



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

M60050.002829
MCAS EL TORO
SSIC NO. 5090.3

5090
Ser 06CC.DG/0155
February 07, 2001

United States Environmental Protection Agency, Region IX
Hazardous Waste Management Division (SFD 8-2)
ATTN: Ms. Nicole Moutoux
75 Hawthorne Street
San Francisco, CA 94105-3901

Subj: Groundwater Monitoring Program Round 13 Point Paper, Marine Corps Air
Station, El Toro

Dear Ms. Moutoux,

Submitted for your review is the subject point paper. This document was requested as a result of BCT discussions on January 31, 2001. The Navy hopes the enclosed information will be helpful in further clarifying the approach to the Round 13 Groundwater Monitoring effort. Please review this material, in preparation for the conference call to be held on Friday, February 09, 2001 at 9 a.m. The desired outcome of this conference call is full BCT support for the Round 13 methodology, so that the fieldwork may commence as soon as possible.

Thank you for your time and input in further developing this critical program. You will be contacted shortly with specific information on access for the conference call. Please contact Mr. Marc Smits at (619) 532-0793, or myself at (619) 532-0784 should you have any questions on this issue.

Sincerely,

A handwritten signature in black ink, appearing to read "Dean Gould", written over a large, circular scribble.

DEAN GOULD
Base Realignment and Closure
Environmental Coordinator
By direction of the Commander

Enclosure: (1) Round 13 Point Paper w/Tables.

Copy to (w/enclosure):

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MCAS EL TORO ROUND 13 GROUNDWATER MONITORING PROGRAM

Subject: Provide the rationale for the selection of groundwater monitoring wells for Round 13 at MCAS El Toro and address BCT questions and comments raised at the 31 January 2001 BCT meeting.

Background: Over the past several months, the Navy has made modifications to the MCAS El Toro Groundwater Monitoring Program to ensure the information provided in monitoring reports is useful to the Navy, BCT, and stakeholders. Additionally, modifications have been made to the wells to be monitored and sample analysis to be conducted based on current site conditions and activities being conducted at each of the IR sites. The modifications have resulted in a net reduction of wells from the 1999 Groundwater Monitoring Plan. Wells that have been deleted are mainly within Site 18/24 and do not affect the objective of monitoring the extent of these plumes while the Remedial Design/Remedial Action activities progress. Additional wells are planned for installation at the remaining sites to be monitored, and these wells will be considered for inclusion into the groundwater monitoring program.

The groundwater monitoring portion of the BCT meeting on 31 January 2001 was intended to finalize the Round 13 monitoring well locations. However, some questions and comments were raised by the BCT on the Navy document submitted on 22 January entitled 'Justification for Variations in Wells to be Sampled/Analysis from the Wells/Analysis Recommended in the 1999 Groundwater Monitoring Plan. The questions and comments were in regards to the rationale for sampling locations, reason for deleting wells from program, and questions related to the low-flow sampling technique used for the collection of samples. The information presented below is meant to address these questions and comments in order to finalize the wells for Round 13.

Discussion: Attachment 1 is a table prepared by the Navy to provide the rationale for the wells to be sampled in Round 13. The table provides information on each of the wells including the well completion zone, well type, well depth, screened interval, most recent water level measurement, and the rationale for why the well is included in the groundwater monitoring program. The table has been provided to the BCT to provide a clearer picture of the wells to be samples and the associated rationale.

Since the January BCT meeting, the Navy has identified additional wells to be added as well as changes to the port sampling locations for the Westbay wells. The modifications made to the Westbay sampling ports were intended to address the comments made by BCT members at the BCT meeting. The following is a summary of the modifications in wells/ports made since the last BCT meeting:

- Added four (4) replacement wells – 03_DGMW64A, 04_DGMW66A, 05_UGMW27A, and 12_DBMW48 to provide additional coverage at Sites 3, 5, and 24 (wells are in *italics* in Attachment 1);
- Added four (4) Westbay sampling ports – 18_MCAS01-5, 18_MCAS02-5, 18_MCAS03-2, and 28_MCAS07-4 – to provide for monitoring of concentrations within the principal and shallow aquifer of the Site 18/24 plume (Wells are in **bold** in Attachment 1); and
- Removed two (2) Westbay sampling ports – 18_MCAS02-1 and 18_MCAS02-1 – based on previous results and location of sampling port in relation to the Site 18/24 plume (wells are indicated by a strikethrough in Attachment 1).

