Previous

NON. DEDICATED TEAM

FIELD TEAM LEADER: PAT RUSSELL

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GWM ROUND 6

SAMPLERS: (Signature) Matt Brook

	SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89 (905)	CESIUM-134 (901.1)		REMARKS	PRESERVATIVE USED
3	18DGMW03D2-004	7/7/97	1427		✓	H2O		2		1	1							
	18P32-004	7/7/97	1023		✓	H2O		2		1	1							
3	18DW135-004	7/7/97	0908		✓	H2O		2		1	1							
3	08DGMW74-004	7/7/97	1615		✓	H2O		2		1	1							

Relinquished by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time
Brian Mi	7/8/97 1300				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
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Airbill No. TRUESDAIL COURIER/ 1 / 5 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

Distribution: Original Accompanies Shipments; Copy to Coordinator Field Files

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino, CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
CDM Federal Programs Corp.
Attention: Pat Russell
3760 Convoy St., Ste 210
San Diego CA 92111
Tel: (619)268-3383 Fax: (619)268-9677

Service ID #: 801-973229
Collected by: Matt
Collected on: 07/02-10/97

Received: 07/11/97
Extracted: N/A
Tested: 07/03-08/11/97
Reported: 09/29/97

Sample Description: Water
Project Description: 6210-005 MCAS El Toro Round 6

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result 01MW102-004 97-03229-1	01MW201-004 97-03229-2	02DGMW59-004 97-03229-3
Gross Alpha	SM7110C	pCi/L		1.23 ±1.48	2.53 ±1.40	16.98 ±3.22
Gross Beta	900.0	pCi/L		6.58 ±2.92	5.11 ±2.82	8.36 ±4.37
Radium-226	903.1	pCi/L		2.8 ±1.1	2.5 ±1.0	< 1.3
Radium-228	904.0	pCi/L		< 0.85	< 0.85	< 0.96
Strontium-89/90	905.0	pCi/L		< 0.17	< 0.19	< 0.32
Cesium-134	901.1	pCi/L		< 4.38	< 15.6	< 14

Component Analyzed	Method	Unit	PQL	Analysis Result 02DGMW61-004 97-03229-4	02NEW2-004 97-03229-5	02NEW3-004 97-03229-6
Gross Alpha	SM7110C	pCi/L		18.46 ±3.35	15.34 ±3.07	15.34 ±3.07
Gross Beta	900.0	pCi/L		6.76 ±2.27	10.35 ±4.49	12.76 ±3.38
Radium-226	903.1	pCi/L		1.8 ±0.71	1.5 ±66	4.6 ±0.94
Radium-228	904.0	pCi/L		< 0.97	< 0.87	< 0.83
Strontium-89/90	905.0	pCi/L		< 0.34	< 0.35	< 0.35
Cesium-134	901.1	pCi/L		< 20	< 18	< 16

Component Analyzed	Method	Unit	PQL	Analysis Result 02NEW6-004 97-03229-7	02NEW8A-004 97-03229-8	02NEW11-004 97-03229-9
Gross Alpha	SM7110C	pCi/L		13.55 ±2.90	17.57 ±3.28	6.14 ±2.16
Gross Beta	900.0	pCi/L		6.70 ±4.24	11.62 ±2.19	5.87 ±2.99
Radium-226	903.1	pCi/L		1.5 ±0.71	1.0 ±0.61	1.5 ±0.96
Radium-228	904.0	pCi/L		< 0.89	< 0.84	< 0.86
Strontium-89/90	905.0	pCi/L		< 0.32	< 0.33	< 0.34
Cesium-134	901.1	pCi/L		< 20	< 7.8	< 7.8

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result 02UGMW25-004 97-03229-10	03DBMW39-004 97-03229-11	05DBMW41-004 97-03229-12
Gross Alpha	SM7110C	pCi/L		17.30 ±2.20	11.35 ±2.76	23.56 ±3.82
Gross Beta	900.0	pCi/L		5.57 ±4.10	10.06 ±2.65	15.82 ±5.04
Radium-226	903.1	pCi/L		1.5 ±0.63	1.4 ±0.88	3.8 ±1.2
Radium-228	904.0	pCi/L		< 0.83	< 0.86	< 0.88
Strontium-89/90	905.0	pCi/L		< 0.32	< 0.32	< 0.33
Cesium-134	901.1	pCi/L		< 8.1	< 17	< 13

Component Analyzed	Method	Unit	PQL	Analysis Result 05NEW1-004 97-03229-13	05NEW1-304 97-03229-14
Gross Alpha	SM7110C	pCi/L		4.88 ±1.92	8.75 ±2.43
Gross Beta	900.0	pCi/L		7.68 ±4.47	14.45 ±4.90
Radium-226	903.1	pCi/L		2.8 ±1.2	4.0 ±1.1
Radium-228	904.0	pCi/L		1.6 ±0.32	1.5 ±0.29
Strontium-89/90	905.0	pCi/L		< 0.20	< 0.21
Cesium-134	901.1	pCi/L		< 11.8	< 17.1

Component Analyzed	Method	Unit	PQL	Analysis Result 05UGMW27-004 97-03229-15	05UGMW27-304 97-03229-16
Gross Alpha	SM7110C	pCi/L		14.41 ±3.02	17.42 ±3.24
Gross Beta	900.0	pCi/L		6.16 ±4.41	7.36 ±4.28
Radium-226	903.1	pCi/L		1.8 ±0.95	2.5 ±1.1
Radium-228	904.0	pCi/L		< 1.0	< 0.87
Strontium-89/90	905.0	pCi/L		< 0.18	< 0.18
Cesium-134	901.1	pCi/L		< 6.35	11.2

Component Analyzed	Method	Unit	PQL	Analysis Result 18BGMW03E-004 97-03229-17	18BGMW04B-004 97-03229-18	24NEW1-004 97-03229-19
Radon	913.0	pCi/L		-	380 ±22	331 ±17
Strontium-89/90	905.0	pCi/L		< 0.33	< 0.18	< 0.32

Component Analyzed	Method	Unit	PQL	Analysis Result 24NEW4-004 97-03229-20	24NEW4-304 97-03229-21	24NEW5-004 97-03229-22
Radon	913.0	pCi/L		204 ±16	396 ±19	199 ±17
Strontium-89/90	905.0	pCi/L		< 0.32	< 0.31	< 0.32

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result 24NEW6-004 97-03229-23	Analysis Result 24NEW7-004 97-03229-24
Radon	913.0	pCi/L		267 ±17	110 ±12
Strontium-89/90	905.0	pCi/L		< 0.30	< 0.30

Component Analyzed	Method	Unit	PQL	Analysis Result 24NEW7-304 97-03229-25	Analysis Result 24NEW8-004 97-03229-26
Radon	913.0	pCi/L		134 ±13	101 ±11
Strontium-89/90	905.0	pCi/L		< 0.30	< 0.33

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

All analyses subcontracted to Truesdail.

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

FIELD TEAM LEADER: PAT RUSSELL

NON-DEDICATED TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GW ROUND 6

SAMPLERS: (Signature) Matt Brook

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (9310)	RADON (9315)	STRONTIUM-89/90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89/90 (905)	CESIUM-134 (901.1)		REMARKS	PRESERVATIVE USED
B 01MW102-004	7/9/97	1303		✓	H_2O		5	1			1	1	1	1			
B 01MW201-004	7/9/97	1222		✓	H_2O		5	1			1	1	1	1			

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[signature]	7/10/97 11:45				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
[signature]	7/10/97 11:45				
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

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FIELD TEAM LEADER: PAT RUSSELL

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CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GWM ROUND 6

SAMPLERS: (Signature)

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89/90 (905)	CESIUM-137 (901.1)		REMARKS	PRESERVATIVE USED
02NEW2.004	7/3/97	1135		✓	H_2O		5	1			1	1	1	1			
02DGMW59.004	7/3/97	1035		✓	H_2O		5	1			1	1	1	1			

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Pat Russell	7/3/97 1410				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
Airbill No.: TRUESDAIL COURIER / COOLERS		Received for Laboratory by: (Signature)	Date / Time	Laboratory: TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

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FIELD TEAM LEADER: PAT RUSSELL

DEDICATED PUMP TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GWM ROUND 5

SAMPLERS: (Signature)

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (904-11)	RADIUM-228 (904)	STRONTIUM-89 (905)	CESIUM-137 (901.1)		REMARKS	PRESERVATIVE USED
02 UGMW2S-004	7/2/97	1700		✓	H2O		5	1			1	1	1	1			
02 DGMWE1-004	7/2/97	1605		✓	H2O		5	1			1	1	1	1			
02 NEWE-004	7/2/97	1335		✓	H2O		5	1			1	1	1	1			
02 NEW8A-004	7/2/97	1525		✓	H2O		5	1			1	1	1	1			
02 NEW3-004	7/2/97	1430		✓	H2O		5	1			1	1	1	1			

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	7/3/97 1410				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

Distribution: Original Accompanies Shipments; Copy to Coordinator Field Files

FIELD TEAM LEADER: PAT RUSSELL

DEDICATED TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GW ROUND 6

SAMPLERS: (Signature) Marc P. Smith

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900.0)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89 (905)	CESIUM-137 (901.1)		REMARKS	PRESERVATIVE USED
03DBMW39.004	7/8/97	1100		✓	H2O		5	1			1	1	1	1			
18BGMW03E.004	7/8/97	1310		✓	H2O		2		1	1							
02NEW11.004	7/8/97	1515		✓	H2O		5	1			1	1	1	1			
05DBMW41.004	7/8/97	1730		✓	H2O		5	1			1	1	1	1			

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[illegible]	7/9/97 0750				
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[illegible]	7/9/97 0750				
Airbill No. TRUESDAIL COURIER/ 2 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

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FIELD TEAM LEADER: PAT RUSSELL

DEDICATED TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GWI ROUND 3

SAMPLERS: (Signature) Mario P. Smith

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.0)	RADIUM-228 (904.0)	STRONTIUM-89/90 (905)	CESIUM-137 (901.1)		REMARKS	PRESERVATIVE USED
05NEW1-004	7/9/97	0915		✓	H_2O		5	1			1	1	1	1			
05NEW1-304	7/9/97	0930		✓	H_2O		5	1			1	1	1	1			
05UGMW27-004	7/9/97	1100		✓	H_2O		5	1			1	1	1	1			
05UGMW27-304	7/9/97	1110		✓	H_2O		5	1			1	1	1	1			
18BGMW04B-004	7/9/97	1630		✓	H_2O		2		1	1							

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Pat Russell	7/10/97 11:45				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
[illegible]	7/10/97 11:45				
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

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FIELD TEAM LEADER: PAT RUSSEL

NON-DEDICATED TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: NORTH EL TORO GW ROUND 3

SAMPLERS: (Signature) Mark Bloor

	SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (901)	STRONTIUM 90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM 89 (905)	CESIUM 137 (901.1)		REMARKS	PRESERVATIVE USED
b	24NEW4.004	7/8/97	1043		✓	H_2O		2		1	1							
B	24NEW4.304	7/8/97	1053		✓	H_2O		2		1	1							
B	24NEWS.004	7/8/97	1620		✓	H_2O		2		1	1							

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[illegible]	7/9/97 0750				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
[illegible] Trucke	7/9/97 0750				
Airbill No. TRUESDAIL COURIER/ 2 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB, TUSTIN, CA 92780, (714) 730-6239	

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FIELD TEAM LEADER: PAT RUSSILL

NON DEDICATED TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GW1 ROUND 6

SAMPLERS: (Signature) Matt Brook

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89/90 (905)	CESIUM-134/137 (901.1)		REMARKS	PRESERVATIVE USED
24NEW1-004	7/10/97	1300		✓	H2O		2		1	1							
24NEW6-004	7/10/97	1120		✓	H2O		2		1	1							

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[illegible]	7/11/97 0750				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
[illegible]	07.0 7/11/97				
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

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FIELD TEAM LEADER: PAT RUSSELL

NON-DEDICATED PUMP TEAM

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: TCAS EL TORO GWI ROUND 6

SAMPLERS: (Signature) Matt Brook

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (903)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89 (905)	CESIUM-137 (901.1)	REMARKS	PRESERVATIVE USED
24NEW7-004	7/2/97	1045		✓	H2O		2		1	1						
24NEW7-304	7/2/97	1100		✓	H2O		2		1	1						
24NEW8-004	7/2/97	1310		✓	H2O		2		1	1						

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	7/3/97 1410				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

Distribution: Original Accompanies Shipments; Copy to Coordinator Field Files

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino, CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
CDM Federal Programs Corp.
Attention: Pat Russell
3760 Convoy St., Ste 210
San Diego CA 92111
Tel: (619)268-3383 Fax: (619)268-9677

Service ID #: 801-973319
Collected by: Matt
Collected on: 07/11/97

Received: 07/11/97
Extracted: N/A
Tested: 07/11-08/07/97
Reported: 09/29/97

Sample Description: Water
Project Description: 6210-005 MCAS El Toro GWM Round 6

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result 01MW101-004 97-03319-1	01MW101-304 97-03319-2	02NEW7-004 97-03319-3
Gross Alpha	SM7110C	pCi/L		3.28 ±1.54	3.13 ±1.52	14.59 ±2.98
Gross Beta	900.0	pCi/L		4.59 ±2.18	5.96 ±1.90	6.90 ±4.33
Radium-226	903.1	pCi/L		< 1.2	< 1.1	2.1 ±0.83
Radium-228	904.0	pCi/L		< 0.85	< 0.86	< 0.86
Strontium-89/90	905.0	pCi/L		< 0.34	< 0.32	< 0.29
Cesium-134	901.1	pCi/L		< 17.1	< 17.3	< 19.3

Component Analyzed	Method	Unit	PQL	Analysis Result 18BGMW03E-004R 97-03319-4	18PS3-004 97-03319-5	18PS5-004 97-03319-6
Radon	913.0	pCi/L		363 ±17	217 ±13	293 ±16
Strontium-89/90	905.0	pCi/L		-	< 0.30	< 0.29

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit
N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.
J: Reported between PQL and MDL.
All analyses subcontracted to Truesdail.

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

NON-DEDICATED (AM

FIELD TEAM LEADER: PAT RUSSELL

CDM FEDERAL PROGRAMS CORPORATION

CHAIN OF CUSTODY RECORD

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GW ROUND 6

SAMPLERS: (Signature) Matt Brook

	SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89 (905)	CESIUM-134 (901.1)		REMARKS	PRESERVATIVE USED
IB	01MW101-004	7/11/97	0900		✓	H2O		5	1			1	1	1	1			
IB	01MW101-304	7/11/97	0905		✓	H2O		5	1			1	1	1	1			
IB	02NEW7-004	7/9/97	1014		✓	H2O		5	1			1	1	1	1			
IB	18PS3-004	7/11/97	1133		✓	H2O		2		1	1							
IB	18PS5-004	7/11/97	1317		✓	H2O		2		1	1							

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[signature]	7/11/97 1520				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
[signature]	7/11/97 1520				
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB TUSTIN, CA 92780 (714) 730-6239	

Distribution: Original Accompanies Shipments; Copy to Coordinator Field Files

FIELD TEAM LEADER: PAT RUSSELL

DEDICATED TEAM

CDM FEDERAL PROGRAMS CORPORATION — **CHAIN OF CUSTODY RECORD**

PROJ. NO.: 6210-005

PROJECT NAME: MCAS EL TORO GWM ROUND 6

SAMPLERS: (Signature) Marc P. Smith

SAMPLE NUMBER	DATE	TIME	COMP.	GRAB	MATRIX		NO. OF CONTAINERS	GROSS α/β (900)	RADON (913)	STRONTIUM-90 (905)	RADIUM-226 (903.1)	RADIUM-228 (904)	STRONTIUM-89 (905)	CESIUM-134 (901.1)	REMARKS	PRESERVATIVE USED
18BGMW03E-004R	7/11/97	0930		✓	H2O		1		1							

Relinquished by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time	Relinquished by: (Signature)	Date / Time
[signature]	7/11/97 1520				
Received by: (Signature)	**Date / Time**	**Received by: (Signature)**	**Date / Time**	**Received by: (Signature)**	**Date / Time**
[signature]	7/12/97 1:20				
Airbill No. TRUESDAIL COURIER/ 1 COOLERS		**Received for Laboratory by: (Signature)**	**Date / Time**	**Laboratory** TRUESDAIL LAB, TUSTIN, CA 92780, (714) 730-6239	

Distribution: Original Accompanies Shipments; Copy to Coordinator Field Files

APPENDIX F

WELL PURGING AND SAMPLING LOGS

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MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 01MW101 | SAMPLE NO.: 01MW101-004

START (Date): 7/9/97 (Time): 1111 | END (Date): 7/11/97 (Time): 0911

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 64.72 feet | FINAL DTW: 130.88 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
153.00	-	64.72	=	88.28	x	= 58.3 Gal./Csg. Vol.	x 3 Csg. Vol.	= 174.8 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 2.3 gpm

Pump is set at 150 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1117	6	25.8	25.02	7.87	0.69	176.7	0.77	44.6	No	cloudy	
1121	10	43.0	25.31	7.84	0.69	169.1	0.70	44.7	No	cloudy	
1125	~~5~~ 14	59.0	24.98	7.81	0.69	15.3	1.22	43.1	No	clear	2.9gpm
1129	18	75.0	25.14	7.78	0.69	12.1	0.46	41.5	No	clear	
1133	22	91.0	25.31	7.72	0.70	53.6	0.54	40.4	Yes	clear	
1135											well went dry
0848	Start time on 7/11/97					Flow rate 0.8 gpm					
0850	2	1	22.38	7.59	0.75	468.1	4.61	122.2	Yes	clear	
0852	4	2	23.51	7.65	0.75	784.2	4.06	122.6	Yes	clear	
0854	6	3	25.44	7.66	0.74	681.3	3.81	122.0	Yes	clear	
0856	8	4	25.47	7.67	0.73	734.9	3.89	121.6	Yes	~~clear~~ slightly cloudy	
0857	9	4.5	25.48	7.67	0.73	748.6	3.99	121.9	Yes	clear	

