	Y	have 2008 round of MNA only; will collect MNA here	Y	Y	Y
MW105B	Y	Y	in same area as MW-04B; not included in sampling plan	N	--	--
MW106B	N			N	--	--
MW106S	N			N	--	--
MW107B	N			N	--	--
MW108B	N		high 2008 CVOC concentration, east edge of plume in area	Y	Y	Y
MW109B	N			N	--	--
MW110B	N		high 2008 CVOC concentration, downgradient edge of plume	Y	Y	Y
MW111B	N			N	--	--
MW112B	N			N	--	--
MW112S	N			N	--	--
MW113B	N			N	--	--
MW114B	N			N	--	--
MW115B	N			N	--	--
MW116B*	N	Y		N	--	--
MW116B-D1*	Y		deeper well in couplet selected to ensure continued ND VOCs	N	--	--
MW116B-D2*	Y		deeper well in couplet selected to ensure continued ND VOCs	Y	Y	Y
MW117B*	N			N	--	--
MW117B-D1*	Y	N	shallower well in couplet selected due to higher VOC levels	Y	Y	Y
MW117B-D2*	Y	N	shallower well in couplet selected due to higher VOC levels	N	--	--
MW118B*	N			N	--	--
MW118B-D1*	Y	N	shallower well in couplet selected due to higher VOC levels	Y	Y	Y
MW118B-D2*	Y	N	shallower well in couplet selected due to higher VOC levels	N	--	--
MW119B	N	Y	included in sampling plan as sentinel well	Y	Y	N
MW120B	N			N	--	--
MW122	Y	Y	have 2008 round of MNA only; will collect MNA here	Y	Y	Y
MW123	N		in same area as MW-04B; not included in sampling plan	N	--	--
MW124B	N**			N	--	--
MW125B	N		high 2008 CVOC concentration, potential source area	Y	Y	Y
MW126B	N			N	--	--
MW127B	Y	N	Sampled for MNA in 2010; no MNA sample	Y	Y	N
MW128B	Y	N	Sampled for MNA in 2010; no MNA sample	Y	Y	N
MW129B	Y	N	Sampled for MNA in 2010; no MNA sample	Y	Y	N
MW130B	Y	N	no previous MNA data collected	Y	Y	Y
total samples	**28**	**10**		**21**	**20**	**11**

*well modified by adding new screens for 2010 sampling event
**well sampled for 1,2-propylene glycol dinitrate only (ND)

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