Based on previous discussions with the BCT, the Navy plans to collect from the sampling ports located within the Site 18 plume (18_MCAS01, 18_MCAS02, and 18_MCAS07) on an annual basis. The remaining off-site “guard wells” will be sampled semi-annually to monitor the horizontal extent of the plume. Results will be compared to previous results and modifications will be made to the hydrogeological model for the site.

Deletion of Site 24 Wells: The Navy selected the wells to be sampled within and adjacent to the Site 24 plume to provide for evaluation of the extent of the plume and monitoring of hot spot areas in a cost-effective manner prior to implementation of the final remedy. The deleted wells generally are in near proximity to wells that are being sampled that are screened at similar intervals. Wells in the deeper screened intervals (i.e., greater than 170 feet below grade surface) within the Site 24 plume have consistently had low or non-detects when compared to shallower screened intervals and do not warrant sampling. Sampling of these types of wells would not significantly benefit the evaluation of the plume area since adequate coverage is provided by the proposed wells. The following is a list of the wells deleted along with the adjacent wells that provide coverage for this area:

SITE 24 WELLS DELETED FROM PROGRAM

NO.	WELL DELETED FROM PROGRAM	ADJACENT WELL(S) PROVIDING COVERAGE
1	18_PS1	12_DBMW48
2	18_BGMW03C*	24_EX6-OB2, 24_EX5-OB1
3	18_BGMW03E	24_EX6-OB2, 24_EX5-OB1
4	21_DGMW90	12_DBMW48
5	24_EX6-OB1	24_EX6-OB2
6	24_EX6-OB3*	24_EX6-OB2
7	24_EX5-OB2	24_EX5-OB1
8	24_EX4-OB2	24_EX3-OB1
9	24_EX3-OB2	24_EX3-OB1
10	24_EX3-OB3*	24_EX3-OB1
11	24_NEW1	24_NEW5

- * - Well has a screened interval ranging from 170 to 225 feet below ground surface. Results at these wells have historically been either non-detect or less than 1 ug/L for TCE.

Use of Low-Flow Pumps on Wells with Forty Foot Screen Intervals: Historically, the screen size for wells installed at MCAS El Toro was generally sized between 30 and 40 feet in order to account for variations in ground water levels due to offsite extraction wells. Several wells initially had Grundfos pumps installed to assist in groundwater sampling in the early 1990s. These pumps were gradually removed and low-flow pumps were installed at a majority of the wells in 1997/1998. The low-flow pumps used from 1997 to 2000 follow protocol developed by Bechtel. The Navy understands that having wells with a 40-foot screen are not ideal for low-flow pumps. However, site conditions at El Toro do not allow for small well screens (e.g., 5 foot); therefore, the Navy will continue to sample these wells following the established protocol. Future wells to be installed at MCAS El Toro will be evaluated to determine if smaller screen sizes are more appropriate based on site conditions.

Filtering Metal Samples using Low-Flow Method: Metals in groundwater at MCAS El Toro have been evaluated for many years. Metals have not been designated as a contaminant of concern based on previous site investigations conducted at the IR groundwater sites. Metals are currently being sampled for at sites 2, 3, 5, 17, and 24 for comparative purposes with previous rounds. The Navy is currently evaluating the need to filter metals samples prior to submitting to the lab if low-flow method is used for sampling. However, no metals are planned for Round 13 and the Navy will work with the BCT on this issue prior to conducting Round 14, which is expected to include metals analysis at selected wells.

The table provided in Attachment 1 will be included in the next monitoring report for Round 13 in Section 2.0 Modifications. The information in Attachment 1 applies to Round 13 and the schedule for wells to be sampled in subsequent rounds will be prepared in the upcoming months. This schedule will identify wells for semi-annual and annual sampling and type of analysis to be performed at each well. Once the schedule is developed, review copies will be submitted to the BCT for discussion purposes and modifications.