0900 * Collect Sample: 01MW101-004 Number of Containers: 9 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 7/9/97 89621 / 7/10/97 90954 Purge Rate: 4.3 gpm Estimated 4 min. interval

Final Meter Reading 89702 / 90971 Total Volume Purged 81 / 17 = 98

Field QC Sample Y(✓) N ( ) QC I.D.: 01MW101-3X1 Time: 0905 Number of Containers: 9 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6210-005** | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: **01MW101** | SAMPLE NO.: **01MW101-004R**

PURGING START (Date): 09/10/97 (Time): 12:00 | PURGING END (Date): 09/10/97 (Time): 1310

SAMPLING START (Date): 09/12/97 (Time): 0915 | SAMPLING END (Date): 09/12/97 (Time): 0930

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Clear sunny TEMP.: 85 °F

FIELD PERSONNEL'S NAME(S): **BRIAN TRINH (CDM), JIM WHITLEY (Water Development Corp.)**

REFERENCE POINT OF DEPTH MEASUREMENT: North of TOC

OVM READING: ----- | ORIG. DTW: 9/10/97 64.77 / 9/12/97 118.55 feet | FINAL DTW: 144.40 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X) 3"

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
153.00	-	64.77	=	88.23	x	= 58.2 Gal./Csg. Vol.	x 3 Csg. Vol. =	175 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 1.0 gpm

Pump is set at 150 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT	
1200	0	0									11273	
1206	6	9/10/97 ~~13~~ 7	28.26	7.82	1.23	476.8	-16.0	120.5	No	cloudy	85.40'	9/10/97 BT ~~11280~~ 112
1210	10	13	27.59	7.84	1.21	681.1	-16.3	109.8	No	cloudy	11286	94.3
1217	17	22	27.57	7.85	1.21	263.1	-18.4	99.1	No	cloudy	11295	101.04'
1225	25	33	27.73	7.86	1.17	54.4	-17.5	84.4	No	clear	11306	114.70'
1230	30	38	27.88	7.86	1.14	74.4	-16.2	~~76.7~~ BT 9/10/97 81.6	No	clear	11311	121.40'
1235	35	43	27.93	7.84	1.13	61.2	~~-13.3~~ BT 9/10/97	79.6	No	clear	11316	125.00'
1245	45	53	28.15	7.81	1.11	61.2	-14.4	78.4	No	clear	11326	132.62'
1255	55	64	28.53	7.78	1.08	54.5	-14.5	73.7	No	clear	11337	140.00'
1310	70	70	30.73	7.85	1.04	58.4	-11.9	80.1	No	clear	11343	145.00' well.
											9/12/97	118.55'
9/12/97			23.67	8.02	0.00	13.9	3.22	101.7	Yes	clear		118.61'

0915 | * Collect Sample: **01MW101-004R** Number of Containers: 2 bottles | Total Volume Purged = 70 Gal.

Air Entrainment Survey ( ) Field Blanks (X)

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Disposable Bailer (X) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry ( )
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 11273 Purge Rate: 1.1 gpm Estimated N/A min. interval

Final Meter Reading 11343

Field QC Sample Y (X) N ( ) QC I.D.: **01MW101-304R** 9/12/97 Time: 0925 Number of Containers: 2 bottles

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 01MW102 | SAMPLE NO.: 01MW102-004

START (Date): 7/9/97 (Time): 0927 | END (Date): 7/9/97 (Time): 1320

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 73 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 107.50 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3' Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
140.00	-	107.5	=	32.5	x	=	21.45 Gal./Csg. Vol.	x	3 Csg. Vol. =	64.4 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 1.01 gpm

Pump is set at 133 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0933	4	7.2	24.67	6.98	1.15	168.5	2.95	-0.3	No	murky	has film
0936	7	12.6	24.74	7.01	1.15	578.7	0.88	7.5	No	cloudy	no film
0940	11	19.8	24.86	7.03	1.15	411.5	0.66	25.3	Yes	cloudy	
0943	14	25.2	24.90	7.05	1.17	324.9	0.67	32.4	Yes	cloudy	
0947	18	32.4	24.93	7.09	1.21	181.8	1.88	27.9	Yes	clear	
0951	22	39.6	24.98	7.07	1.20	254.6	3.36	22.9	Yes	clear	
0954	25	45.0	25.00	7.04	1.13	277.2	3.97	22.2	Yes	clear	
0958	29	52.2	25.06	6.97	1.08	646.4	3.17	-14.3	Yes	clear	
1000	- stopped pumping - no flow - will allow well to recharge.										
1016	Begin pumping again ~ 0.3 gpm										
1021	5	53.7	26.78	7.06	~~0132.4~~ 1.12	129.9	3.32	37.1	Yes	cloudy	
1026	10	55.2	27.55	7.05	1.12	89.9	4.41	46.4	Yes	clear	stopped pumping at 1024
~~1031~~	~~5~~										
1255	5	60.2	25.58	7.04	1.13	259.4	5.66	81.0	Yes	cloudy	
1300	10	63.2	25.62	7.05	1.15	111.5	5.93	77.8	Yes	cloudy	

1303 * Collect Sample: 01MW102-004 Number of Containers: 9

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 89564/89741 Purge Rate: 1.8 gpm Estimated 35 min. interval

Final Meter Reading 89621/89754 Total Volume Purged = 57/13 = 70

~~Restarted pump at 1046.~~ Arrived back at 1245. Started pumping at 1250 @ 1 gpm

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6210-005** | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: **01MW102** | SAMPLE NO.: **01MW102-004R**

PURGING START (Date): 09/10/97 (Time): 1343 | PURGING END (Date): 09/10/97 (Time): 1215

SAMPLING START (Date): 09/12/97 (Time): 0840 | SAMPLING END (Date): 09/12/97 (Time): 0850

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny Clear TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): **BRIAN TRINH (CDM), JIM WHITLEY (Water Development Corp.)**

REFERENCE POINT OF DEPTH MEASUREMENT: North of TOC

OVM READING: ----- | ORIG. DTW: 9/12/97 107.32 / 9/11/97 111.16 feet | FINAL DTW: 136.52 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

MEASURED WELL TD — ORIGINAL DTW — 4" = 0.66 / 5" = 0.93 / 6" = 1.50 — CASING VOLUME — PURGE VOLUME

140.00 - 107.32 = 32.68 x = 21.6 Gal./Csg. Vol. x 3 Csg. Vol. = 65 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 1.6 gpm

Pump is set at 138 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT	
1343	0	0									11388	
1350	7	18	26.09	7.37	2.22	322.5	-2.12	53.7	No	Cloudy	11406	117.30'
1355	12	22	25.95	7.37	2.21	190.1	-2.72 ~~-33.5~~	44.4	No	cloudy	11410	119.10
1400	17	29	26.07	7.41	2.30	140.8	-1.97	55.7	No	Cloudy	11417	122.96'
1403	20	35	26.04	7.36	2.30	27.8	-0.74	50.4	No	Clear	11423	126.30'
1406	23	39	26.06	7.28	2.15	33.5	0.17	39.0	No	Clear	11427	128.76'
1410	27	44	26.09	7.25	2.06	37.2	0.45	44.6	No	Clear	11432	131.50'
1413	30	48	26.12	7.23	2.04	69.2	0.49	39.6	No	Clear	11436	134.32'
1415	well	dry 52									11440	9/10/97 ~~139.00~~ 136.-
.											9/12/97	111.16'
9/12/97			22.41	7.53	0.00	18.8	4.36	100.1	No	Clear		111.30'

0840 | * Collect Sample: **01MW102-004R** Number of Containers: 2 bottles | Total Volume Purged: 52 Gallons

Air Entrainment Survey ( ) Field Blanks (X)

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Disposable Bailer (X) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry ( ) Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( ) Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 11388 Purge Rate: 1.2 gpm Estimated N/A min. interval

Final Meter Reading 11440

Field QC Sample Y (X) N ( ) QC I.D.: **01MW102-304R** 9/12/97 Time: 0845 Number of Containers: 2 bottles

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 01MW201 | SAMPLE NO.: 01MW201-004

START (Date): 7/9/97 (Time): 1203 | END (Date): 7/9/97 (Time): 1231

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" (| WEATHER: Sunny TEMP.: 76 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brockmire (Com), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 40.06 feet | FINAL DTW: 59.68 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
62.00	-	40.06	=	21.94	x	= 14.5 Gal./Csg. Vol.	x 3 Csg. Vol. =	43.4 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 1.4 gpm

Pump is set at 60 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1207	4	11.2	30.05	7.46	0.71	346.1	10.44	57.6	Yes	milky	
1208	5	14.0	30.24	7.45	0.70	288.1	9.54	52.5	Yes	cloudy	film
1210	7	19.6	27.81	7.23	0.84	250.4	7.97	63.1	Yes	cloudy	
1211	8	22.4	25.61	7.21	0.87	79.8	7.93	61.2	Yes	clear	
1212	9	25.2	25.30	7.20	0.87	83.6	7.73	60.5	Yes	clear	
1214	11	30.8	25.22	7.16	0.87	139.9	7.39	57.5	Yes	clear	
1215	12	33.6	25.15	7.16	0.88	212.7	7.23	49.3	Yes	clear	
1216	13	36.4	25.16	7.19	0.89	344.4	6.98	47.4	Yes	clear	
1217	14	39.2	25.23	7.19	0.88	146.0	6.81	36.0	Yes	clear	
1219	16	44.8	25.53	7.23	0.88	133.6	6.73	39.5	Yes	clear	

1222 * Collect Sample: 01MW201-004 Number of Containers: 9

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 89703 Purge Rate: 2.8 gpm Estimated 1.5 min. interval

Final Meter Reading 89771 Total Volume Purged = 38

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6210-005** | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: **01MW201** | SAMPLE NO.: **01MW201-004R**

PURGING START (Date): 09/10/97 (Time): 1447 | PURGING END (Date): 09/10/97 (Time): 1512

SAMPLING START (Date): 09/12/97 (Time): 0800 | SAMPLING END (Date): 09/12/97 (Time): 0810

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny clear TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): **BRIAN TRINH (CDM)**, JIM WHITLEY (Water Development Corp)

REFERENCE POINT OF DEPTH MEASUREMENT: North of TOC

OVM READING: ----- | ORIG. DTW: 9/12/97 40.58 / 9/12/97 39.76 feet | FINAL DTW: 59.34 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
62.00	-	40.58	=	21.42	x	= 14.1 Gal./Csg. Vol.	x 3 Csg. Vol. =	42.4 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 1.5 gpm

Pump is set at 60 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT	
1447	0	0									11482	
1450	3	7	27.76	7.46	1.68	48.1	1.54	93.0	No	clear	11489	44.90'
1453	6	10	27.46	7.46	1.66	37.9	1.94	94.9	No	clear	11493	47.20'
1456	9	14	27.45	7.46	1.61	15.6	2.48	100.3	No	clear	11497	49.00'
1459	12	18	27.35	7.42	1.59	10.8	2.69	105.2	No	clear	11501	51.44'
1502	15	23	27.35	7.39	1.59	15.5	2.82	105.3	No	clear	11506	54.10'
1505	18	27	27.33	7.39	1.62	26.6	2.90	105.8	No	clear	11510	55.80'
1508	21	31	27.34	7.42	1.63	38.3	2.99	107.7	No	clear	11514	58.04'
1510			Well dry								11517	59.96'
											9/12/97	39.76'
9/12/97			22.08	7.46	0.73	5.5	4.29	123.7	No	clear		

0800 * Collect Sample: **01MW201-004R** Number of Containers: 2 bottles | Total Volume Purged = 35 Gal.

Air Entrainment Survey ( ) Field Blanks (X)

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Disposable Bailer (X) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry ( )
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 11482 Purge Rate: 1 gpm Estimated N/A min. interval

Final Meter Reading 11517

Field QC Sample Y (X) N ( ) QC I.D.: **01MW201-304R** 9/12/97 Time: 0810 Number of Containers: 2 bottles

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02DGMW59 | SAMPLE NO.: 02DGMW59-004

START (Date): 7/3/97 (Time): 0937 | END (Date): 7/3/97 (Time): 1040

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Clear, calm TEMP.: 85 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 50.64 feet | FINAL DTW: 50.96 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS	PUMP DEPTH	LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 85) + 0.06] x 3 Csg. Vol. = 6.03 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0942	5	1	20.34	6.26	1.91	10.2	0	662.9	N	clear	
0949	12	2	20.55	6.35	1.86	0.0	0	638.7	N	clear	
0959	22	3	20.91	6.94	1.93	0.1	1.70	539.1	N	clear	
1009	32	4	21.12	6.99	1.94	0.1	1.63	512.6	N	clear	
1019	42	5	21.70	7.02	1.95	0.1	1.49	492.3	N	clear	
1029	50	6	21.96	6.96	1.96	2.1	1.43	450.3	N	clear	

1035 * Collect Sample: 02DGMW59-004 Number of Containers: 9 bottles | Total Volume Purged = 6.25 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02DGMW60 | SAMPLE NO.: 02DGMW60-004

START (Date): 7/1/97 (Time): 1435 | END (Date): 7/1/97 (Time): 1502

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Clear, mod W. breeze TEMP.: 85 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 63.34 feet | FINAL DTW: 63.89 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48 Gal/ft x 98) + 0.06] x 3 Csg. Vol. = 6.92 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.3 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1436	2	1	24.34	6.57	1.71	0.7	4.64	210.8	N	clear	
1439	5	3	23.00	6.28	1.69	0.8	1.64	187.5	N	clear	
1445	11	4	23.23	5.92	1.69	0.7	1.19	168.7	N	clear	
1450	16	6	23.30	6.11	1.72	2.5	0.93	162.1	N	clear	
1453	19	7	23.37	6.25	1.71	0.0	0.87	157.9	N	clear	
1454	20	7.3	23.39	6.24	1.70	0.0	0.85	156.0	N	clear	

1500 * Collect Sample: 02DGMW60-004 Number of Containers: 9 bottles | Total Volume Purged = 8 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02DGMW61 | SAMPLE NO.: 02DGMW61-004

START (Date): 7/2/97 (Time): 1543 | END (Date): 7/2/97 (Time): 1610

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Clear, mod lt. breeze TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 41.94 feet | FINAL DTW: 42.20 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ✓

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48 Gal/ft x 98) + 0.06] x 3 Csg. Vol. = 6.92 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1545	2	1	22.25	7.18	1.09	1.5	2.81	200.5	Y	Clear	
1549	6	3	22.30	7.18	1.04	2.2	3.25	162.2	Y	Clear	
1551	8	4	22.66	7.18	1.05	2.0	3.27	119.4	Y	Clear	
1553	10	5	22.80	7.14	1.09	0.7	3.53	111.6	Y	Clear	
1555	12	6	22.77	7.12	1.12	0.5	3.53	103.4	Y	Clear	
1557	14	7	22.81	7.15	1.13	0.4	3.43	95.7	Y	Clear	

1605 * Collect Sample: 02DGMW61-004 Number of Containers: 9 bottles | Total Volume Purged = 8 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft Just a few bubbles. May be entering at leaky joints in sampling tee.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02UGMW25 | SAMPLE NO.: 02UGMW25-004

START (Date): 7/2/97 (Time): 1636 | END (Date): 7/1/97 (Time): 1705

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Clear, lt. w breeze TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 34.51 feet | FINAL DTW: 34.60 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48 Gal/ft x 72) + 0.06] x 3 Csg. Vol. = 5.13 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.3 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1640											
[illegible]	4	1.0	19.80	7.39	1.29	0.7	4.33	33.3	N	clear	
1646	7	2	19.45	7.40	1.46	1.0	4.39	40.8	N	clear	
1649	10	3	19.57	7.41	1.37	0.5	4.42	43.5	N	clear	
1652	13	4	19.68	7.41	1.32	0.5	4.44	45.6	N	clear	
1655	16	5	19.75	7.41	1.32	0.6	4.46	44.6	N	clear	

1700 * Collect Sample: 02UGMW25-004 Number of Containers: 9 bottles | Total Volume Purged = 6 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0 062 ft'

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02NEW1 | SAMPLE NO.: 02NEW1-004

START (Date): 7/1/97 (Time): 1525 | END (Date): 7/1/97 (Time): 1555

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: clear, mod W. breeze TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 66.36 feet | FINAL DTW: 66.80 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48 Gal/ft x 115) + 0.06] x 3 Csg. Vol. = 8.09 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (yes/No)	WATER COLOR	COMMENT
				7.42							
1531	3	1	22.45	[illegible]	0.79	2.9	3.73	108.6	N	clear	
1535	7	3	23.31	7.36	0.79	2.9	2.99	92.3	N	clear	
1539	11	5	23.46	7.36	0.79	3.1	2.45	61.7	N	clear	
1541	13	6	23.49	7.36	0.79	3.9	2.42	46.6	N	clear	
1543	15	7	23.50	7.37	0.79	3.9	2.31	41.0	N	clear	
1545	17	8	23.51	7.37	0.79	3.9	2.20	39.1	N	clear	

1550 * Collect Sample: 02NEW1-004 Number of Containers: 9 bottles | Total Volume Purged = 10 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft YSI getting some electronic interference from pump.

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02NEW2 | SAMPLE NO.: 02NEW2-004

START (Date): 7/3/97 (Time): 1116 | END (Date): 7/3/97 (Time): 1140

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: clear, lt. W breeze TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 65.52 feet | FINAL DTW: 65.76 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump X

TUBING RADIUS | PUMP DEPTH 2 | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 95) + 0.06] x 3 Csg. Vol. = 6.72 Gal.

