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MCAS EL TORO
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HADLEY INDUSTRIES
environmental technologies

MCAS EL TORO

AQUASORB[tm] TREATMENT SYSTEM

MONITORING REPORT

APRIL 1992

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BACKGROUND

Hadley Industries Environmental Technologies has been contracted by the Department of Navy to operate and maintain the groundwater remediation system at the MCAS El Toro Base in Santa Ana, California. This is the April 1992 monthly monitoring report.

The system consists of three purge wells (PS#1, PS#3, and PS#4) which pump groundwater from the southwestern perimeter of the Base. The purged groundwater is directed to a central area for treatment through the Aquasorb[tm] two-stage granular activated carbon (GAC) system. Treated water is pumped to a holding tank and utilized for the irrigation system at the Base golf course. The system has been operated and maintained by Hadley Industries since July 11, 1991.

SAMPLE COLLECTION AND ANALYSIS

Three samples were collected on April 7, 1992 for analysis. Samples collected included: one INFLUENT sample, one BETWEEN STAGE sample, and one EFFLUENT sample. Analytical results are compiled in Appendix A. A comparison chart of analytical results for the INFLUENT, BETWEEN STAGE, and EFFLUENT is shown in Table 1. A comparison chart of analytical results for PS#1, PS#3, and PS#4 is shown in Table 2.

OPERATIONAL DATA

<u>April 7, 1992</u>

System inspection by Richard Sidlin. Irrigation tank flow meter is not working. PS#4 gallons per minute output was reduced to stop the pump from constantly turning on and off. Monthly samples were collected and sent to Pacific Laboratories.

<u>April 28, 1992</u>

Richard Sidlin performed site visit.

MAINTENANCE DATA

Conducted general housekeeping and maintenance for the site.

Reduced PS #4 gallons per minute to stop pump from turning on and off every 15 to 20 seconds.

TABLE 1

EL TORO INTERIM GROUNDWATER TREATMENT SYSTEM

SUMMARY OF ANALYTICAL RESULTS

	Sample Date, Concentration, ppb (ug/L)								
Location/Compound	19-Aug-91	10-Sep-91	09-Oct-91	26-Nov-91	10-Dec-91	07-Jan-92	04-Feb-92	05-Mar-92	07-Apr-92
GAC INFLUENT									
PCE	19	42	41	37	40	35	37	33	ND
TCE	36	47	53	85	79	69	68	78	18
1, 2 Dichloroethene (total)	2	3	4	3	ND	ND	ND	ND	ND
Acetone	22	ND	ND	ND	20	ND	5	12	38
Methylene Chloride	10	ND	3	8	7	ND	8	6	86
Chloroform	ND	1	1	2	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	23	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	6	ND
GAC BETWEEN									
Methylene Chloride	A	2	5	22	8	74	5	8	29
Acetone	ND	ND	ND	ND	7	16	ND	9	14
Chloromethane	ND	ND	ND	ND	5	ND	ND	ND	ND
GAC EFFLUENT									
Methylene Chloride	7	4	4	25	8	7	ND	8	12
Acetone	12	ND	ND	ND	5	ND	ND	7	20
Chloroform	2	ND	ND	ND	ND	ND	ND	ND	ND

LEGEND:
NA - No analysis
ND - Not detected
(A) - No between stage in place

TABLE 2

EL TORO INTERIM GROUNDWATER TREATMENT SYSTEM

Location/compound	Sample Date, Concentration, ppb (ug/L)		
	8/19/91	11/26/91	02/04/92
PS-1			
Acetone	8	ND	ND
TCE	17	8	5
Methylene Chloride	15	21	ND
PS-3			
Methylene Chloride	5	15	5
Acetone	9	ND	ND
1,2-Dichloroethene (total)	3	3	ND
Chloroform	2	2	ND
TCE	50	90	43
1,1,2-Trichloroethane	2	3	ND
PCE	34	41	47
PS-4			
Methylene Chloride	3	8	ND
Acetone	13	ND	9
1,2-Dichloroethene (total)	4	5	ND
Chloroform	1	ND	ND
TCE	40	41	39
PCE	25	43	27

LEGEND
ND = NOT DETECTED

DISCUSSION OF RESULTS

During the period of March 31 through April 28, 1992, the Aquasorb^{tm} GAC system treated 53,934 cubic feet (403,426 gallons) of groundwater. Average total flow rate from the three purge wells for this 28 day period is 10.0 gpm.

Table 3 provides a summary of flow rates from each of the three purge wells, and gallons treated at the GAC system. Figure 1 is a flow schematic of the Aquasorb^{tm} system.

Analytical results indicate a total of 142 micrograms per liter (ug/l) of contaminants entering the treatment system (INFLUENT), 29 ug/L Methylene Chloride and 14 ug/l Acetone at the BETWEEN STAGE, and 12 ug/l Methylene Chloride and 20 ug/l Acetone at the EFFLUENT.

The next quarterly sampling is scheduled for May 1992.

ACTIVITIES PLANNED FOR NEXT MONTH

The next monthly monitoring and sampling of the GAC treatment system will be performed on Tuesday, May 5, 1992. The end of the month inspection and data collection will be performed on May 26, 1992.