ATTACHMENT 1
RATIONALE FOR WELL SELECTION – ROUND 13
MARINE CORPS BRAC STATION, EL TORO

WELL ID	WELL COMPLETION ZONE	WELL TYPE	WELL DEPTH (ft bgs)	SCREEN INTERVAL (ft bgs)	DEPTH TO WATER¹ (ft TOC)	RATIONALE FOR SAMPLING WELL
SITE 1						
01_MW201	Shallow	Single	62	27-57	37.2	Monitor trends while RI is being conducted
SITE 2						
02NEW11	Shallow	Single	70	45-65	29.2	Provide background GW conditions at site
02NEW15	Shallow	Single	70	25-65	29.4	Downgradient guard well for PCE plume
02NEW16	Shallow	Single	70	25-65	39.4	Guard well for TCE and PCE plumes
02NEW2	Shallow	Single	100	75-95	66.6	Guard well for TCE plume at base boundary
02NEW8A	Shallow	Single	109	84-104	45.9	Monitor PCE plume concentration over time
02_DGMW59	Shallow	Single	94	69-89	57.7	Downgradient guard well for PCE plume
02_DGMW60	Shallow	Single	105	80-100	63.6	Monitor TCE plume concentration over time
02_DGMW61	Shallow	Single	105	80-100	47.2	Monitor PCE plume concentration over time
SITE 3						
03_DGMW64A	Shallow	Single	255	210-250	219.6	Monitor GW while RD/RA is conducted
03_DGMW65XA	Shallow	Single	248	201-235	211	Monitor GW while RD/RA is conducted
03_UGMW26A	Shallow	Single	240	195-235	NA	Provides background GW conditions at site
04_DMW40	Shallow	Single	265	220-260	199.1	Downgradient well for Site 3 during RD/RA
04_DGMW66A	Shallow	Single	235	190-230	NA	Downgradient well for Site 3 during RD/RA
04_UGMW63	Shallow	Single	280	235-275	197.8	Downgradient well for Site 3 during RD/RA
SITE 5						
05_UGMW27A	Shallow	Single	200	155-195	NA	Provide background GW conditions at site
05NEW1	Shallow	Single	208	163-203	156.3	Downgradient well for Site 5 during RD/RA
05_DBMW41A	Shallow	Single	190	145-185	NA	Monitor GW within Site during RD/DA
05_DGMW67A	Shallow	Single	195	150-190	NA	Monitor GW while RD/RA is conducted
05_DGMW68A	Shallow	Single	192	146-186	NA	Monitor GW while RD/RA is conducted

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SITE 17						
17_NEW1	Shallow	Single	231	186-226	173.5	Monitor downgradient area of Site 17 while RD/RA is conducted
17_DGMW82	Shallow	Single	260	235-255	174.0	Monitor downgradient area of Site 17 while RD/RA is conducted
SITE 18						
18_BGMW04A	Principal	Cluster	311	286-306	92.6	Monitor principal aquifer along western edge of Site 18 while RD/RA is conducted
18_BGMW04B	Shallow	Cluster	215	190-210	82.3	Monitor shallow aquifer along western edge of Site 18 while RD/RA is conducted
18_BGMW05C	Shallow	Cluster	250	225-245	77.1	Monitor shallow aquifer along western edge of Site 18 while RD/RA is conducted
18_BGMW05D	Shallow	Cluster	138	83-133	77.4	Monitor shallow aquifer along western edge of Site 18 while RD/RA is conducted
18_BGMW101A	Shallow	Single	105	68-98	74	Monitors shallow aquifer along property boundary while Site 24/18 RD/RA is conducted
18_BGMW16	Shallow	Single	268	223-263	206.6	Monitor shallow aquifer near northern property boundary while Site 18/24 RD/RA is conducted
18_BGMW18A	Shallow	Single	154	114-148	122	Monitor shallow aquifer near northwestern property boundary while Site 18/24 RD/RA is conducted. Monitoring satisfies water district request for monitoring in this area of the base (in proximity to former gas station)
18_BGMW19D	Shallow	Single	175	150-170	85.6	Monitor shallow aquifer near northeastern boundary of Site 18 plume while Site 18/24