PURGE WATER CONTAINERIZED? (YES) | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1118	2	1	21.34	7.00	1.28	0.4	5.82	399.1	N	Clear	
1120	4	2	21.43	6.98	1.28	0.4	5.86	398.2	N	Clear	
1122	6	3	21.69	6.98	1.29	0.4	5.90	372.3	N	Clear	
1124	8	4	21.71	6.98	1.29	0.4	5.94	369.3	N	Clear	
1126	10	5	21.76	6.94	1.28	1.7	5.83	365.0	N	Clear	
1128	12	6	21.79	6.96	1.28	1.8	5.79	359.7	N	Clear	

1135 * Collect Sample: 02NEW2-004 Number of Containers: 9 bottles | Total Volume Purged = 8 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02NEW3 | SAMPLE NO.: 02NEW3-004

START (Date): 7/2/97 (Time): 1354 | END (Date): 7/2/97 (Time): 1435

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Clear, lt. W breeze TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 186.62 feet | FINAL DTW: 186.72 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump X

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 224) + 0.06] x 3 Csg. Vol. = 15.59 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1358	4	2	21.07	6.75	1.40	13.3	4.80	-119.1	N	Brown	Debris in discharge
1404	10	5	21.28	7.04	1.36	69.2	4.15	-55.2	N	lt. grey	
1408	14	7	22.34	7.06	1.33	69.4	3.63	-29.4	N	lt. grey	
1414	20	10	22.61	7.05	1.35	59.2	3.58	-21.9	N	Clear	
1420	24	12	22.91	7.04	1.32	21.3	3.56	-16.8	N	clear	
1424	30	15	22.93	7.05	1.32	16.1	3.57	-15.6	N	clear	

1430 * Collect Sample: 02NEW3-004 Number of Containers: 9 bottles | Total Volume Purged = 17 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6210-005** | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: **02NEW6** | SAMPLE NO.: **02NEW6-004**

START (Date): 7/2/97 (Time): 1258 | END (Date): 7/2/97 (Time): 1390

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Clear, calm TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): **SCOT MATHIS**

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 186.80 feet | FINAL DTW: 186.80 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS PUMP DEPTH LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 224) + 0.06] x 3 Csg. Vol. = 15.59 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1302	4	2	21.19	6.71	1.44	14.6	5.27	46.1	N	Orange	
1307	9	5	21.39	7.10	1.42	10.1	4.77	49.8	N	clear	
1311	13	7	21.76	7.42	1.43	9.7	4.60	50.1	N	clear	
1315	17	9	22.31	7.61	1.40	11.5	4.52	41.9	N	clear	
1321	23	12	22.60	7.57	1.41	11.6	4.49	42.0	N	clear	
1327	29	15	22.65	7.62	1.40	9.6	4.53	45.2	N	clear	
1395											

~~1320~~ * Collect Sample: **02NEW6-004** Number of Containers: 9 bottles | Total Volume Purged = 17 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 02NEW7 | SAMPLE NO.: 02NEW7-004

START (Date): 7/11/97 (Time): 0952 | END (Date): 7/11/97 (Time): 1022

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" (| WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ ~~MATT~~ Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 122.08 feet | FINAL DTW: 122.34 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD — ORIGINAL DTW — (4" = 0.66) 5" = 0.93 6" = 1.50 — CASING VOLUME — PURGE VOLUME

[(0.03125² × 3.14 × 7.48 gal/ft³ × 135) + 0.26] × 3 = 9.47

~~148.00~~ - _____ = _____ x _____ = _____ Gal./Csg. Vol. x 3 Csg. Vol. = 9.47 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.53 gpm

Pump is set at 135 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0955	3	1.5	23.29	6.89	1.29	342.3	3.26	136.1	Yes	clear	
0957	5	2.5	23.65	6.94	1.46	632.1	3.56	132.6	Yes	clear	
0958	6	3.0	24.22	6.96	1.52	291.4	3.79	129.6	Yes	clear	
1000	8	4.0	25.15	6.96	1.54	203.3	4.04	126.2	Yes	clear	
1002	10	5.0	26.47	6.95	1.55	284.3	4.24	122.6	Yes	clear	
1004	12	6.0	27.36	6.95	1.56	362.4	4.41	119.6	Yes	clear	
1006	14	7.0	27.43	6.95	1.56	453.4	4.46	118.7	Yes	clear	
1008	16	8.0	27.28	6.95	1.55	277.9	4.54	117.2	Yes	clear	
1009	17	8.5	27.19	6.95	1.55	313.2	4.57	116.7	Yes	clear	
1014	19	9.5	27.11	6.96	1.54	186.4	4.61	114.6	Yes	clear	

1014 * Collect Sample: 02NEW7-004 Number of Containers: 9 | Total Volume Purged = Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Treatability Parameters ( ) Strontium-89 (X) Filtered Metals (X) Gross Alpha/Beta (X) Cesium-134 (X) General Chemistry (X) Radium-226 (X) Radium-228 (X)

COMMENT: Initial Meter Reading: 90971 Purge Rate 0.5 gpm Estimated 1.9 min. interval

Final Meter Reading 90987 Total Volume Purged = 16 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02NEW8A | SAMPLE NO.: 02NEW8A-004

START (Date): 7/2/97 (Time): 1500 | END (Date): 7/2/97 (Time): 1530

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Clear, mod W. breeze TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 44.98 feet | FINAL DTW: 44.99 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 84) + 0.06] x 3 Csg. Vol. = 5.96 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.3 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1502	2	1	22.93	7.18	1.04	6.4	4.63	37.6	N	Clear	
1505	5	2	22.90	7.23	1.00	3.4	4.70	33.0	N	Clear	
1508	8	3	23.18	7.19	1.02	1.7	4.73	36.3	N	Clear	
1511	11	4	23.66	7.17	1.03	1.2	4.80	41.2	N	Clear	
1514	14	5	23.80	7.19	1.02	0.8	4.72	43.7	N	Clear	
1517	17	6	23.85	7.18	1.02	0.7	4.67	44.8	N	Clear	

1525 * Collect Sample: 02NEW8A-004 Number of Containers: 9 bottles | Total Volume Purged = 7 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (X)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02NEW11 | SAMPLE NO.: 02NEW11-004

START (Date): 7/8/97 (Time): 1455 | END (Date): 7/8/97 (Time): 1505

WELL CASING DIAMETER: 2" ( ) 4" (✓) 5" ( ) | WEATHER: Sunny TEMP.: 80°F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 25.94 feet | FINAL DTW: 25.98 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 66) + 0.06] x 3 Csg. Vol. = 4.72 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1456	1	0.5	21.51	5.39	1.25	141.2	4.98	320.7	N	Clear	
1500	~~3~~ 55	2.5	21.59	6.40	1.25	91.8	7.57	272.9	N	Clear	
1501	6	3.0	21.87	6.65	1.24	56.3	7.39	264.5	N	Clear	
1503	8	4.0	21.77	6.76	1.24	191.3	7.52	250.3	N	Clear	
1505	10	5.0	21.72	6.73	1.23	227.4	7.68	237.2	N	Clear	

* Collect Sample: 02NEW11-004 Number of Containers: 9 bottles | Total Volume Purged = 5.0 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 02NEW12 | SAMPLE NO.: 02NEW12-004

START (Date): 6/30/97 (Time): 1630 | END (Date): 6/30/97 (Time): 1712

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: clear, calm TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS / M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 210.82 feet | FINAL DTW: 210.25 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (X)

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 248) + 0.06] x 3 Csg. Vol. = 17.24 Gal.

PURGE WATER CONTAINERIZED? (YES) | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME (Sat)	ELAPSED TIME (Sat)	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
~~1634~~	~~4~~										
1634	4	2	23.30	6.45	1.16	318.0	2.14	136.9	N	clear	
1638	8	4	23.59	6.85	1.00	184.6	2.82	107.8	N	lt. amber	
1644	14	7	25.31	6.67	1.06	64.8	2.67	155.2	N	clear	
1650	20	10	25.29	6.90	1.11	41.8	5.05	83.7	N	clear	
1656	26	13	25.22	6.89	1.15	24.8	5.56	78.9	N	clear	
1700	30	15	25.26	6.73	1.20	18.7	4.80	135.0	N.	clear	
1704	34	17	25.26	6.92	1.17	19.6	6.37	94.4	N	clear	

1710 * Collect Sample: 02NEW12-004 Number of Containers: 9 bottles | Total Volume Purged = 19 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 03DBMW39 | SAMPLE NO.: 03DBMW39-004

START (Date): 7/8/97 (Time): 0950 | END (Date): (Time):

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 225.40 feet | FINAL DTW: 226.65 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) ~~Submersible Grundfos Pump~~

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME			PURGE VOLUME
275.00	-	225.40	=	49.60	x	=	46.13 Gal./Csg. Vol.	x 3 Csg. Vol. =	138 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 2.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0956	6	15	24.64	7.02	1.63	92.2	6.79	85.6	N	Yellow	
1000	16	40	25.79	7.05	1.64	502.7	5.25	20.7	N	Yellow	
1020	30	75	26.14	7.08	1.64	223.3	5.00	18.6	N	Light Yellow	
1030	40	100	26.02	7.08	1.63	138.2	5.04	26.2	N	Clear	
1040	50	125	26.10	7.08	1.64	108.0	5.07	27.6	N	Clear	
1049	58	145	26.11	7.08	1.64	91.7	5.09	30.8	N	Clear	

✓ * Collect Sample: 03DBMW39-004 Number of Containers: 9 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT:

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 03DGMW64 | SAMPLE NO.: 03DGMW64-004

START (Date): 6/30/97 (Time): 1305 | END (Date): 6/30/97 (Time): 1412

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X | WEATHER: Sunny TEMP.: 78 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: — | ORIG. DTW: 227.92 feet | FINAL DTW: * feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME			PURGE VOLUME
290.00	-	227.92	=	62.08 x	=	57.7 Gal./Csg. Vol.	x	3 Csg. Vol. =	173 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 2.91 gpm

Pump is set at 280 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1308	3	23.4	25.15	7.39	1.32	524.0	2.33	-6.5	No	Cloudy Brown	
1310	5	39.0	25.13	7.39	1.31	144.1	2.51	5.2	NO	cloudy	
1312	7	54.6	25.31	7.36	1.30	102.7	3.82	-2.0	NO	cloudy	
1315	10	69.35	25.35	7.22	1.28	466.5	5.33	-11.5	NO	cloudy	3.25 gpm
1320	15	80.6	25.57	7.34	1.26	608.8	2.22	-28.80	No	cloudy	
1325	20	91.55	26.06	7.28	1.20	146.4	6.69	1.7	No	cloudy	2.25
1330	25	103.1	26.16	7.32	1.18	68.5	6.11	-6.9	No	Clear	
1335	30	114.35	26.54	7.28	1.19	21.5	7.26	9.9	No	Clear	
1340	35	125.60	26.63	7.4	1.21	21.0	7.41	13.7	No	Clear	
1345	40	136.85	26.66	7.29	1.22	27.4	7.48	14.3	No	clear	
1350	45	148.10	26.66	7.30	1.22	37.5	7.82	16.3	No	clear	
1355	50	159.35	26.69	7.29	1.21	49.8	8.46	25.0	No	clear	
1400	55	170.6	26.78	7.28	1.21	24.0	7.89	24.6	No	clear	
1405	60	181.55	26.93	7.32	1.21	13.9	8.05	26.0	No	Clear	

1410 * Collect Sample: 03DGMW64-004 Number of Containers: 9

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 85035 Purge Rate: 7.8 gpm Estimated 2.2 min. interval

Final Meter Reading 85230 Total Volume Purged 195 gallons

* Did not record final DTW.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6210-005** | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: **03DGMW65X** | SAMPLE NO.: **03DGMW65X-004**

START (Date): 6/30/97 (Time): 1019 | END (Date): 6/30/97 (Time): 1110

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): **BRIAN TRINH (CDM)** Neil Davis (Water Development) Matt Brookshire (CDM)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 220.14 feet | FINAL DTW: 241.96 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (✓)

MEASURED WELL TD — ORIGINAL DTW — 4" = 0.66, 5" = 0.93, 6" = 1.50 — CASING VOLUME — PURGE VOLUME

275.00 - 220.14 = 54.85 x = 51.0 Gal./Csg. Vol. x 3 Csg. Vol. = 153.0 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.88 gpm

Pump is set at 270 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yse/No)	WATER COLOR	COMMENT
1024	5	15	25.40	7.17	1.29	461.0	9.83	130.7	Y	clear	
1029	10	30	25.52	7.21	1.25	514.7	8.89	114.1	N	clear	
1034	15	45	25.99	7.23	1.22	428.2	8.14	114.7	N	clear	227.32'
1039	20	60	26.12	7.25	1.15	138.1	7.72	112.3	N	Clear	Purge rate 5.3 gpm
1042	23	75.9	26.20	7.27	1.15	61.7	7.62	103.3	N	clear	
1045	26	91.8	26.29	7.26	1.15	42.6	7.50	109.7	N	clear	increase to 7.4 gpm
1050	31	118.3	25.39	7.27	1.10	147.2	8.10	55.8	N	Clear	
1052	33	133.1	25.46	7.27	1.09	325.1	8.12	53.4	N	clear	
1055	36	155.3	25.48	7.26	1.13	265.7	7.98	46.2	N	Clear	
1057	38	170.1	25.54	7.20	1.12	178.3	7.51	16.1	N	~~Clear~~ Slightly	Murky water

11:00 * Collect Sample: **03DGMW65X-004** Number of Containers: 9

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 84787 Purge Rate: 3 gpm Estimated 5.1 min. interval

Final Meter Reading 85036 Total volume purged = 249 Gal.

Field QC Sample Y (✓) N ( ) QC I.D.: 03DGMW65X-504 Time: 0900 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 03UGMW26 | SAMPLE NO.: 03UGMW26-004

START (Date): 7/1/97 (Time): 1301 | END (Date): 7/1/97 (Time): 1327

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X | WEATHER: Sunny TEMP.: 80°F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 215.68 feet | FINAL DTW: 217.92 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 4" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
275.00	-	215.68	=	59.32 x	= 55.16 Gal./Csg. Vol.	x 3 Csg. Vol. =	165.5 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 12.6 gpm

Pump is set at 240 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1306	5	65	25.58	7.19	1.23	1559.7	7.07	81.2	Yes	cloudy	
1308	7	91	25.41	7.19	1.22	129.8	7.10	78.5	No	clear	
1310	9	117	25.35	7.19	1.17	388.5	7.18	74.8	No	clear	
1311	10	130	25.32	7.19	1.16	363.7	7.23	73.7	No	clear	
1313	12	156	25.29	7.20	1.12	265.6	7.32	73.6	Yes	clear	
1314	13	169	25.30	7.19	1.11	466.1	7.34	74.8	Yes	clear	
1316	15	195	25.29	7.19	1.12	257.3	7.35	76.4	Yes	clear	
1317	16	221	25.30	7.19	1.11	378.4	7.37	77.1	Yes	clear	
1318	17	234	25.31	7.19	1.09	527.6	7.34	77.8	Yes	clear	
1319	18	247	25.31	7.19	1.09	465.7	7.32	78.3	Yes	clear	

1322 * Collect Sample: 03UGMW26-004 Number of Containers: 9

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 85962 Purge Rate: 13 gpm Estimated 1.3 min. interval

Final Meter Reading 86289 Total Volume Purged = 327

After pump was turned off, turbidity read ~10.0. Turbulence from high flow may be affecting turbidity.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 04DBMW40 | SAMPLE NO.: 04DBMW40-004

START (Date): 6/30/97 (Time): 1543 | END (Date): 6/30/97 (Time): 1614

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (CDM) Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 208.80 feet | FINAL DTW: 208.72 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
265.00	-	208.80	=	56.2	x	= 37.1 Gal./Csg. Vol.	x 3 Csg. Vol. =	111.3 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 6.32 gpm

Pump is set at 260 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1547	4	22	30.53	6.94	1.41	529.7	3.56	67.9	no	cloudy	
1549	6	33	25.46	6.90	1.45	98.7	1.25	55.3	no	clear	
1551	8	44	25.28	6.89	1.44	72.2	1.05	48.2	no	clear	
1553	10	55	25.22	6.89	1.42	35.9	0.95	42.4	no	clear	
1555	12	66	25.24	6.89	1.41	22.1	0.96	40.6	no	clear	
1557	14	77	25.21	6.88	1.40	15.8	0.95	37.7	no	clear	
1559	16	88	25.24	6.89	1.39	12.4	0.96	35.3	no	clear	7.25
1601	18	106	25.24	6.88	1.38	8.7	0.97	32.5	yes	clear	after vessing tiny bubbles
1603	20	120.5	25.27	6.88	1.37	7.2	0.97	30.2	no	clear	
1605	22	135.0	25.26	6.88	1.35	7.9	0.96	28.8	no	clear	

1610 * Collect Sample: 04DBMW40-004 Number of Containers: 9 Bubbles in samples

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 85230 Purge Rate: 5.5 gpm Estimated 2.0 min. interval

Final Meter Reading 85426 Total Volume Purged ~~14~~ 196

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 04DGMW66 | SAMPLE NO.: 04DGMW66-004

START (Date): 7/1/97 (Time): 0813 | END (Date): 7/1/97 (Time): 0845

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) MATTHEW BROOKSHIRE (CDM) NEIL DAVIS (WATER DEVELOPMENT)

REFERENCE POINT OF DEPTH MEASUREMENT: N of TOC

OVM READING: ----- | ORIG. DTW: 210.14 feet | FINAL DTW: 210.48 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 4" Submersible Grundfos Pump (✓)