TABLE 3

EL TORO GROUND WATER TREATMENT SYSTEM

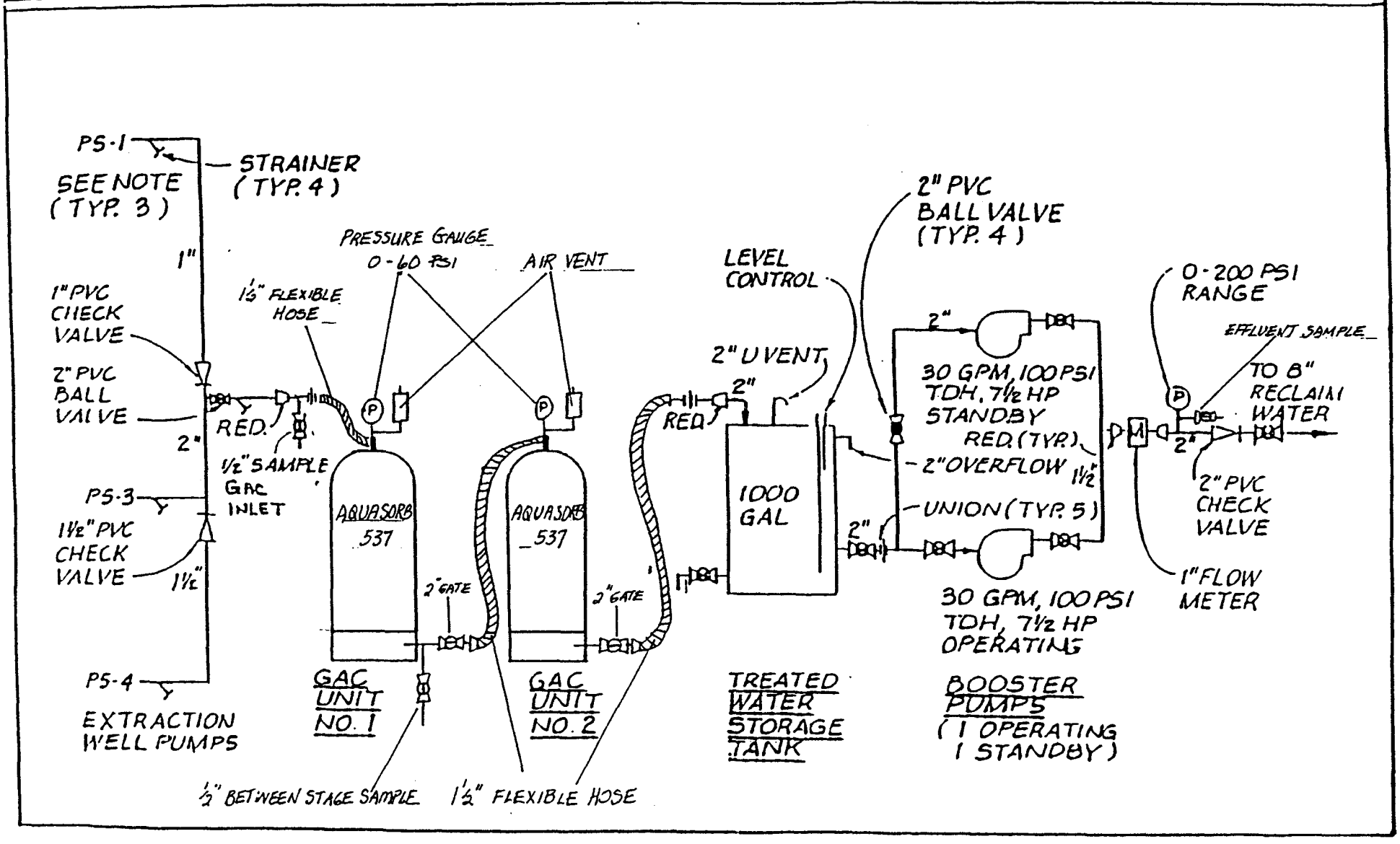
SUMMARY OF FLOW RATES

	7/11/91	8/19/91	8/27/91	9/10/91	9/24/91	10/01/91	10/8/91	10/29/91	11/07/92	11/14/91	11/22/92	11/26/92	12/10/92	12/27/92	01/07/92	01/28/92	02/04/92	02/24/92	03/05/92	03/31/92	04/07/92	04/28/92
PS#1																						
Meter reading (gal)	13120	165670	*	*	*	165720	170950	184410	NR	193720	NR	202010	211130	222380	230077	244720	249340	260760	268270	286650	291940	306650
Gallons pumped	NA	152550	NA	NA	NA	NA	5230	13460	NR	9310	NR	8290	9120	11250	7697	14643	4620	11420	7510	18380	5290	14710
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17	11	21	7	20	10	26	7	21
Average flow (gpm)	NA	2.7	NA	NA	NA	NA	0.52	0.45	NR	0.4	NR	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5
PS#3																						
Meter reading (gal)	2953050	3227320	3280920	3389840	3431790	3497750	3556980	3704880	NR	3809200	NR	3897180	3992540	4109860	4190710	4337670	4383130	4503770	4574150	4747550	4799980	4941250
Gallons pumped	NA	274270	53600	108920	41950	65960	59230	147900	NR	104320	NR	87980	95360	117320	80850	146960	45460	120640	70380	173400	52430	141270
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17	11	21	7	20	10	26	7	21
Average flow (gpm)	NA	4.88	4.65	5.4	2	6.5	5.8	4.9	NR	4.5	NR	5.1	4.7	4.8	5.1	4.9	4.5	4.2	4.9	4.6	5.2	4.7
PS#4																						
Meter reading (gal)	2457900	2570560	2624350	2726230	2759660	2813460	2859700	2984330	NR	3030140	NR	3030180	3121680	3229660	3295600	3419860	3459990	3555060	3599890	3605990	3662790	3794360
Gallons pumped	NA	112660	53790	101880	33430	53800	46240	124630	NR	45810	NR	40	91500	108180	65740	124260	40130	95070	44830	6100	56800	131570
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17	11	21	7	20	10	26	7	21
Average flow (gpm)	NA	2	4.66	5.1	1.7	5.3	4.6	4.1	NR	2	NR	0	4.5	4.4	4.2	4.1	4	3.3	3.1	0.2	5.6	4.5
GAC EFFLUENT																						
Meter reading (cu ft)	761668	816674	831100	859411	868150	878186	893109	929748	NR	945046	NR	957878	983941	1015379	1036010	1074332	1086318	1116846	1133367	1159890	1175365	1213824
Gallons pumped	NA	411445	107906	211766	65367	75069	111624	274060	NR	114429	NR	95983	194951	235156	154320	286649	89655	228349	123577	198392	114205	283827
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17	11	21	7	20	10	26	7	21
Average flow (gpm)	NA	7.32	9.36	10.5	3.2	7.4	11.1	9.1	NR	5	NR	5.6	9.7	9.6	9.7	9.6	8.9	8	8.6	5.3	11.3	9.4
GOLF COURSE TANK																						
Meter reading (cu ft)	NR	NR	NR	NR	NR	NR	9825000	11286900	NR	NA	NR	13087240	NR	13087240	NA	NA	NA	NA	NA	NA	NA	NA