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						RD/RA is conducted
18_BGMP06E	Shallow	Westbay	495	105-115	110.4	Monitor shallow aquifer near central section of Site 18 plume while RD/RA is conducted
18_BGMP08E	Shallow	Westbay	488	63-73	114.0	Monitor shallow aquifer near southern edge of Site 18 plume while RD/RA is conducted
18_BGMP10C	Shallow	Westbay	1052	752-762	NA	Monitors shallow aquifer downgradient of northwestern edge of Site 18 plume while RD/RA is conducted
18_BGMP10D	Shallow	Westbay	1052	563-573	NA	Monitors shallow aquifer downgradient of northwestern edge of Site 18 plume while RD/RA is conducted
18_BGMP10E	Shallow	Westbay	1052	429-439	NA	Monitor shallow aquifer downgradient of northwestern edge of Site 18 plume while RD/RA is conducted
18_BGMP10F	Shallow	Westbay	1052	218-228	NA	Monitor shallow aquifer downgradient of northwestern edge of Site 18 plume while RD/RA is conducted
18_MCAS04	Principal	Single	275	181-238	27.3	Guard well in the principal aquifer for the southeastern edge of the Site 18 plume while Site 18/24 RD/RA is conducted
18_MCAS06	Principal	Single	286	167-222	23.5	Guard well in the principal aquifer for the southern edge of the Site 18 plume while Site 18/24 RD/RA is conducted
18_MCAS08	Principal	Single	435	392-410	115.0	Guard well in the principal aquifer for the downgradient southern edge of the Site 18 plume while Site 18/24 RD/RA is conducted
18_MCAS09	Principal	Single	450	372-445	43.16	Guard well in the principal aquifer for the downgradient northern edge of the Site 18

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						plume while Site 18/24 RD/RA is conducted
18_MCAS10	Principal	Single	389	355-375	NA	Guard well in the principal aquifer for the northern edge of the Site 18 plume while Site 18/24 RD/RA is conducted
18_MCAS01-1	Shallow	Westbay	591	60-70	NA	
18_MCAS01-3	Shallow	Westbay	591	210-220	NA	Monitor shallow aquifer to detect vertical movement of the plume into the shallow aquifer. Located downgradient of Site 24 within the central area of Site 18 plume.
18_MCAS01-5	Principal	Westbay	591	330-340	NA	Monitor principal aquifer downgradient of Site 24 within the central area of Site 18 plume
18_MCAS02-1	Shallow	Westbay	660	40-50	NA	
18_MCAS02-3	Shallow	Westbay	660	200-210	NA	Monitor shallow aquifer to detect vertical movement of the plume into the shallow aquifer. Located downgradient of Site 24 within the southeastern area of Site 18 plume.
18_MCAS02-5	Principal	Westbay	660	420-430	NA	Monitor principal aquifer downgradient of Site 24 within the south eastern area of Site 18 plume
18_MCAS03-2	Shallow	Westbay	540	160-170	NA	Monitor leading edge of the shallow groundwater plume from Site 24 located outside the west property boundary in Site 18 plume
18_MCAS03-3	Shallow	Westbay	540	220-230	NA	Monitor vertical extent of shallow groundwater plume from Site 24 located outside west property boundary in Site 18

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18_MCAS07-2	Shallow	Westbay	1152	190-200	NA	Monitor shallow aquifer to detect vertical movement of the plume into the shallow aquifer. Located downgradient of Site 24 within the western area of the Site 18 plume
18_MCAS07-4	Principal	Westbay	1152	440-450	NA	Monitor principal aquifer downgradient of Site 24 within the western area of Site 18 plume
SITE 24						
07_DBMW43A	Shallow	Single	146	101-141	109	Monitor shallow aquifer northeastern edge of TCE plume at Site 24 while RD/RA is conducted
07_DBMW100A	Shallow	Single	138	92-132	NA	Monitor shallow aquifer southeast edge of the TCE plume at Site 24 while RD/RA is conducted
08_UGMW29A	Shallow	Single	115	75-105	84	Monitor shallow aquifer in the southern section of the TCE plume at Site 24 while RD/RA is conducted
08_DGMW74	Shallow	Single	135	90-130	80.8	Monitor shallow aquifer in the southern section of the TCE plume at Site 24 while RD/RA is conducted
09_DBMW45	Shallow	Single	162	117-157	112.1	Monitor shallow aquifer in the central area of the TCE plume at Site 24 while RD/RA is conducted
09_DGMW75	Shallow	Single	159	114-154	106.4	Monitor shallow aquifer in the central area of the TCE plume at Site 24 while RD/RA is conducted
12_DBMW48	Shallow	Single	146	74-104	109	Monitor shallow aquifer in the western area of the TCE plume at Site 24 while RD/RA is