MEASURED WELL TD	ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
295.00	- 210.14	= 84.86	x	= 78.9 Gal./Csg. Vol.	x 3 Csg. Vol.	= 236.8 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 9.71 gpm

Pump is set at 280 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0815	2	20	25.12	7.21	1.10	934.7	7.93	124.3	Yes	cloudy	
0817	4	40	25.23	7.21	1.09	945.0	7.67	124.3	Yes	cloudy	
0819	6	60	25.32	7.20	1.08	795.4	7.73	122.5	Yes	cloudy	
0821	8	80	25.39	7.20	1.07	446.1	7.67	124.4	Yes	Clear	
0824	11	110	25.49	7.20	1.01	578.2	7.66	119.4	Yes	clear	
0826	13	130	25.53	7.20	1.00	509.4	7.64	119.6	Yes	clear	
0829	16	160	25.58	7.20	0.99	361.8	7.59	118.3	No	clear	
0831	18	180	25.62	7.20	1.01	248.9	7.58	118.8	No	clear	
0834	21	210	25.65	7.19	0.97	318.7	7.51	120.1	Yes	clear	
0837	24	240	25.67	7.19	0.97	270.3	7.46	119.2	Yes	Clear	

0840 * Collect Sample: 04DGMW66-004 Number of Containers: 9

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 85427 Purge Rate: 10 gpm Estimated 24 min. interval

Final Meter Reading 85738 Total Volume Purged 311 gpm

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 04UGMW63 | SAMPLE NO.: 04UGMW63-004

START (Date): 7/8/97 (Time): 1410 | END (Date): 7/8/97 (Time):

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X | WEATHER: Sunny TEMP.: 50 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ Marc P. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 208.25 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ( )

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
280.00	-	208.25	=	71.75	x		=	66.7 Gal./Csg. Vol.	x 3 Csg. Vol. =	200 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT

* Collect Sample: 04UGMW63-004 Number of Containers: bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Could not get water to flow @ 1435.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 05DBMW41 | SAMPLE NO.: 05DBMW41-004

START (Date): 7/8/97 (Time): 1655 | END (Date): 7/8/97 (Time): 1725

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 159.20 feet | FINAL DTW: 159.15 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ( )

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 221) + 0.06] x 3 Csg. Vol. = 15.39 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (yes/No)	WATER COLOR	COMMENT
1658	3	1.5	22.18	6.24	1.66	6.8	6.20	420.3	N	Clear	
1705	10	5.0	22.58	6.62	1.68	9.0	6.92	377.3	N	Clear	
1708	13	6.5	22.82	6.63	1.70	21.2	6.91	356.6	N	Clear	
1720	25	12.5	22.97	6.56	1.74	16.2	6.94	325.1	N	Clear	
1725	30	15.0	22.99	6.55	1.75	14.1	6.91	321.4	N	Clear	

* Collect Sample: 05DBMW41-004 Number of Containers: 9 bottles | Total Volume Purged = 17 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 05DGMW67 | SAMPLE NO.: 05DGMW67-004

START (Date): (7/8/97) 7/11/97 (Time): (1615) | END (Date): (Time):

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: (162.30) 162.70 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 220) + 0.06] x 3 Csg. Vol. = 15.32 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (yes/No)	WATER COLOR	COMMENT
16											

* Collect Sample: 05DGMW67-004 Number of Containers: bottles | Total Volume Purged = Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X) Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

7/8/97 - Grundfos controller cut out after 30 sec.. Collected 2.5 gallons - no measurements. 7/11/97 - Controller box cut out.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles Pump impeller overheat.

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

No samples collected

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 05DGMW68 | SAMPLE NO.: 05DGMW68-004

START (Date): 7/1/97 (Time): 1035 | END (Date): 7/1/97 (Time): 1107

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 80°F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (CDM) Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 164.28 feet | FINAL DTW: ~~164.0~~ 164.58 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 4" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
215.00	-	164.28	=	50.72 x	=	47.2 Gal./Csg. Vol.	x 3 Csg. Vol. =	141.5 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 7.03 gpm

Pump is set at 200 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1039	4	26.4	27.74	6.85	1.15	1569.6	6.90	153.3	No	Cloudy	
1041	6 ~~5~~ MB	39.6 ~~52.8~~ MB	24.61	6.92	1.40	1527	7.20	131.2	Yes	clear	
1043	8	52.8	24.24	6.91	1.47	1528.3	7.22	128.7	Yes	Clear	
1045	10	66.0	24.08	6.92	1.47	1555.4	7.09	124.4	Yes	clear	
1047	12	79.2	24.09	6.90	1.44	1553.1	7.05	123.2	Yes	clear	
1050	15	100.2	23.98	6.92	1.48	1471.2	7.14	119.6	Yes	Clear	7 gpm
1052	17	114.2	24.00	6.92	1.47	1435.3	7.07	119.5	Yes	clear	
1054	19	128.2	24.01	6.94	1.44	1458.6	7.06	119.6	Yes	clear	
1056	21	142.2	23.99	6.95	1.41	1552.6	7.03	119.9	Yes	clear	
1058	23	156.2	24.02	6.96	1.44	1370.5	~~6.96~~ MB 7.02	120.6	Yes	Clear	
1105	* Collect Sample: 05DGMW68-004					Number of Containers: 9					

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Initial Meter Reading: 85738 Purge Rate: 6.6 gpm Estimated 2.1 min. interval

Final Meter Reading 85963 Total Volume Purged = 225

Turbulence reading may be high because of large amount of bubbles.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 05UGMW27 | SAMPLE NO.: 05UGMW27-004

START (Date): 7/9/97 (Time): 0950 | END (Date): 7/9/97 (Time): 1045

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ Marc D Smits

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 166.26 feet | FINAL DTW: 166.18 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ( )

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
243.00	-	166.26	=	76.74	x	= 71.4 Gal./Csg. Vol.	x 3 Csg. Vol. =	214 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.0 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0959	9	36	27.57	7.35	1.76	64.7	10.28	216.1	N	Clear	
1010	20	80	22.73	7.23	1.76	54.4	7.83	194.6	N	Clear	
1020	30	120	22.95	7.23	1.76	100.6	8.20	183.9	N	Clear	
1030	40	160	23.17	7.23	1.75	1.5	7.51	196.4	N	Clear	
1035	45	180	22.90	7.22	1.76	11.3	7.55	197.4	N	Clear	
1040	50	200	22.94	7.22	1.76	2.7	7.53	193.7	N	Clear	

* Collect Sample: 05UGMW27-004 Number of Containers: 9 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT:

Duplicate sample 05UGMW27-304 collected

Field QC Sample Y (X) N ( ) QC I.D.: 05UGMW27-304 Time: 1110 Number of Containers: 9 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 05NEW1 | SAMPLE NO.: 05NEW1-004

START (Date): 7/9/97 (Time): 0840 | END (Date): 7/9/97 (Time): 0912

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 161.75 feet | FINAL DTW: 161.30 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48 Gal/ft x 202) + 0.06] x 3 Csg. Vol. = 14.08 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0843	3	1.5	22.97	5.68	1.61	108.7	5.45	446.0	N	Yellow	
0850	10	5.0	23.60	6.48	1.63	235.1	8.81	336.5	N	Yellow	
0900	20	10.0	24.36	6.52	1.61	201.5	8.79	305.1	N	Yellow	
0910	30	15.0	24.78	6.55	1.61	85.2	8.78	274.1	N	Clear	
0912	32	16.0	24.79	6.52	1.61	80.5	8.78	271.1	N	Clear	

* Collect Sample: 05NEW1-004 Number of Containers: bottles | Total Volume Purged = 20 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals (X) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta (X) Radium-226 (X) Radium-228 (X)
Strontium-89 (X) Cesium-134 (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Duplicate sample 05NEW1-304 collected

Field QC Sample Y (X) N ( ) QC I.D.: 05NEW1-304 Time: 0920 Number of Containers: 9 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (✓) Dedicated Pump ( )

PURGING LOG

WELL NO.: 07DBMW43 | SAMPLE NO.: 07DBMW43-004

START (Date): 7/2/97 (Time): 1310 | END (Date): 7/3/97 (Time): 1300

WELL CASING DIAMETER: 2" ( ) 4" (✓) 5" ( ) | WEATHER: Sunny TEMP.: 85 °F

FIELD PERSONNEL'S NAME(S): Matt Brookshire (CDM), Brian Trinh (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N of TOC

OVM READING: ------ | ORIG. DTW: 112.65 feet | FINAL DTW: 173.84 feet from 7/3/97

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD	ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
195.00	- 112.65	= 82.35	x	= 54.4 Gal./Csg. Vol. (7/2/97 / 7/3/97 / total)	x 3 Csg. Vol. =	163.1 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 3.26 / 3.24 / 3.25 gpm

Pump is set at ~~180~~ 190 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1315	5	12.5	26.94	6.73	1.63	577.5	6.00	67.7	Yes	murky	
1319	9	31.5	25.56	6.91	1.26	728.7	3.44	34.2	Yes	cloudy	
1324	14	49.0	25.62	7.09	1.23	355.0	3.03	9.1	Yes	cloudy	
1328	18	63.00	25.89	7.17	1.26	250.8	3.38	-6.5	Yes	cloudy	water level is 169.14'
1333	23	80.5	26.11	7.00	1.30	318.8	3.27	-6.5	Yes	clear	3.0 gpm
1337	27	92.5	26.16	6.85	1.56	324.5	5.73	15.4	Yes	cloudy	water level 183.22
1342	32	102.5	26.25	6.94	1.66	623.1	5.32	22.0	Yes	cloudy	water level >190'
1343	Turned off pump. Water level below pump.										
1215 on 7/3/97	water depth is 112.72'. Pump set at 190. Purging at 3 gpm at 1235.										
1240	* 5	122.5	27.16	6.90	1.59	562.1	7.07	66.5	No	murky	
1245	10	137.5	26.43	6.91	1.60	214.2	7.07	66.9	No	cloudy	
1250	15	153.5	26.74	6.91	1.60	112.3	7.11	60.8	No	clear	3.2 gpm
1255	20	169.5	27.16	6.95	1.58	174.0	7.03	56.8	No	clear	
1258	* Collect Sample: 07DBMW43-004 Number of Containers: 3 bottles										

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (✓) Filtered Metals ( ) General Chemistry (✓) Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( ) Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 86905 (7/2/97) / 87105 (7/3/97) Purge Rate: 3.5 gpm Estimated 4.6 min. interval

Final Meter Reading 87005 / 87186 Total Volume Purged = 100 gallons on 7/2/97, 81 gallons on 7/3/97

*Elapsed time was from a start time on 7/3/97 of 1235.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 07DGMW91 | SAMPLE NO.: 07DGMW91-004

START (Date): 7/9/97 (Time): 1526 | END (Date): 7/9/97 (Time): 1528

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 101.80 feet | FINAL DTW: 101.98 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME			PURGE VOLUME
155.00	-	101.80	=	53.2	x	=	35.1 Gal./Csg. Vol.	x 3 Csg. Vol. =	105.3 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.4 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1510	4	20	25.45	6.76	1.66	126.2	13.70	83.9	Yes	murky	
1512	6	30	25.20	6.76	1.71	127.2	13.14	79.7	Yes	cloudy	
1514	8	40	25.27	6.77	1.73	132.1	12.74	72.5	Yes	clear	
1516	10	50	25.33	6.78	1.74	167.2	12.52	68.7	Yes	clear	
1519	13	63.5	25.43	6.80	1.75	71.2	11.32	69.4	Yes	clear	4.5 gpm
1521	15	72.5	25.49	6.79	1.76	84.2	10.82	70.9	Yes	clear	
1523	17	81.5	25.49	6.82	1.76	64.6	11.01	72.8	Yes	clear	
1525	19	90.5	25.42	6.80	1.76	40.5	11.38	74.5	Yes	clear	
1527	21	99.5	25.45	6.80	1.76	46.4	11.60	75.8	Yes	clear	
1529	23	108.5	25.44	6.79	1.76	31.0	11.19	77.2	Yes	clear	
1532	* Collect Sample: 07DGMW91-004					Number of Containers: 3					

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 89777 Purge Rate: 5 gpm Estimated 21 min. interval

Final Meter Reading 89917 Total Volume Purged = 140 gallons

Field QC Sample Y (✓) N ( ) QC I.D.: 07DGMW91-304 Time: 1536 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 07DBMW100 | SAMPLE NO.: 07DBMW100-004

START (Date): 7/10/97 (Time): 1540 | END (Date): 7/10/97 (Time): 1605

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" (| WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits / B. Trinh

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 103.16 feet | FINAL DTW: 103.58 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ( )

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
176.00	-	103.16	=	72.84	x	=	48.1 Gal./Csg. Vol.	x	3 Csg. Vol. =	144.2 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 6.0 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1544	4	24	24.08	6.79	1.52	176.9	12.12	134.2	N	Cloudy	
1548	8	48	24.12	6.78	1.52	274.1	12.12	130.6	N	Cloudy	
1552	12	72	24.28	6.80	1.51	60.9	11.97	131.3	N	Yellow	
1558	18	108	24.34	6.80	1.57	16.0	11.81	142.5	N	Clear	
1602	22	132	24.36	6.80	1.67	3.9	11.61	154.2	N	Clear	
1604	24	144	24.38	6.80	1.68	4.0	11.59	155.4	N	Clear	

1615 * Collect Sample: 07DBMW100-004 Number of Containers: 3 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT:

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 08DGMW74 | SAMPLE NO.: 08DGMW74-004

START (Date): 7/7/97 (Time): 1555 | END (Date): 7/7/97 (Time): 1621

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brooksmire (CDM) Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 84.58 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
135.00	-	84.58	=	50.5	x	= 33.3 Gal./Csg. Vol.	x	3 Csg. Vol.	=	100 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 6.8 gpm

Pump is set at 110 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1557	2	13.0	29.14	7.05	1.62	653.3	6.16	43.6	Yes	murky	
1559	4	26.0	26.10	7.09	1.62	196.9	6.41	49.3	Yes	murky	
1600	5	32.5	25.83	7.07	1.62	170.8	6.40	51.6	Yes	cloudy	
1602	7	45.5	25.73	7.07	1.61	144.9	6.42	54.1	Yes	cloudy	
1604	9	58.5	25.86	7.09	1.61	164.8	6.38	55.3	Yes	cloudy	
1606	11	71.5	25.88	7.09	1.62	104.8	6.38	55.9	No	cloudy	
1608	13	84.5	25.88	7.09	1.62	55.5	6.37	55.6	No	cloudy	
1609	14	91.0	25.86	7.09	1.62	39.4	6.38	55.5	No	clear	
1611	16	104.0	25.86	7.08	1.62	25.6	6.38	55.5	No	clear	
1612	17	110.5	25.86	7.08	1.62	27.8	6.36	55.7	No	clear	

1615 * Collect Sample: 08DGMW74-004 Number of Containers: 8

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87807 Purge Rate: 6.5 gpm Estimated 1.5 min. interval

Final Meter Reading 87983 Total Volume Purged = 176 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 08UGMW29 | SAMPLE NO.: 08UGMW29-004

START (Date): 7/7/97 (Time): 1148 | END (Date): 7/7/97 (Time): 1237

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 77 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 85.84 feet | FINAL DTW: 114.18 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
140.00	-	85.84	=	54.16 x	=	35.7 Gal./Csg. Vol.	x 3 Csg. Vol. =	107.2 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 2.53 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1152	4	11.2	26.05	7.23	1.64	622.0	0.74	-6.3	No	Murky	
1156	8	22.4	26.60	7.22	1.64	394.3	0.73	-6.3	No	murky	
1159	~~12~~ 11	~~33.6~~ 30.8	27.09	7.20	1.65	343.5	0.72	-2.2	No	murky	
1203	15	42.0	27.57	7.05	1.65	71.1	0.75	10.6	No	cloudy	
1207	19	53.2	27.64	6.98	1.64	38.6	0.98	25.1	No	clear	
~~1255~~ 1211	23	64.4	26.51	6.92	1.63	40.4	3.03	37.2	No	cloudy	
1215	27	75.6	26.38	6.92	1.63	59.1	3.50	43.0	No	clear	
1219	31	86.8	26.58	6.89	1.63	35.1	3.80	49.8	No	clear	
1223	35	98.0	26.68	6.86	1.64	32.1	4.35	53.6	No	clear	
1227	39	109.2	26.86	6.85	1.63	32.1	4.99	58.0	No	clear	

1229 * Collect Sample: 08UGMW29-004 Number of Containers: 3

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87336 Purge Rate: 2.8 gpm Estimated 3.8 min. interval

Final Meter Reading 87445 Total Volume Purged = 109 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 09DBMW45 | SAMPLE NO.: 09DBMW45-004

START (Date): 7/8/97 (Time): 1711 | END (Date): 7/8/97 (Time): 1734

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 73 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Bontkeshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 117.94 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW				4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		3 Csg. Vol.		PURGE VOLUME
162.00	-	117.94	=	44.06	x		=	29.1 Gal./Csg. Vol.	x		=	87.2 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 6.6 gpm

Pump is set at 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1714	3	20.7	26.91	6.80	1.91	127.1	7.01	80.7	No	cloudy	
1715	4	27.6	25.33	6.79	1.95	249.2	7.52	79.5	No	cloudy	
1716	5	34.5	24.87	6.78	1.95	289.5	7.73	80.5	No	cloudy	
1718	7	48.3	24.63	6.77	1.95	477.5	8.07	82.3	No	cloudy	
1719	8	55.2	24.59	6.77	1.95	435.3	8.03	83.3	No	cloudy	
1720	9	62.1	24.56	6.77	1.95	390.0	8.07	83.3	No	cloudy	
1721	10	69.0	24.56	6.76	1.95	320.6	8.01	83.7	No	cloudy	
1722	11	75.9	24.55	6.76	1.95	819.7	7.96	84.1	No	cloudy	
1723	12	82.8	24.56	6.76	1.96	619.2	8.11	84.2	No	cloudy	
1724	13	89.7	24.56	6.76	1.95	743.5	8.09	84.2	No	cloudy	