Gallons pumped	NR	NR	NR	NR	NR	NR	NR	10935012	NR	NA	NR	13466543	NR	0	NA	NA	NA	NA	NA	NA	NA	NA
# of days	NR	NR	NR	NR	NR	NR	NR	21	NR	NA	NR	28	NR	17	NA	NA	NA	NA	NA	NA	NA	NA
Average flow	NR	NR	NR	NR	NR	NR	NR	362	NR	NA	NR	334	NR	0	NA	NA	NA	NA	NA	NA	NA	NA
Treated GW as % of Irrigation Water	NR	NR	NR	NR	NR	NR	NR	5.1	NA	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

LEGEND:
NR - NOT RECORDED
NA - NOT AVAILIBLE
* - PUMP OFF LINE

EL TORO MCAS
INTERIM GROUNDWATER
TREATMENT SYSTEM
SCHEMATIC FLOW DIAGRAM

FIGURE 1



APPENDIX A

ANALYTICAL RESULTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT

Lab Name: PACIFIC ANALYTICAL Contract:

Lab Code: PACIF Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 15101

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: LL2031

Level: (low/med) LOW Date Received: 04/09/92

% Moisture: not dec. 0 Date Analyzed: 04/21/92

GC Column: 1%SP1000 ID: 2 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	86	
67-64-1	Acetone	38	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-35-3	1,1-Dichloroethane	10	U
156-60-5	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	18	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-dichloropropene	10	U
75-25-2	Bromoform	10	U
591-78-6	4-Methyl-2-Pentanone	10	U
108-10-1	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BETWEEN

Lab Name: PACIFIC ANALYTICAL Contract:

Lab Code: PACIF Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 15102

Sample wt/vol: 5.0(g/mL) ML Lab File ID: LL2041

Level: (low/med) LOW Date Received: 04/09/92

% Moisture: not dec. 0 Date Analyzed: 04/21/92

GC Column: 1%SP1000 ID: 2 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	29	
67-64-1	Acetone	14	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-35-3	1,1-Dichloroethane	10	U
156-60-5	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-dichloropropene	10	U
75-25-2	Bromoform	10	U
591-78-6	4-Methyl-2-Pentanone	10	U
108-10-1	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: PACIFIC ANALYTICAL Contract:

Lab Code: PACIF Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 15103

Sample wt/vol: 5.0(g/mL) ML Lab File ID: LL3061

Level: (low/med) LOW Date Received: 04/09/92

% Moisture: not dec. 0 Date Analyzed: 04/22/92

GC Column: 1%SP1000 ID: 2 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	12	
67-64-1	Acetone	20	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-35-3	1,1-Dichloroethane	10	U
156-60-5	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-dichloropropene	10	U
75-25-2	Bromoform	10	U
591-78-6	4-Methyl-2-Pentanone	10	U
108-10-1	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U