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						conducted
13_DGMW78	Shallow	Single	172	127-167	118.3	Monitor shallow aquifer in the west-central area of the TCE plume at Site 24 while RD/RA is conducted
15_DBMW51	Shallow	Single	170	125-165	112.4	Monitor shallow aquifer in the west-central area of the TCE plume at Site 24 while RD/RA is conducted
18_BGMW14	Shallow	Single	120	75-115	75.8	Monitor shallow aquifer along property boundary in southern area of Site 24 while Site 18/24 RD/RA is conducted
18_DW135	Shallow	Cluster	135	115-135	110.4	Monitors shallow aquifer near west-central section of Site 24 plume while RD/RA is conducted. Well located near active irrigation supply well TIC-55.
18_DW250	Shallow	Cluster	254	215-250	114.0	Monitors shallow aquifer near west-central section of Site 24 plume while RD/RA is conducted. Well located near active irrigation supply well TIC-55.
18_DW350	Principal	Cluster	350	310-350	128.9	Monitors principal aquifer near west-central section of Site 24 plume while RD/RA is conducted. Well located near active irrigation supply well TIC-55.
18_DW450	Principal	Cluster	454	420-450	122.4	Monitors principal aquifer near west-central section of Site 24 plume while RD/RA is conducted. Well located near active irrigation supply well TIC-55.
18_DW540	Principal	Cluster	541	490-540	119.6	Monitors principal aquifer near west-central section of Site 24 plume while RD/RA is

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						conducted. Well located near active irrigation supply well TIC-55.
18_PS2	Shallow	Single	133	103-133	93.2	Monitor shallow aquifer near northwestern property boundary in west-central section of Site 24 plume while RD/RA is conducted
18_PS3A	<i>Shallow</i>	<i>Single</i>	<i>110.5</i>	<i>70-105</i>	<i>80</i>	<i>Monitor shallow aquifer near southwestern property boundary in southern area of Site 24 plume while RD/RA is conducted</i>
18_PS7	Shallow	Single	127	106-126	82.7	Monitors shallow aquifer near southwestern property boundary in southern area of Site 24 plume while RD/RA is conducted
21_UGMW37	Shallow	Single	135	89-130	85.82	Monitor shallow aquifer in the south central area of Site 24 plume while RD/RA is conducted
22_DBMW47	Shallow	Single	161	116-156	107.8	Monitor shallow groundwater along north central edge of Site 24 plume while RD/RA is conducted
24EX3OB1	Shallow	Single	155	105-150	104.0	Monitor shallow aquifer in the southeast area of the TCE plume at Site 24 while RD/RA is conducted
24EX5OB1	Shallow	Single	155	105-150	101.9	Monitor shallow aquifer in the southeast area of the TCE plume at Site 24 while RD/RA is conducted
24EX6OB2	Shallow	Single	156	106-151	103.9	Monitor shallow aquifer in the southeast area of the TCE plume at Site 24 while RD/RA is conducted
24NEW4	Shallow	Single	154	108-148	103.6	Monitor shallow aquifer along the north central edge of the TCE plume at Site 24

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						while RD/RA is conducted
24NEW5	Shallow	Single	255	230-250	112.1	Monitor shallow aquifer along the north central edge of the TCE plume at Site 24 while RD/RA is conducted
24NEW6	Shallow	Single	190	165-185	78.9	Monitor shallow aquifer along the southeastern edge of TCE plume at Site 24 while RD/RA is conducted
24NEW7	Shallow	Single	164	118-158	115.3	Monitor shallow aquifer along the north central edge of TCE plume at Site 24 while RD/RA is conducted
24NEW8	Shallow	Single	168	122-162	118.8	Monitor shallow aquifer along the north central edge of the TCE plume at Site 24 while RD/RA is conducted
398MW-13	Shallow	Single	243	193-243	186.44	Monitor shallow aquifer near Tank 398, Site – JP-5 release while Tank 398 long-term monitoring plan is in review at the RWQCB