1728 | * Collect Sample: 09DBMW45-004 | Number of Containers: 3

Air Entrainment Survey ( ) | Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 89413 Purge Rate: 6.5 gpm Estimated 1.3 min. interval

Final Meter Reading 89564 Total Volume Purged = 151 gallons

Field QC Sample Y (✓) N ( ) QC I.D.: 09DBMW45-3004 Time: 1733 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (✓) Dedicated Pump ( )

PURGING LOG

WELL NO.: 09DGMW75 | SAMPLE NO.: 09DGMW75-004

START (Date): 7/8/97 (Time): ~~0827~~ 0851 | END (Date): 7/8/97 (Time): 0925

WELL CASING DIAMETER: 2" ( ) 4" (✓) 5" ( ) | WEATHER: Sunny TEMP.: 72 °F

FIELD PERSONNEL'S NAME(S): Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N of TOC

OVM READING: ------ | ORIG. DTW: 111.74 feet | FINAL DTW: 111.82 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
159.00	-	111.74	=	47.26	x	= 31.2 Gal./Csg. Vol.	x 3 Csg. Vol. =	93.6 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 6.1 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
~~0828~~			~~24.49~~								meter not working
0853	2	10.4	25.02	6.75	2.52	248.8	8.16	57.1	No	cloudy	5.2 gpm
0855	4	20.8	24.66	6.73	2.49	184.5	8.14	58.8	No	cloudy	
0857	6	31.2	24.73	6.73	2.46	149.9	8.21	66.0	No	cloudy	
0858	7	36.4	24.74	6.73	2.44	80.8	8.28	68.0	No	cloudy	
0900	9	46.8	24.85	6.73	2.40	29.3	8.29	70.0	No	clear	
0902	11	57.2	24.87	6.73	2.36	20.9	8.50	70.8	No	clear	
0903	12	62.4	24.93	6.75	2.36	14.1	8.53	71.0	No	clear	
0905	14	72.8	25.02	6.75	2.35	11.1	8.58	71.6	No	clear	
0907	16	83.2	25.08	6.75	2.34	9.5	8.45	72.3	No	clear	
0909	18	93.6	25.05	6.75	2.33	8.1	8.47	72.9	No	clear	

0911 * Collect Sample: Number of Containers: 3 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (✓) Filtered Metals ( ) General Chemistry (✓)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87983 Purge Rate: 5.2 gpm Estimated 1.8 min. interval

Final Meter Reading 88191 Total Volume Purged = 208 gallons

Also collected 1x5 gallon sample for Irvine water district and 2x40mL VOA at 0915

Field QC Sample Y (✓) N ( ) QC I.D.: 09DGMW75-304 Time: 0920 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 10DGMW77 | SAMPLE NO.: 10DGMW77-004

START (Date): 7/10/97 (Time): 1401 | END (Date): 7/10/97 (Time): 1431

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Sims (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 103.96 feet | FINAL DTW: 104.10 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
175.00	-	103.96	=	71.04	x	= 46.8 Gal./Csg. Vol.	x 3 Csg. Vol. =	140.7 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 5.5 gpm

Pump is set at 120 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1404	3	18	28.98	7.03	1.46	664.7	12.10	94.7	Yes	cloudy	
1406	5	30	27.19	6.86	1.86	319.3	12.57	84.5	Yes	cloudy	
1408	7	42	26.00	6.82	1.95	317.9	13.35	81.2	Yes	cloudy	
1411	10	60	25.85	6.81	1.97	162.9	13.74	85.1	Yes	cloudy	
1413	12	72	25.84	6.81	1.97	105.4	14.12	84.6	Yes	cloudy	
1415	14	84	25.82	6.80	1.97	50.0	16.12	83.5	Yes	clear	
1418	17	102	25.79	6.81	1.97	314.5	16.23	83.6	Yes	clear	
1420	19	114	25.76	6.80	1.98	23.1	15.98	83.8	Yes	clear	
1423	22	132	25.71	6.80	1.98	25.0	17.80	84.6	Yes	clear	
1425	24	144	25.73	6.80	1.99	28.8	16.07	84.3	Yes	clear	

1428 * Collect Sample: 10DGMW77-004 Number of Containers: 3

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 90788 Purge Rate: 6.0 gpm Estimated 23 min. interval

Final Meter Reading 90954 Total Volume Purged = 166 gallons

Large amounts of bubbles may be affecting the D.O.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: 6.0 Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 13DGMW78 | SAMPLE NO.: 13DGMW78-004

START (Date): 7/9/97 (Time): 1215 | END (Date): 7/9/97 (Time): 1237

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 124.72 feet | FINAL DTW: 124.77 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 168) + 0.06] x 3 Csg. Vol. = 11.74 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1217	2	1.0	24.49	6.14	4.36	39.2	4.33	361.8	N	Clear	
1222	7	3.5	24.73	6.42	3.47	4.8	3.40	316.1	N	Clear	
1226	11	5.5	24.99	6.45	3.38	2.7	3.00	300.0	N	Clear	
1230	15	7.5	25.16	6.46	3.34	10.5	2.57	286.0	N	Clear	
1235	20	10.0	25.27	6.47	3.23	3.9	1.97	262.4	N	Clear	

* Collect Sample: 13DGMW78-004 Number of Containers: 3 bottles | Total Volume Purged = 14 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 14DBMW50 | SAMPLE NO.: 14DBMW50-004

START (Date): 7/9/97 (Time): 1340 | END (Date): 7/9/97 (Time): 1401

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 118.92 feet | FINAL DTW: 119.10 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48Gal/ft x 150) + 0.06] x 3 Csg. Vol. = 10.5 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1342	2	1.0	23.82	5.41	3.27	96.1	0.20	72.6	N	Clear	Initial
1345	5	2.5	23.96	6.66	3.25	18.6	0.24	29.1	N	Clear	discharge
1350	10	5.0	24.59	6.73	3.24	12.1	0.62	25.2	N	Clear	had veg.
1355	15	7.5	24.94	6.75	3.25	6.8	0.69	24.8	N	Clear	material. smelt bad.
1359	19	9.5	25.15	6.73	3.24	4.8	0.71	25.0	N	Clear	

* Collect Sample: 14DBMW50-004 Number of Containers: 3 bottles | Total Volume Purged = 14 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Pungent smell from water & constant during sampling and purging.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 14DGMW79 | SAMPLE NO.: 14DGMW79-004

START (Date): 7/9/97 (Time): 1255 | END (Date): 7/9/97 (Time): 1316

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ---- | ORIG. DTW: 117.59 feet | FINAL DTW: 118.50 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ( )

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03215 ft)² x 3.14 x 7.48 Gal/ft x 150) + 0.06] x 3 Csg. Vol. = 10.5 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1300	5	2.5	24.24	6.51	3.51	15.7	3.58	192.8	N	Clear	
1305	10	5.0	24.09	6.59	3.46	10.7	2.34	125.7	N	Clear	
1310	15	7.5	24.19	6.65	3.54	28.1	1.42	136.6	N	Clear	
1312	17	8.5	24.16	6.62	3.53	9.6	1.02	143.5	N	Clear	
1315	20	10.0	24.94	6.56	3.54	7.6	1.05	136.9	N	Clear	

* Collect Sample: 14DGMW79-004 Number of Containers: 3 bottles | Total Volume Purged = 14 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 15DBMW51 | SAMPLE NO.: 15DBMW51-004

START (Date): 7/2/97 (Time): 1528 | END (Date): 7/2/97 (Time): 1645

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 82 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (Cam) Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 119.65 feet | FINAL DTW: 154.12 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
170.00	-	119.65	=	50.35 x	=	33.2 Gal./Csg. Vol.	x	3 Csg. Vol.	=	99.7 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 1.3 gpm

Pump is set at 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1531	3	20.4	33.02	6.79	2.58	7.6	6.79	89.7	No	clear	
1533	5	34.0	31.78	6.77	2.58	10.7	0.81	84.8	No	clear	0.6 gpm
1534	6	~~40.8~~ 34.6	30.35	6.78	2.65	14.8	0.70	75.7	No	clear	
1535	7	~~47.6~~ 35.2	29.57	6.77	2.71	14.9	0.64	72.3	No	clear	
1537	9	~~61.2~~ 36.4	29.58	6.76	2.79	10.9	0.74	67.2	No	clear	
1538	10	~~68.0~~ 37.0	29.77	6.76	2.80	12.4	0.79	63.4	No	clear	
~~1540~~	~~12~~	no	readings	taken							
1541	Stopped	purging	and	lowered	pump	to ~~160'~~ 170'		170'	/ Restarted at		1555 - 2 gpm
1600	32	47.0	27.40	6.69	4.53	27.7	2.69	64.9	No	clear	
1605	37	57.0	27.53	6.73	3.23	8.2	1.38	48.5	No	clear	
1610	42	67.0	28.06	6.75	2.95	7.9	1.17	43.6	No	clear	
1615	47	77.0	28.44	6.80	2.97	41.6	1.57	43.2	No	clear	
1620	52	87.0	28.58	6.76	3.30	22.5	1.91	44.8	No	clear	
1625	57	97.0	28.67	6.73	3.32	18.9	1.90	43.7	No	clear	154.43'
1630	62	107.0	28.69	6.72	3.66	13.0	1.72	40.8	No	clear	

1633 * Collect Sample: 15DBMW51-004 Number of Containers: 3

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87005 Purge Rate: 6.8 gpm Estimated 15 min. interval

Final Meter Reading 87105 Total Volume Purged = 100

Field QC Sample Y (✓) N ( ) QC I.D.: 15DBMW-301 Time: 1610 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 16DBMW52 | SAMPLE NO.: 16DBMW52-004

START (Date): (7/10/97) 7/11/97 (Time): 1030 | END (Date): 7/11/97 (Time): 1101

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75°F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits / B. Trink

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: (169.22) 169.27 feet | FINAL DTW: 169.00 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48Gal/ft x 220) + 0.06] x 3 Csg. Vol. = 15.32 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1031	1	0.5	24.11	6.87	2.22	12.4	5.01	207.7	N	Clear	
1040	10	5.0	24.43	7.23	2.21	14.0	6.76	173.8	N	Clear	
1042	12	6.0	24.74	7.23	2.21	15.3	6.76	167.6	N	Clear	
1045	15	7.5	24.94	7.23	2.22	8.2	6.73	162.7	N	Clear	
1050	20	10.0	25.21	7.23	2.21	8.6	6.68	152.9	N	Clear	
1055	25	12.5	25.32	7.23	2.21	6.6	6.73	148.3	N	Clear	
1100	30	15.0	25.42	7.25	2.21	6.7	6.72	143.7	N	Clear	

1110 * Collect Sample: 16DBMW52-004 Number of Containers: 3 bottles | Total Volume Purged = 19 Gal.

Air Entrainment Survey (X) | Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

1515 on 7/10/97 - Controller box cutting out.
Air contaminant sample collected as helicopter passed by

Field QC Sample Y ( ) N ( ) QC I.D.: 16DBMW52-904 Time: 1500 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 16DGMW81 | SAMPLE NO.: 16DGMW81-004

START (Date): 7/2/97 (Time): 0848 | END (Date): 7/2/97 (Time): 0913

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) ~~Matt Brookshire (CDM)~~, Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N.PTOC

OVM READING: ----- | ORIG. DTW: 165.45 feet | FINAL DTW: 166.98 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
221.00	-	165.45	=	55.6	x		=	36.7 Gal./Csg. Vol.	x 3 Csg. Vol. =	110 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 8 gpm

Pump is set at 200 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0851	3	24.6	24.90	7.10	2.43	910.9	5.06	-1.6	Yes	clear	
0854	6	49.2	25.06	7.08	2.33	250	6.48	6.2	Yes	clear	
0855	7	57.4	25.09	7.08	2.31	413.1	6.57	5.2	Yes	clear	
0857	9	73.8	25.12	7.08	2.26	120.1	7.03	12.0	Yes	clear	
0859	11	90.2	25.13	7.08	2.30	981.3	7.23	13.9	Yes	clear	
0902	14	114.8	25.14	7.07	2.24	197.1	7.38	18.1	Yes	clear	
0903	15	123.0	25.14	7.07	2.24	564.7	7.68	20.1	Yes	clear	
0904	16	131.2	25.14	7.07	2.20	275.7	7.73	22.0	Yes	clear	
0905	17	139.4	25.14	7.07	2.18	355.2	7.72	23.8	Yes	clear	
0907	19	155.8	25.17	7.06	2.16	155.4	7.76	25.1	Yes	clear	
0910	* Collect Sample: 16DGMW81-004					Number of Containers:		3			

Air Entrainment Survey ( ) Field Blanks (✓)

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 86391 Purge Rate: 8.2 gpm Estimated 1.3 min. interval

Final Meter Reading 86591 Total Volume Purged: 200

Field QC Sample Y (✓) N ( ) QC I.D.: 16DGMW81-904 Time: 0920 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 16UGMW33 | SAMPLE NO.: 16UGMW33-004

START (Date): 7/10/97 (Time): 1400 | END (Date): 7/10/97 (Time): 1431

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits / B. Trinh

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 171.36 feet | FINAL DTW: 171.10 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)^2 x 3.14 x 7.48 Gal/ft x 219) + 0.06] x 3 Csg. Vol. = 15.25 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1402	2	1	23.76	6.37	1.21	17.2	6.94	323.9	N	Clear	
1406	6	3	24.15	6.94	1.21	7.8	10.28	261.7	N	Clear	
1414	14	7	24.69	6.78	1.21	1.0	10.56	224.1	N	Clear	
1419	19	9.5	24.84	6.96	1.21	2.6	10.54	229.9	N	Clear	
1425	25	12.5	25.01	6.85	1.21	0.9	10.46	212.0	N	Clear	
1430	30	15.0	25.03	6.91	1.21	0.7	10.59	212.1	N	Clear	

1440 * Collect Sample: 16UGMW33-004 Number of Containers: 3 Total Volume Purged = 18 Gal.

Air Entrainment Survey (X) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft Note: Helicopter flew by during Air Contaminant blank 16UGM33-904 collected } AC Blank 1-1L Gen Chem. 2-40ml VOA vials } Collection

Field QC Sample Y(X) N ( ) QC I.D.: 16UGMW33-904 Time: 1450 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 17DGMW82 | SAMPLE NO.: 17DGMW82-004

START (Date): 6/30/97 (Time): 1348 | END (Date): (Time):

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X | WEATHER: Clear, lt. W breeze TEMP.: 85 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS / M. Smith

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 184.01 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump X

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 5" = 0.93 6" = 1.50	CASING VOLUME		PURGE VOLUME
260.00	-	184.01	=	75.99	x	= 70.68 Gal./Csg. Vol.	x 3 Csg. Vol. =	212.0 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
	* Collect Sample: 17DGMW82-004					Number of Containers:		bottles			

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( ) Strontium-89 ( ) Cesium-134 ( )

COMMENT: Pump start @ 4 gpm for ~1.5 min, then shut off. Tried several times. Secured well at 1400.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 17NEW1 15 6/30/97 | SAMPLE NO.: 17NEW1-004 15 6/30/97

START (Date): 6/30/97 (Time): 1613 | END (Date): 6/30/97 (Time): 1645

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Clear, Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS / M. Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 181.38 feet | FINAL DTW: 181.80 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump X

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48Gal/ft x 225) + 0.06] x 3 Csg. Vol. = 15.66 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
15 6/30/97 1615	2	1	23.41	6.44	0.76	550.1	2.17	75.7	N	Yellow	
15 6/30/97 1618	5	2.5	24.05	6.92	0.77	179.2	9.65	53.4	N	Yellow	
15 6/30/97 1623	10	5.0	24.49	7.09	0.76	144.6	4.88	74.3	N	Yellow	
1628	15	7.5	25.05	7.11	0.76	67.1	5.47	68.5	N	Yellow	
15 6/30/97 1638	25	12.5	25.70	6.95	0.76	35.1	6.17	254.2	N	Clear	
15 6/30/97 1642	30	15.0	25.80	6.98	0.78	27.8	6.85	265.5	N	Clear	
15 6/30/97 1645	* Collect Sample: 17NEW1-004		Number of Containers: 3 bottles						Total Volume Purged = 17 Gal.		

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 17NEW2 | SAMPLE NO.: 17NEW2-004

START (Date): 6/30/97 (Time): 1425 | END (Date): 6/30/97 (Time): 1450

WELL CASING DIAMETER: 2" ( ) 4" (✓) 5" ( ) | WEATHER: Clear, mod. W. breeze TEMP.: 85 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ----- | ORIG. DTW: 87.82 feet | FINAL DTW: 87.59 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump X

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48Gal/ft x 121) + 0.06] x 3 Csg. Vol. = 8.51 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1428	3	1.5	23.04	6.98	0.77	15.1	2.12	169.4	N	clear	
1430	5	2.5	23.11	6.15	0.72	5.9	4.94	150.1	N	clear	
1433	8	4	23.50	7.33	0.70	3.8	4.49	120.2	N	clear	
1436	11	5.5	23.72	7.37	0.72	3.5	2.90	105.9	N	clear	
1439	14	7	23.91	7.25	0.72	3.4	1.08	189.3	N	clear	YSI shut off. D.O.
1441	16	8	23.94	7.29	0.76	3.6	0.68	186.4	N	clear	ORP slightly erratic

1450 * Collect Sample: 17NEW2-004 Number of Containers: 3 bottles | Total Volume Purged = 10 Gal.

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Field QC Sample Y ( ) N (X) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18BGMW03C | SAMPLE NO.: 18BGMW03C-004

START (Date): 7/8/97 (Time): ~~1053~~ 1153 | END (Date): 7/8/97 (Time): 1231

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brooksmire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N ~~X~~TOC

OVM READING: ----- | ORIG. DTW: 106.48 feet | FINAL DTW: 106.76 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME			PURGE VOLUME
247.00	-	106.48	=	140.52 x	=	1307 Gal./Csg. Vol.	x	3 Csg. Vol. =	392 Gal. ~~115~~ ~~196.0~~ NB

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 10.8 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
NB ~~1056~~ 1154	3	35.1	24.93	7.15	1.18	189.3	10.05	95.3	Yes	clear	
NB ~~1059~~ 1159	6	70.2	24.93	7.08	1.18	15.4	10.26	95.4	Yes	clear	
1203	10	117.0	25.31	7.00	1.19	12.8	11.21	90.9	Yes	clear	
1206	13	152.1	25.33	6.98	1.19	15.4	10.00	88.8	Yes	clear	
1209	16	187.2	25.28	6.98	1.20	8.3	10.36	89.5	Yes	clear	
1212	19	222.3	25.48	6.98	1.20	3.0	11.84	89.6	Yes	clear	
1216	23	269.1	25.07	6.98	1.20	1.8	10.37	89.2	Yes	clear	
1219	26	304.2	25.67	6.98	1.21	2.3	10.84	88.9	Yes	clear	
1222	29	339.3	25.41	6.97	1.21	15.5	10.72	90.2	Yes	clear	
1225	32	374.4	25.36	6.96	1.22	1.6	10.43	90.7	Yes	clear	
1227	34	397.8	25.36	6.96	1.22	10.8	10.57	90.9	Yes	clear	
1230	* Collect Sample: 18BGMW03C-004				Number of Containers: 3 bottles						

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 58373 Purge Rate: 11.7 gpm Estimated 3.4 min. interval

Final Meter Reading 58784 Total Volume Purged = 411 gallons

Bubbles detected throughout readings. May have caused high DO.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 18BGMW03E | SAMPLE NO.: 18BGMW03E-004

START (Date): 7/8/97 (Time): 1230 | END (Date): 7/8/97 (Time): 1307

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 90 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ Marc Smits

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: ------ | ORIG. DTW: 108.11 feet | FINAL DTW: 108.40 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) ~~Submersible Grundfos Pump~~ X

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 160) + 0.06] x 3 Csg. Vol. = 11.2 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1234	4	2	24.25	6.70	1.64	656.1	6.03	153.0	No	Orange	
1240	10	5	25.51	6.37	1.65	1050.1	4.96	345.8	No	Orange	
1255	25	7	24.71	6.82	1.61	937.2	4.97	315.2	No	Orange	
1303	32	10	25.13	6.84	1.60	411.6	5.50	254.1	No	Orange	
1307	37	12	25.08	6.83	1.60	381.3	5.47	244.1	No	Orange	

* Collect Sample: 18BGMW03E-004 Number of Containers: | Total Volume Purged = Gal.

Air Entrainment Survey ( ) | Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Low Flow Purge. Tubing diameter = 3/4" = 0.0625 ft

Note: Had initial problems with YSI Instrument
Collected 2 additional VOA and 1-5 gallon container for Irvine Ranch Water District

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 18BGMW03E | SAMPLE NO.: 18BGMW03E-004R

START (Date): 7/11/97 (Time): 0853 | END (Date): 7/11/97 (Time): 0915

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 70 °F

FIELD PERSONNEL'S NAME(S): M. Smits / B. Trinh

REFERENCE POINT OF DEPTH MEASUREMENT: Top of Sounding Tube

OVM READING: — | ORIG. DTW: 105.76 feet | FINAL DTW: 107.29 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump ( )

TUBING RADIUS | PUMP DEPTH | LOW FLOW PURGE VOLUME

[(0.03125 ft)² x 3.14 x 7.48 Gal/ft x 160) + 0.06] x 3 Csg. Vol. = 11.2 Gal. (Low Flow purge)

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 0.5 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/m)	TURB. (NTu)	DISSOLVED OXYGEN (%)	REDOX (mV)	COMMENT
0855	2	1.0	23.73	6.28	1.76	163.4	3.34	97.8	Yellow/No air bubbles
0858	5	2.5	23.90	6.91	1.75	107.9	5.57	58.2	Clear/No air bubbles
0900	7	3.5	24.16	6.92	1.75	100.4	5.40	54.3	Clear/ "
0905	12	6.0	24.41	6.91	1.74	88.5	5.39	56.6	Clear/ "
0908	15	7.5	24.59	6.92	1.74	70.9	5.54	55.6	Clear/ "
0910	17	8.5	24.61	6.91	1.74	83.6	5.63	54.3	Clear/ "
0914	21	10.5	24.75	6.90	1.74	52.0	5.84	50.0	Clear/ "

0920 * Collect Sample: 18BGMW03E-004R Number of Containers: 1 bottles | 14 gallons collected

Air Entrainment Survey ( ) | Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC ( ) Filtered Metals ( ) General Chemistry ( )
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( ) Radon (X)

COMMENT: Low Flow Purge. Tubing diameter = 3/4 " = 0.0625 ft

Resample due to headspace in previous sample.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 18BGMW04B | SAMPLE NO.: 18BGMW04B-004

START (Date): 7/9/97 (Time): 1545 | END (Date): 7/9/97 (Time): 1634

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" (| WEATHER: | TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~SCOT MATHIS~~ M. Smits / B. Trink

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 88.54 feet | FINAL DTW: 89.82 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
215.00	-	88.54	=	126.5 x	=	83.5 Gal./Csg. Vol.	x 3 Csg. Vol. =	250 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 7 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1550	5	35	23.80	6.90	1.60	88.5	12.03	71.7	Yes	Clear	
1553	8	56	23.88	6.92	1.60	117.7	9.92	96.2	Yes	Cloudy	
1557	12	84	23.92	6.95	1.59	46.4	9.73	119.2	No	Clear	
1600	15	105	23.94	6.97	1.61	42.5	9.65	129.6	No	Clear	
1603	18	126	24.01	6.94	1.63	19.8	9.57	141.5	No	Clear	
1607	22	154	23.97	6.95	1.64	26.4	9.58	154.4	No	Clear	
1610	25	175	24.00	6.95	1.64	21.5	9.56	158.3	No	Clear	
1613	28	196	24.00	6.95	1.65	15.4	9.55	163.3	No	Clear	
1617	32	224	24.00	6.95	1.67	41.4	9.45	171.0	No	Clear	
1621	36	252	24.01	6.95	1.67	31.0	9.42	177.8	No	Clear	

1630 * Collect Sample: 18BGMW04B-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT:

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18BGMW05D | SAMPLE NO.: 18BGMW05D-004

START (Date): 7/7/97 (Time): 1359 | END (Date): 7/7/97 (Time): 1428

WELL CASING DIAMETER: 2" ( ) 4" ( ) 6" (X) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 81.28 feet | FINAL DTW: 82.0 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 5" = 0.93 6" = 1.50		CASING VOLUME			PURGE VOLUME
138.00	-	81.28	=	56.72 x	=	85.1 Gal./Csg. Vol.	x	3 Csg. Vol. =	~~110~~ 255.24 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 12.5 gpm

Pump is set at 110 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1403	4	56	25.23	6.73	1.53	108.4	6.05	62.8	No	cloudy	
1405	6	84	24.68	6.72	1.53	234.5	6.05	64.7	No	cloudy	
1407	8	112	24.75	6.71	1.54	247.5	5.99	63.9	No	cloudy	
1409	10	140	24.85	6.72	1.55	174.8	5.97	61.0	No	cloudy	
1411	12	168	24.51	6.71	1.57	83.7	6.49	59.5	No	cloudy	
1412	13	182	24.55	6.71	1.58	97.6	6.63	58.7	No	cloudy	
1414	15	210	24.38	6.73	1.61	38.3	6.42	58.8	No	cloudy	
1416	17	238	24.32	6.73	1.63	42.7	6.32	60.0	No	cloudy	
1417	18	252	24.30	6.73	1.65	37.2	6.13	60.0	No	cloudy	
1418	19	266	24.32	6.73	1.65	41.3	6.06	60.3	No	cloudy	

1421 * Collect Sample: 18BGMW05D-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87445 Purge Rate: 4.0 gpm Estimated 1.8 min. interval

Final Meter Reading 87807 Total Volume Purged = 362 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump ( ) Dedicated Pump (X)

PURGING LOG

WELL NO.: 18BGMW101 | SAMPLE NO.: 18BGMW101-004

START (Date): 7/9/97 (Time): 1425 | END (Date): 7/9/97 (Time): 1445

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" (| WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): SCOT MATHIS

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 79.80 feet | FINAL DTW: 75.90 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
135.00	-	79.80	=	55.2	x	=	36.4 Gal./Csg. Vol.	x 3 Csg. Vol. =	109 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 8.0 gpm

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1429	4	32	31.35	7.20	2.71	67.5	8.19	25.7	N	Clear	
1432	7	56	23.96	6.91	2.74	59.3	8.02	86.0	N	Clear	
1438	13	104	23.88	6.91	2.73	27.4	7.97	86.9	N	Clear	
1440	15	130	23.91	6.90	2.72	29.1	7.91	87.9	N	Clear	
1441	16	138	23.95	6.90	2.72	19.1	7.86	86.4	N	Clear	

* Collect Sample: 18BGMW101-004 Number of Containers: 3 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT:

Air bubbles in samples at end, quickly dissipate.

Field QC Sample Y ( ) N ( ) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18DW135 | SAMPLE NO.: 18DW135-004

START (Date): 7/7/97 (Time): 0851 | END (Date): 7/7/97 (Time): 0913

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Dev.)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 116.64 feet | FINAL DTW: 116.82 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
135.00	-	116.64	=	18.36	x	=	12.1 Gal./Csg. Vol.	x 3 Csg. Vol. =	36.4 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 2.95 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0855	4	16.4	25.10	6.90	3.39	75.6	7.03	120.4	Yes	Clear	
0856	5	20.5	25.18	6.89	3.38	87.1	6.89	118.5	Yes	clear	
0857	6	24.6	25.27	6.90	3.38	88.0	6.87	116.9	Yes	clear	
0858	7	29.5	25.38	6.90	3.38	102.4	6.80	115.0	Yes	clear	2.9
0859	8	30.4	25.43	6.90	3.38	127.2	6.75	114.2	No	cloudy	
0900	9	33.3	25.50	6.91	3.38	200.1	6.67	113.0	No	cloudy	
0901	10	36.2	25.55	6.91	3.38	204.4	6.57	112.5	No	cloudy	
0902	11	39.1	25.67	6.90	3.37	197.1	6.45	112.1	No	cloudy	
0903	12	42.0	25.76	6.90	3.37	148.3	6.39	111.5	No	cloudy	
0904	13	44.9	25.86	6.90	3.38	127.0	6.31	110.5	No	cloudy	
0908	* Collect Sample: 18DW135-004				Number of Containers: 8 bottles						

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87186 Purge Rate: 4.10 gpm Estimated 0.9 min. interval

Final Meter Reading 87251 Total Volume Purged = 65 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS01 - 3 - 004

Project 6210-005 Location MCAS EL TORO Depth 215 Date 7/2/97

Drillhole No. 01 Sampling Zone No. 3 Starting Time 0840 Finishing Time 0915

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 38.10' (End of Session) 38.25'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	94.25	✓	89.31	✓	✓	✓	94.25	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF) °C	PH (s.u.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
0910	21.35	7.04	2.22	7.0	9.09	223.	N

Page_

Westbay

Groundwater Sampling

Field Data Sheet

SAMPLE NO.: 18MCAS01 -H- 004

Project 6210-005 Location MCAS EL TORO Depth 275 Date 7/2/97

Drillhole No. 01 Sampling Zone No. 04 Starting Time 0745 Finishing Time 0825

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 37.86' (End of Session) 38.10'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	120.40	✓	100.44	✓	✓	✓	120.41	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF) °C	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
0917	20.32	7.34	1.83	1.7	8.51	223.1	N

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS01 -5 - 004

Project 6210-005 Location MCAS EL TORO Depth 335' Date 7/1/97

Drillhole No. 01 Sampling Zone No. 05 Starting Time ~~1605~~ 1505 Finishing Time 1645

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 37.34' (End of Session) 37.90

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Position Sampler: Deactivate Set Arm Locate Port	Sample Collection Checks: Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	Comments
1	✓	✓	✓	✓	✓	✓	146.67	✓	126.06	✓	✓	✓ ~~146.6~~	146.67	1 l	
2	✓	✓	✓	✓	✓	✓	146.59	✓	126.08	✓	✓	✓	146.62	1 l	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 2 L

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF)	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1405	23.26	7.3	1.33	0.2	7.67	160.5	N
1440	22.01	6.75	1.32	2.8	8.37	189.1	N

Page_ (_)

Westbay

Groundwater Sampling

Field Data Sheet

SAMPLE NO.: 18MCAS02 - 3 - 004

Project 6210-005 Location MCAS EL TORO Depth 205' Date 7/2/97

Drillhole No. 02 Sampling Zone No. 3 Starting Time 1155 Finishing Time 1235

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 120.96' (End of Session) 121.08

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure In MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure In MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	54.77	✓	83.68	✓	✓	✓	54.79	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp ~~(eF)~~ °C	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1230	24.40	7.61	1.78	1.0	8.69	176.4	N

Westbay

Groundwater Sampling

Field Data Sheet

SAMPLE NO.: 18MCAS02-4-004

Project 6210-00 Location MCAS EL TORO Depth 375' Date 7/2/97

Drillhole No. 02 Sampling Zone No. 4 Starting Time 1110 Finishing Time 1145

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 120.82' (End of Session) 120.96'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure In MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure In MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	128.77	✓	145.92	✓	✓	✓	128.78	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF) °C	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1145	24.71	7.32	1.58	0.9	10.96	187.3	N

Westbay

Groundwater Sampling

Field Data Sheet

SAMPLE NO.: 18MCAS02-5-004

Project 6210-005 Location MCAS EL TORO Depth 425 Date 7/2/97

Drillhole No. 02 Sampling Zone No. 5 Starting Time 1005 Finishing Time 1055

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 120.57' (End of Session) 120.82'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	150.65 ~~152.81~~ ~~[illegible]~~	✓	168.72	✓	✓	✓	150.63	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF) °C	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1045	23.68	7.44	1.51	1.7	8.83	205.3	N

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS03 - 1 - 004

Project 6210-00 Location MCAS EL TORO Depth 89' Date 7/1/97

Drillhole No. 03 Sampling Zone No. 01 Starting Time 1205 Finishing Time 1255

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 74.80' (End of Session) 74.45

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Position Sampler: Deactivate Set Arm Locate Port	Sample Collection Checks: Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	Comments
1	✓	✓	✓	✓	✓	✓	24.55	✓	22.19	✓	✓	✓	24.54	1 l	
2	✓	✓	✓	✓	✓	✓	24.57	✓	22.19	✓	✓	✓	24.57	1 l	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 2 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF) °C	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1230	24.17	.05	2.56	3.2	6.36	155.9	N
1255	23.78	.25	1.27	2.8	6.10	187.3	N

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS03-02-004

Project 6210-00 Location MCAS EL TORO Depth 165' Date 7/1/97

Drillhole No. 03 Sampling Zone No. 02 Starting Time 1030 Finishing Time 1145

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 74.12 (End of Session) 74.80'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Position Sampler: Deactivate Set Arm Locate Port	Sample Collection Checks: Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	Comments
1	✓	✓	✓	✓	✓	✓	57.26	✓	54.86	✓	✓	57 ✓	57.28	1 l	
2	✓	✓	✓	✓	✓	✓	57.23	✓	54.85	✓	✓	✓	57.25	1 l	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 2 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oPT °C	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1110	23.74	7.07	2.07	12.7	7.49	160.2	N
1145	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Westbay

Groundwater Sampling

Field Data Sheet

SAMPLE NO.: 18MCAS03 - 3 - 004

Project 6210-005 Location MCAS EL TORO Depth 225' Date 7/1/97

Drillhole No. 03 Sampling Zone No. 03 Starting Time 0905 Finishing Time 1010

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 73.82' (End of Session) 74.12

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks: Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Position Sampler: Deactivate Set Arm Locate Port	Sample Collection Checks: Pressure in MP (psi)	Activate	Pressure Through Port ( )	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	Comments
1	✓	✓	✓	✓	✓	✓	83.44	✓	78.61	✓	✓	~~83.4~~ 83.41	83.47	1 l	Collected rinsate sample 18MCAS03-3-5-A
2	✓	✓	✓	✓	✓	✓	83.41	✓	78.61	✓	✓	✓	83.42	1 l	at 0845
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 2 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF)	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1010	23.37	7.32	1.41	2.4	8.50	132	N

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18MCAS04 | SAMPLE NO.: 18MCAS04-004

START (Date): 7/14/97 (Time): 0857 | END (Date): 7/14/97 (Time): 1025

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: cloudy TEMP.: 70 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM) Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 27.30 feet | FINAL DTW: 70.50 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) (4") Submersible Grundfos Pump ✓

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
275.00	-	27.30	=	247.7	x	= 163 Gal./Csg. Vol.	x 3 Csg. Vol. =	490 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 9.59 gpm

Pump is set at 170 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0900	3	57	20.19	6.92	1.77	620.4	0.70	-66.6	No	Murky	
0902	5	95	20.47	6.96	1.79	388.1	0.48	-74.8	No	Murky	
0905	8	152	21.12	6.95	1.79	383.5	0.58	-68.4	No	Murky	
~~0908~~	~~11~~	~~209~~	meter not		working						7.9 gpm
1010	2	15.8	23.31	6.73	1.95	814.6	2.21	60.2	No	murky	7.9 gpm
1012	4	31.6	23.40	6.70	1.96	586.0	1.93	65.1	No	murky	
1014	6	47.4	22.12	6.70	1.96	1630.1	2.00	67.1	No	Murky	
1016	8	63.2	21.85	6.69	1.97	1677.1	1.82	73.4	No	murky	
1018	10	79.0	21.41	6.69	1.97	1667.8	1.96	71.5	No	murky	
1020	12	94.8	21.48	6.70	1.97	1677.1	1.82	71.5	No	murky	
1022	14	110.6	21.49	6.69	1.96	1676.7	1.91	72.6	No	murky	

1024 * Collect Sample: 18MCAS04-004 Number of Containers: 3 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 91246 Purge Rate: 19 gpm Estimated 2.6 min. interval

Final Meter Reading 91879 Total Volume Purged = 633 gallons

Stopped purging at 0946. Begin purging at 1008. Heavy sand + sediment.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18MCAS06 | SAMPLE NO.: 18MCAS06-004

START (Date): 7/15/97 (Time): 0746 | END (Date): 7/15/97 (Time): 0904

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 72 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 23.78 feet | FINAL DTW: 24.58 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
285.00	-	23.78	= 261.2	x	=	172.4 Gal./Csg. Vol.	x 3 Csg. Vol. =	517 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 7.1 gpm

Pump is set at 100 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0751	5	35	21.79	8.52	1.17	44.6	0.08	-271.0	Yes	clear	
0756	10	70	22.40	7.12	1.57	70.0	0.76	-124.0	Yes	clear	
0806	20	140	22.66	6.94	1.64	76.5	1.29	-49.3	Yes	clear	
0816	30	210	22.77	6.92	1.64	237.3	1.39	-34.1	Yes	clear	
0821	35	245	22.78	6.92	1.64	17.6	1.22	-32.3	Yes	clear	
0826	40	280	22.80	6.92	1.64	19.6	1.42	-29.3	Yes	clear	
0836	50	350	22.84	6.92	1.64	23.7	1.31	-25.4	Yes	clear	
0841	55	385	22.85	6.92	1.64	13.0	1.23	-24.1	Yes	clear	
0846	60	420	22.87	6.91	1.64	43.6	1.45	-22.6	Yes	clear	
0851	65	455	22.89	6.92	1.64	26.7	1.60	-21.3	Yes	clear	
0856	70	490	22.90	6.92	1.64	29.6	1.22	-21.0	Yes	clear	
0901	75	525	22.92	6.91	1.64	42.6	1.22	-19.6	Yes	clear	

~~0850~~ 0902 * Collect Sample: 18MCAS06-004 Number of Containers: 3 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 93352 Purge Rate: 7 gpm Estimated 74 min. interval

Final Meter Reading 92908 Total Volume Purged = ~~93908~~ 556 gal

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS07-3-004

Project 6210-00 Location MCAS EL TORO Depth 355' Date 7/10/97

Drillhole No. 07 Sampling Zone No. 3 Starting Time 1040 Finishing Time 1130

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 146.12' (End of Session) 146.30'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure In MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure In MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	106.96	✓	125.63	✓	✓	✓	106.95	1L	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF)	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1110	24.40	7.16	1.60	3.0	8.79	25.6	N

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS07-4-004

Project 6210-00 Location MCAS EL TORO Depth 445 Date 7/10/97

Drillhole No. 07 Sampling Zone No. 4 Starting Time ~~[illegible]~~ 0940 Finishing Time 1035

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 145.94' (End of Session) 146.12'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure in MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure in MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	146.15	✓	153.94	✓	✓	✓	146.15	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF)	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
1025	23.37	33	1.51	1.5	8.78	192.4	N

Westbay

Groundwater Sampling
Field Data Sheet

SAMPLE NO.: 18MCAS07-5-004

Project 6210-00 Location MCAS EL TORO Depth 515 Date 7/15/97

Drillhole No. 7 Sampling Zone No. 5 Starting Time 0830 Finishing Time 0930

Technicians MARC P. SMITS

Water Level Inside MP Casing (Beginning of Session) 145.68' (End of Session) 145.94'

Sampler Probe Preparation - See Sampling Plan Collection Bottle Preparation - See Sampling Plan

Run No.	Surface Function Checks					Position Sampler	Sample Collection Checks								Comments
	Activate	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Deactivate Set Arm Locate Port	Pressure In MP (psi)	Activate	Pressure Through Port (psi)	Open Valve	Close Valve	Deactivate	Pressure In MP (psi)	Volume Retrieved (liters)	
1	✓	✓	✓	✓	✓	✓	176.65	✓	187.8i	✓	✓	✓	176 in	1 l	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

10/03/93

Total Volume : 1 l

Field Determinations (Appearance, pH, S.C., etc.)

TIME	Temp (oF)	PH (s.a.)	COND (mS/cm)	TURB (NTU)	DO (MG/L)	Redox (mV)	Air Bubbles (Y OR N)
0920	23.03	6.59	3.99	1.3	8.85	176.7	N

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18MCAS08 | SAMPLE NO.: 18MCAS08-004

START (Date): 7/14/97 (Time): 1207 | END (Date): 7/14/97 (Time): 1322

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ ~~Matt Brookshire~~ (con), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ---- | ORIG. DTW: 125.61 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
435.00	-	125.61	=	309.3	x		= 204.2 Gal./Csg. Vol.	x	3 Csg. Vol. =	612 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 8.98 gpm

Pump is set at ~~125~~ 180 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1213	6	48.6	24.72	8.02	2.25	1330.5	0.45	-218.4	Yes	clear	sediment
1218	~~5~~ 11	91.8	25.20	7.87	2.26	1035.5	0.22	-207.7	Yes	clear	9.0 gpm at 1215
1223	16	136.8	25.68	7.98	2.26	1052.3	0.21	-235.2	Yes	cloudy	sediment
1233	26	226.80	25.89	7.98	2.21	988.4	0.33	-232.7	Yes	cloudy	sediment
1243	36	316.80	26.15	7.95	2.20	1700.3	0.77	-238.5	Yes	cloudy	sediment
1248	41	361.8	26.38	7.92	2.23	1512.3	0.28	-210.2	Yes	cloudy	sediment
1253	46	406.8	26.70	7.94	2.23	191.5	0.35	-226.3	Yes	~~clear~~ cloudy	
1303	56	493.8	27.03	7.94	2.22	186.0	0.37	-231.1	Yes	clear	8.7 gpm
1308	61	537.3	27.10	7.92	2.23	312.1	0.33	-231.4	Yes	clear	
1313	66	580.8	27.20	7.92	2.23	852.1	0.25	-229.1	Yes	clear	
1318	71	624.3	27.28	7.91	2.24	713.5	0.28	-234.4	Yes	clear	
1320	* Collect Sample: 18MCAS08-004				Number of Containers: 3 bottles						

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 91879 Purge Rate: 8.1 gpm Estimated 7.5 min. interval

Final Meter Reading 92553 Total Volume Purged = 674 gallons

Heavy sediment during purging.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18MCAS09 | SAMPLE NO.: 18MCAS09-004

START (Date): 7/14/97 (Time): 1510 | END (Date): 7/14/97 (Time): 1629

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 55.96 feet | FINAL DTW: 66.50 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3 Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME			PURGE VOLUME
450.00	-	55.96	=	394.0	x	=	260 Gal./Csg. Vol.	x 3 Csg. Vol. =	780 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 10.2 gpm

Pump is set at 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1516	6	686	23.64	8.61	0.61	78.1	0.20	-245.3	No	clear	
1521	11	127.6	24.11	8.67	0.60	33.5	0.10	-258.4	No	clear	
1526	16	187.1	24.42	8.61	0.59	25.8	0.25	-255.6	No	clear	11.9 gpm
1536	26	386.1	25.52	7.15	1.07	637.1	0.21	-122.1	No	cloudy	
1546	36	425.1	25.85	7.11	1.10	351.1	0.67	-93.1	No	cloudy	
1551	41	484.6	25.94	7.11	1.10	218.4	1.29	-80.7	~~No~~ Yes	clear	
1556	46	544.1	25.90	7.10	1.09	691.4	1.69	-75.1	Yes	cloudy	
1601	51	603.6	25.90	7.10	1.09	677.4	1.81	-66.1	Yes	cloudy	
1606	56	643.6	26.03	7.09	1.10	128.8	0.36	-72.0	Yes	clear	8 gpm
1611	61	683.6	26.03	7.09	1.10	238.1	0.50	-87.4	Yes	clear	
1616	66	723.6	26.05	7.09	1.10	37.2	0.17	-92.5	Yes	clear	
1621	71	763.6	25.99	7.08	1.10	26.0	0.16	-95.2	Yes	clear	
1625	75	795.6	25.98	7.09	1.10	32.5	0.13	-97.4	Yes	clear	
1627	* Collect Sample: 18MCAS09-004					Number of Containers: 3 bottles					

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 92653 Purge Rate: 11.6 gpm Estimated 6.7 min. interval

Final Meter Reading 93347 Total Volume Purged = 804 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18MCAS10 | SAMPLE NO.: 18MCAS10-004

START (Date): 7/15/97 (Time): 1041 | END (Date): 7/15/97 (Time): 1144

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM) Neil Drubs (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 62.74 feet | FINAL DTW: 110.10 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		(4" = 0.66) 5" = 0.93 6" = 1.50		CASING VOLUME				PURGE VOLUME
389.00	-	62.74	=	326.3	x		=	215 Gal./Csg. Vol.	x 3 Csg. Vol. =	646 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 11.1 gpm

Pump is set at ~~180~~ 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1046	5	60	23.07	8.04	1.26	989.2	0.13	-247.8	Yes	cloudy	
1051	10	120	23.68	8.10	1.24	71.1	0.30	-251.1	Yes	clear	
1056	15	173	24.34	8.04	1.24	7.9	0.13	-247.8	Yes	clear	10.6 gpm
1101	20	226	25.01	7.15	1.83	209.7	0.12	-137.5	Yes	cloudy	
1111	30	338	25.33	7.12	1.81	212.3	0.12	-102.7	Yes	cloudy	11.2
1116	35	394	25.46	7.10	1.77	238.1	0.12	-104.3	Yes	cloudy	
1124	43	483.6	25.49	7.08	1.73	25.3	0.13	-102.6	Yes	clear	
1129	48	539.6	25.53	7.08	1.71	15.1	0.13	-101.7	Yes	clear	
1134	53	595.6	25.70	7.09	1.70	11.4	0.16	-103.2	Yes	clear	
1139	58	651.6	25.53	7.08	1.69	23.2	0.18	-100.9	Yes	clear	
1141	* Collect Sample: 18MCAS10-004					Number of Containers: 3 bottles					

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 93708 Purge Rate: 12 gpm Estimated 5.4 min. interval

Final Meter Reading 94608 Total Volume Purged = 700

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18PS2 | SAMPLE NO.: 18PS2-004

START (Date): 7/7/97 (Time): 0955 | END (Date): 7/7/97 (Time): 1028

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N/A TOC

OVM READING: ----- | ORIG. DTW: 98.68 feet | FINAL DTW: 110.12 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW				(4" = 0.66) 5" = 0.93 6" = 1.50		CASING VOLUME				PURGE VOLUME
133.00	-	98.68	=	34.3	x		=	22.7 Gal./Csg. Vol.	x	3 Csg. Vol.	=	68.0 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 2.58 gpm

Pump is set at 120 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
0957	2	7.0	25.26	6.98	2.63	116.1	8.61	105.5	No	clear	
0959	4	14.0	24.70	6.98	2.63	184.7	8.52	103.4	Yes	clear	
1001	6	21.0	24.97	6.98	2.62	161.6	8.39	100.9	Yes	clear	
1003	8	28.0	25.06	6.97	2.64	188.1	8.31	100.8	Yes	clear	
1005	10	35.0	25.13	6.97	2.66	647.1	8.18	101.0	Yes	clear	
1007	12	42.0	24.93	6.98	2.64	83.4	9.89	101.7	Yes	clear	
1009	14	46.0	24.99	6.98	2.62	855.1	9.58	102.3	Yes	clear	2 gpm
1013	18	54.0	25.47	6.98	2.63	977.5	9.65	103.6	Yes	clear	
1016	21	60.0	25.75	6.97	2.63	672.4	9.52	104.1	Yes	clear	
1020	25	68.0	25.85	6.96	2.63	543.2	9.46	104.2	Yes	clear	

1023 * Collect Sample: 18PS2-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 87251 Purge Rate: 3.5 gpm Estimated 1.9 min. interval

Final Meter Reading 87336 Total Volume Purged = 85 gallons

Large amount of bubbles probably caused the high turbidity readings.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18PS3 | SAMPLE NO.: 18PS3-004

START (Date): 7/11/97 (Time): 1118 | END (Date): 7/11/97 (Time): 1138

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Cloudy TEMP.: 73 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 83.54 feet | FINAL DTW: 53.70 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
122.00	-	83.54	=	38.46	x	= 25.3 Gal./Csg. Vol.	x 3 Csg. Vol. =	76.2 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 6.8 gpm

Pump is set at 104 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1120	2	13.0	25.81	7.08	1.29	1633.7	7.75	121.8	No	clear	
1121	3	19.5	25.53	6.96	1.45	1490.5	7.43	125.3	No	cloudy	
1122	4	26.0	25.51	6.91	1.51	1387.1	7.38	126.5	No	cloudy	
1123	5	32.5	25.61	6.90	1.52	1258.4	7.27	126.3	No	cloudy	
1124	6	39.0	25.70	6.90	1.54	1111.1	7.18	126.2	No	cloudy	
1126	8	52.0	25.25	6.85	1.61	724.7	7.07	128.3	No	cloudy	
1127	9	58.5	24.98	6.84	1.62	502.7	7.00	128.2	No	cloudy	
1128	10	65.0	24.79	6.83	1.62	368.1	7.02	127.9	No	cloudy	
1129	11	71.5	24.71	6.82	1.62	287.2	7.19	127.7	No	cloudy	
1130	12	78.0	24.69	6.83	1.63	261.3	7.40	126.8	No	cloudy	

1133 | * Collect Sample: 18PS3-004 | Number of Containers: 8 bottles

Air Entrainment Survey ( ) | Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 92988 Purge Rate 6.5 gpm Estimated 1.2 min. interval

Final Meter Reading 91124 Total Volume Purged = 136 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18PS5 | SAMPLE NO.: 18PS5-004

START (Date): 7/11/97 (Time): 1156 | END (Date): 7/11/97 (Time): 1221

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Cloudy TEMP.: 73 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM) Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 87.21 feet | FINAL DTW: 87.40 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW				CASING VOLUME		PURGE VOLUME
				4" = 0.66 / 5" = 0.93 / 6" = 1.50				
127.00	-	87.21	=	39.79	x	= 26.3 Gal./Csg. Vol.	x 3 Csg. Vol. =	78.8 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.8 gpm

Pump is set at 104 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1158	2	9.6	24.01	6.75	2.23	330	9.63	131.6	Yes	cloudy	
1200	4	19.2	24.02	6.77	2.20	63.2	9.63	130.1	Yes	clear	
1201	5	24.0	24.00	6.77	2.19	36.4	9.34	129.6	Yes	clear	
1203	7	33.6	24.00	6.76	2.21	37.4	9.14	129.6	Yes	clear	
1205	9	43.2	23.97	6.77	2.18	12.4	9.11	128.3	Yes	clear	
1206	10	48.0	23.97	6.78	2.16	15.3	9.09	127.9	Yes	clear	
1208	12	57.6	23.95	6.79	2.12	11.4	9.15	127.1	Yes	clear	
1210	14	67.2	23.91	6.79	2.10	6.2	9.15	126.3	Yes	clear	
1211	15	72.0	23.89	6.79	2.08	11.8	9.13	126.1	Yes	clear	
1213	17	81.6	23.89	6.80	2.07	9.4	9.15	125.5	Yes	clear	

1217 * Collect Sample: 18PS5-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 91124 Purge Rate: 4.8 gpm Estimated 1.6 min. interval

Final Meter Reading 91247 Total Volume Purged = 120 gallons

The presence of bubbles may be skewing the high D.O. reading

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 18PS6 | SAMPLE NO.: 18PS6-004

START (Date): 7/1/97 (Time): 1636 | END (Date): 7/1/97 (Time): 1703

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80°F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brockenshire (Con) Neil Davis (Water Develop)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: — | ORIG. DTW: 110.51 feet | FINAL DTW: 120.12 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 4" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
151.00	-	110.51	=	40.49	x	=	26.7 Gal./Csg. Vol.	x	3 Csg. Vol.	=	80.2 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 3.77 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1641	5	33	25.14	7.06	1.41	1556.2	6.64	164.9	~~75~~ No	cloudy	
1642	6	39.6	24.71	7.03	1.46	1556.1	6.50	166.4	No	cloudy	
1643	7	46.2	24.71	7.02	1.51	1192.5	6.32	166.3	No	cloudy	
1645	9	59.4	24.91	7.04	1.50	1570.8	6.28	166.4	No	cloudy	
1646	10	66.0	25.04	7.04	1.49	1109.2	6.27	165.6	No	cloudy	
1648	12	73.0	25.51	7.02	1.49	753.7	6.25	161.5	No	cloudy	3.5 gpm
1650	14	80.0	25.20	7.02	1.49	767.0	6.46	155.2	No	cloudy	
1651	15	83.5	25.10	7.02	1.47	379.7	6.56	154.9	No	cloudy	
1652	16	86.75	25.05	7.01	1.47	301.8	6.61	151.9	No	cloudy	3.25 gpm
1653	17	90.0	25.03	7.01	1.46	302.5	6.66	150.6	No	cloudy	

1700 * Collect Sample: 18PS6-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 86289 Purge Rate: 6.6 gpm Estimated 1.2 min. interval

Final Meter Reading 86391 Total Volume Purged 102 gallons

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 21UGMW37 | SAMPLE NO.: 21UGMW37-004

START (Date): 7/9/97 (Time): 1608 | END (Date): 7/9/97 (Time): 1641

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Braxshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 90.06 feet | FINAL DTW: 90.52 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (X)

MEASURED WELL TD		ORIGINAL DTW				4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
135.00	-	90.06	=	44.94	x		=	29.7 Gal./Csg. Vol.	x	3 Csg. Vol.	=	88.9 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 3.0 gpm

Pump is set at 104 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1611	3	12	27.51	6.71	1.79	1706.2	6.45	59.7	No	very murky	
1613	5	20	27.10	6.75	1.81	1704.8	6.45	53.1	No	very murky	
1615	7	28	27.02	6.80	1.82	1704.5	6.55	54.0	No	very murky	
1617	9	36	26.96	6.85	1.83	1704.3	6.49	54.5	No	very murky	
1623	15	60	25.18	6.95	1.85	243.8	9.31	45.3	Yes	cloudy	cleaned probe
1625	17	68	25.22	6.94	1.85	221.4	8.48	47.0	Yes	cloudy	
1627	19	76	25.37	6.92	1.86	160.6	8.45	47.8	Yes	cloudy	
1629	21	84	25.45	6.92	1.86	102.4	8.56	47.7	Yes	cloudy	
1631	23	92	25.58	6.92	1.86	61.6	8.54	49.0	Yes	clear	
1633	25	100	25.70	6.92	1.86	40.6 / 56.3	8.65	50.0	Yes	clear	

1636 * Collect Sample: 21UGMW37-004 Number of Containers: 3 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 89933 Purge Rate: 4 gpm Estimated 2.2 min. interval

Final Meter Reading 90063 Total Volume Purged = 130 gallons

After 1617 reading, cleaned off YSI probe. Muck was stuck to it.

Field QC Sample Y (✓) N ( ) QC I.D.: 21UGMW37-304 Time: 1640 Number of Containers: 3 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 22DBMW47 | SAMPLE NO.: 22DBMW47-004

START (Date): 7/8/97 (Time): 1414 | END (Date): 7/8/97 (Time): 1441

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 77 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Lewis (Water Develop.)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 114.25 feet | FINAL DTW: 115.22 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
161.00	-	114.25	=	46.75	x	=	30.9 Gal./Csg. Vol.	x	3 Csg. Vol.	=	92.6 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 5.56 gpm

Pump is set at 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1416	2	13.2	30.98	6.88	1.81	29.0	7.25	89.7	No	clear	
1418	4	26.4	31.0	6.88	1.81	25.3	7.19	89.8	No	clear	
1420	6	39.6	30.50	6.87	1.84	18.9	7.31	88.1	No	clear	
1421	7	46.2	28.77	6.87	1.84	16.2	7.58	84.9	No	clear	
1423	9	59.4	27.53	6.86	1.83	11.6	7.72	82.2	No	clear	
1424	10	66.0	27.39	6.86	1.83	10.4	7.69	81.6	No	clear	
1425	11	72.6	27.35	6.85	1.83	9.2	7.67	81.1	No	clear	
1427	13	85.8	27.38	6.85	1.83	9.4	7.63	79.7	No	clear	
1428	14	92.4	27.42	6.85	1.83	9.5	7.61	79.1	No	clear	
1429	15	99.0	27.41	6.85	1.83	8.4	7.60	78.8	No	clear	
1433	* Collect Sample: 22DBMW47-004					Number of Containers: 3 bottles					

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X) Treatability Parameters ( ) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( ) Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 88784 Purge Rate: 66 gpm Estimated 1.4 min. interval

Final Meter Reading 88934 Total Volume Purged = 150 gallons

Field QC Sample Y (✓) N ( ) QC I.D.: 22DBMW47-504 ---- Time: 1320 ---- Number of Containers: 3 bottles
22DBMW47-304 ---- 1440 ---- 3

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 24NEW1 | SAMPLE NO.: 24NEW1-004 ~~1316~~ MMS

START (Date): 7/10/97 (Time): 1156 | END (Date): 7/10/97 (Time): 1316

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 77 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM) Neil Davis (Water Develop)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 122.32 feet | FINAL DTW: 128.42 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
250.00	-	122.32	= 127.68	x	= 118.7 Gal./Csg. Vol.	x 3 Csg. Vol. =	356 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.8 gpm

Pump is set at 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1201	5	30	25.59	6.52	1.53	178.9	13.97	100.8	Yes	clear	
1206	10	60	25.49	6.92	1.58	311.1	15.66	96.6	Yes	clear	
1216	20	120	25.42	6.83	1.92	553.9	18.81	74.5	Yes	clear	
1221	25	150	25.25	6.81	1.89	189.7	19.30	79.1	Yes	clear	
1226	30	180	25.25	6.82	1.89	82.5	21.34	82.6	Yes	clear	
1231	35	210	25.23	6.84	1.87	121.3	20.81	85.1	Yes	clear	
1236	40	240	25.26	6.84	1.86	13.9	21.42	87.3	Yes	clear	
1246	50	300	25.24	6.83	1.86	542.1	20.17	90.6	Yes	clear	
1251	55	330	25.22	6.83	1.87	291.5	21.55	92.3	Yes	clear	
1256	60	360	25.24	6.83	1.86	620.5	18.87	92.9	Yes	clear	

1300 * Collect Sample: 24NEW1-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 90380 Purge Rate: 6.0 gpm Estimated 5.9 min. interval

Final Meter Reading 90765 Total Volume Purged = 385 gallons

High presence of bubbles may cause the high D.O.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 24NEW4 | SAMPLE NO.: 24NEW4-004

START (Date): 7/8/97 (Time): 1029 | END (Date): 7/8/97 (Time): 1105

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Deus (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 109.08 feet | FINAL DTW: feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
154.00	-	109.08	=	44.9	x	=	29.6 Gal./Csg. Vol.	x	3 Csg. Vol.	=	88.9 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 5.05 gpm

Pump is set at 130 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.u.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1031	2	13.2	25.52	6.91	1.73	696.1	9.08	70.0	No	cloudy	
1032	3	19.8	25.12	6.90	1.70	343.8	9.03	67.2	No	cloudy	
1033	4	26.4	25.00	6.90	1.70	316.2	8.98	67.5	No	cloudy	
1034	5	33.0	24.94	6.90	1.70	351.1	9.03	69.0	No	cloudy	
1036	7	46.2	24.92	6.91	1.70	200.6	9.04	67.2	No	cloudy	
1037	8	52.8	24.95	6.91	1.70	171.1	8.96	66.7	No	cloudy	
1039	10	66.0	24.95	6.91	1.70	211.2	8.79	67.8	No	cloudy	
1040	11	72.6	24.95	6.91	1.70	280.1	8.73	69.6	No	cloudy	
1041	12	79.2	24.97	6.91	1.70	304.1	8.91	70.8	No	cloudy	
1042	13	85.8	25.01	6.90	1.70	239.6	8.89	70.9	No	cloudy	
1043	14	92.4	25.01	6.90	1.70	181.4	8.90	70.4	No	cloudy	

1048 * Collect Sample: 24NEW4-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump ( )

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 88191 Purge Rate: 6.6 gpm Estimated 1.3 min. interval

Final Meter Reading 88373 Total Volume purged: 182 gallons

Field QC Sample Y (✓) N ( ) QC I.D.: 24NEW4-304 Time: 1058 Number of Containers: 8 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 24NEW5 | SAMPLE NO.: 24NEW5-004

START (Date): 7/8/97 (Time): 1515/1537* | END (Date): 7/8/97 (Time): 1626

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 76 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brooks (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N & TOC

OVM READING: ----- | ORIG. DTW: 119.04 feet | FINAL DTW: 120.20 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW			4" = 0.66 / 5" = 0.93 / 6" = 1.50	CASING VOLUME		PURGE VOLUME
255.00	-	119.04	=	135.96 x		= 26.4 Gal./Csg. Vol.	x 3 Csg. Vol. =	379 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 7.5 gpm

Pump is set at 140 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1519	4	48.8	25.22	7.54	1.18	254.6	7.48	81.8	No	cloudy	
1522	7	85.4	25.36	7.41	1.16	7.4	7.49	83.8	No	clear	
~~1525~~	~~10~~	~~122.0~~									pump went to 3.5 gpm
1529	14	153.3	25.87	6.98	1.29	102.1	8.12	89.4	No	cloudy	9.7 gpm
~~1533~~	~~18~~	~~192.1~~									<1gpm
1540	*3	175.5	25.45	6.92	1.35	300.3	8.79	89.0	No	cloudy	7.4 gpm
1545	8	212.5	25.37	6.92	1.35	1412.1	9.17	87.9	Yes	cloudy	
1550	13	249.5	25.40	6.92	1.35	384.5	9.09	89.6	Yes	cloudy	
1555	18	286.5	25.37	6.91	1.36	212.1	9.35	91.0	Yes	cloudy	
1600	23	323.5	25.36	6.92	1.35	138.2	9.33	91.3	Yes	clear	
1605	28	360.5	25.33	6.92	1.36	282.7	10.53	92.0	Yes	clear	
1610	33	397.5	25.35	6.92	1.36	225.7	9.64	92.2	Yes	clear	
1615	38	434.5	25.38	6.91	1.36	293.3	9.43	93.2	Yes	clear	
1620	* Collect Sample: 24NEW5-004				Number of Containers: 8 bottles						

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X) Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( ) Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 88934/89053 Purge Rate: 12.2 gpm Estimated 3.1 min. interval

Final Meter Reading 89053/89413 Total Volume Purged: 1st 19 / 2nd stop 360 Total 479 gal

Stopped pump after flow was <1 gpm. Added 20' feet depth to pump. Now at 160'

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 24NEW6 | SAMPLE NO.: 24NEW6-004

START (Date): 7/10/97 (Time): 1001 | END (Date): 7/10/97 (Time): 1127

WELL CASING DIAMETER: 2" ( ) 4" ( ) 5" (X) | WEATHER: Sunny TEMP.: 75 °F

FIELD PERSONNEL'S NAME(S): ~~BRIAN TRINH (CDM)~~ Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: TOC

OVM READING: ----- | ORIG. DTW: 83.15 feet | FINAL DTW: 90.80 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME				PURGE VOLUME
190.00	-	83.15	=	106.85	x		=	99.4 Gal./Csg. Vol.	x 3 Csg. Vol. =	298 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 3.6 gpm

Pump is set at 120 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1007	6	27.0	24.95	7.17	1.34	78.5	1.30	103.3	Yes	Clear	
1012	11	49.5	25.05	7.16	1.35	131.2	1.44	97.3	Yes	clear	
1017	16	69.5	25.22	7.08	1.35	661.3	6.60	85.3	Yes	clear	4 gpm
1022	21	89.5	25.33	7.07	1.36	708.3	10.81	85.1	Yes	Cloudy	
1027	26	109.5	25.43	6.96	1.37	257.2	13.56	87.0	Yes	Clear	
1032	36	149.5	25.42	6.94	1.37	356.6	15.45	89.8	Yes	clear	
1042	41	169.5	25.48	6.92	1.37	565.4	16.06	91.1	Yes	clear	
1047	46	188.5	25.61	6.92	1.37	155.1	15.17	93.3	Yes	clear	3.8 gpm
1052	56	226.5	25.71	6.90	1.38	97.0	15.86	95.5	Yes	clear	
1102	61	245.5	25.81	6.89	1.38	124.0	18.33	95.7	Yes	clear	
1107	66	264.5	25.75	6.89	1.38	195.2	16.43	95.8	Yes	clear	
1112	72	283.5	25.63	6.89	1.38	326.4	17.09	96.7	Yes	clear	
1117	77	302.5	25.84	6.89	1.39	27.8	15.31	97.0	Yes	clear	
1120	* Collect Sample: 24NEW6-004					Number of Containers: 8 bottles					

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X) Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( ) Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 90063 Purge Rate: 4.5 gpm Estimated 66 min. interval

Final Meter Reading 90380 Total Volume Purged = 317 gallons

Large presence of bubbles may cause high D.O.

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 24NEW7 | SAMPLE NO.: 24NEW7-004

START (Date): 7/2/97 (Time): 1025 | END (Date): 7/2/97 (Time): 1105

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (CDM), Neil Davis (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: ~~N~~ TOC

OVM READING: ---- | ORIG. DTW: 121.26 feet | FINAL DTW: 121.38 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) 3" Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME		PURGE VOLUME
164.00	-	121.24	=	42.76 x	=	28.2 Gal./Csg. Vol.	x 3 Csg. Vol. =	84.7 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.78 gpm

Pump is set at 150 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1029	4	24	24.16	6.44	2.07	645.7	4.35	33.4	No	cloudy	
1031	6	36	24.30	6.62	2.05	492.0	4.98	31.7	No	cloudy	
1032	7	42	24.36	6.62	2.06	495.1	5.04	28.8	No	cloudy	
1034	9	54	24.38	6.61	2.01	957.0	5.03	27.4	No	cloudy	
1035	10	60	24.40	6.61	1.99	788.9	5.01	27.1	No	cloudy	
1037	12	72	24.40	6.62	2.01	766.1	4.99	29.8	No	cloudy	
1038	13	78	24.39	6.60	2.02	1171.2	4.99	30.3	No	cloudy	
1040	15	90	24.42	6.59	1.99	549.5	4.99	29.9	No	cloudy	
1041	16	96	24.46	6.59	2.03	578.0	4.98	29.6	No	cloudy	
1042	17	102	24.48	6.58	2.02	670.6	5.00	29.7	No	cloudy	

1045 * Collect Sample: 24NEW7-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 86591 Purge Rate: 6 gpm Estimated 1.4 min. interval

Final Meter Reading 86782 Total Volume Purged = 191

Field QC Sample Y (✓) N ( ) QC I.D.: 24NEW7-304 Time: 1100 Number of Containers: 8 bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)

MARINE CORPS EL TORO GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6210-005 | TEAM: Non-dedicated Pump (X) Dedicated Pump ( )

PURGING LOG

WELL NO.: 24NEW8 | SAMPLE NO.: 24NEW8-004

START (Date): 7/2/97 (Time): 1146 | END (Date): 7/2/97 (Time): 1216

WELL CASING DIAMETER: 2" ( ) 4" (X) 5" ( ) | WEATHER: Sunny TEMP.: 80 °F

FIELD PERSONNEL'S NAME(S): BRIAN TRINH (CDM) Matt Brookshire (CDM) Neil Davies (Water Development)

REFERENCE POINT OF DEPTH MEASUREMENT: N of TOC

OVM READING: ----- | ORIG. DTW: 124.63 feet | FINAL DTW: 124.86 feet

PURGE METHOD: Packers ( ) Multiple Port ( ) Teflon Bailer ( ) Submersible Grundfos Pump (✓)

MEASURED WELL TD		ORIGINAL DTW		4" = 0.66 / 5" = 0.93 / 6" = 1.50		CASING VOLUME			PURGE VOLUME
168.00	-	124.63	=	43.37	x	=	28.6 Gal./Csg. Vol.	x 3 Csg. Vol. =	85.9 Gal.

PURGE WATER CONTAINERIZED? YES | AVERAGE PURGE RATE: 4.1 gpm

Pump is set at 150 feet

ACTUAL TIME	ELAPSED TIME	VOLUME PURGED (gal.)	TEMP. (°C)	pH (s.a.)	COND. (umhos/cm)	TURB. (NTu)	DISSOLVED OXYGEN (mg/L)	REDOX (mV)	Air Bubbles Observed (Yes/No)	WATER COLOR	COMMENT
1149	3	12.6	28.42	6.73	1.72	840.4	7.64	39.2	Yes	murky	
1151	5	21.0	25.38	6.80	1.73	975.3	7.78	41.4	Yes	murky	
1153	7	29.4	25.32	6.81	1.72	784.2	7.73	43.3	No	murky	
1155	9	37.8	25.39	6.81	1.71	424.2	7.70	43.2	No	cloudy	
1157	11	46.2	25.25	6.81	1.69	296.0	7.77	43.7	No	cloudy	
1159	13	54.6	25.25	6.83	1.66	234.7	7.76	44.2	No	cloudy	
1201	15	63.0	25.26	6.81	1.70	181.5	7.77	45.3	Yes	clear	
1203	17	71.4	25.28	6.80	1.74	189.4	7.84	45.2	Yes	clear	
1205	19	79.8	25.30	6.80	1.70	147.7	7.83	45.8	Yes	clear	
1207	21	88.2	25.31	6.80	1.77	131.6	7.84	45.9	Yes	clear	

1210 * Collect Sample: 24NEW8-004 Number of Containers: 8 bottles

Air Entrainment Survey ( ) Field Blanks ( )

SAMPLING LOG

SAMPLING METHOD: Packer ( ) Bailer ( ) Portable Pump (✓)

LAB ANALYSES: VOC (X) Filtered Metals ( ) General Chemistry (X)
Treatability Parameters (X) Gross Alpha/Beta ( ) Radium-226 ( ) Radium-228 ( )
Strontium-89 ( ) Cesium-134 ( )

COMMENT: Initial Meter Reading: 86782 Purge Rate: 4.2 gpm Estimated 2 min. interval

Final Meter Reading 86905 Total Volume Purged = 123

Field QC Sample Y ( ) N (✓) QC I.D.: Time: Number of Containers: bottles

* Samples were collected after all parameters were stable as described in the SAP, Section 6.2.2 (Temp.=1°C; pH=0.2; EC=5%)