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MCAS EL TORO
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HADLEY INDUSTRIES
environmental technologies

MCAS EL TORO

AQUASORB[tm] TREATMENT SYSTEM

MONITORING REPORT

JULY 1992

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MCAS EL TORO
AQUASORB[tm] GROUNDWATER TREATMENT SYSTEM
MONITORING REPORT
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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 July 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 July 14, 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 of analytical results for PS#1, PS#3, and PS#4 is shown in Table 2.

OPERATIONAL DATA

July 14, 1992

System inspection and sampling performed by Richard Sidlin. Irrigation tank flow meter is still not operating.

July 24, 1992

Richard Sidlin performed system inspecting. The irrigation tank flow meter was not functioning.

MAINTENANCE DATA

On August 19, 1992, Hadley Industries contracted the services of Orange County Pump Company to troubleshoot and if necessary, replace the groundwater pump. Present were: Andy Piszkin, Renee' Moye, and two technicians from Orange County Pump Company.

TABLE 1

EL TORO INTERIM GROUNDWATER TREATMENT SYSTEM

SUMMARY OF ANALYTICAL RESULTS

Location/Compound	Sample Date, Concentration, ppb (ug/L)											
	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	05-May-92	30-Jun-92	14-Jul-92
GAC INFLUENT												
PCE	19	42	41	37	40	35	37	33	ND	37	35	34
TCE	36	47	53	85	79	69	68	78	18	55	52	39
1, 2-Dichloroethene (total)	2	3	4	3	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	22	ND	ND	ND	20	ND	5	12	38	21	ND	7
Methylene Chloride	10	ND	3	8	7	ND	8	6	86	5	8	8
Chloroform	ND	1	1	2	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	23	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	6	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetreachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroehtane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 1

EL TORO INTERIM GROUNDWATER TREATMENT SYSTEM

SUMMARY OF ANALYTICAL RESULTS

Sample Date, Concentration, ppb (ug/L)

Table 1 Page 2

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	05-May-92	30-Jun-92	14-Jul-92
GAC BETWEEN												
Methylene Chloride	A	2	5	22	8	74	5	8	29	ND	7	8
Acetone	ND	ND	ND	ND	7	16	ND	9	14	6	ND	ND
Chloromethane	ND	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetreachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroehtane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	11
PCE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 1

EL TORO INTERIM GROUNDWATER TREATMENT SYSTEM

SUMMARY OF ANALYTICAL RESULTS

Table 1 Page 3

	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	05-May-92	30-Jun-92	14-Jul-92
GAC EFFLUENT												
Methylene Chloride	7	4	4	25	8	7	ND	8	12	5	8	ND
Acetone	12	ND	ND	ND	5	ND	ND	7	20	11	ND	6
Chloroform	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetreachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroehtane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	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

	Sample Date, Concentration, ppb (ug/L)			
Location/compound	8/19/91	11/26/91	02/04/92	05/05/92
PS-1				
Acetone	8	ND	ND	NS
TCE	17	8	5	NS
Methylene Chloride	15	21	ND	NS
1,2-Dichloroethene (total)	ND	ND	ND	NS
Chloroform	ND	ND	ND	NS
1,1,2-Trichloroethane	ND	ND	ND	NS
PCE	ND	ND	ND	NS
Chloromethane	ND	ND	ND	NS
Bromomethane	ND	ND	ND	NS
Vinyl Chloride	ND	ND	ND	NS
Chloroehtane	ND	ND	ND	NS
Carbon Disulfide	ND	ND	ND	NS
1,1-Dichloroethene	ND	ND	ND	NS
1,1-Dichloroethane	ND	ND	ND	NS
1,2-Dichloroethane	ND	ND	ND	NS
2-Butanone	ND	ND	ND	NS
1,1'1-Trichloroethane	ND	ND	ND	NS
Carbon Tetrachloride	ND	ND	ND	NS
Bromodichloromethane	ND	ND	ND	NS
1,2-Dichloropropane	ND	ND	ND	NS
cis-1,3-Dichloropropane	ND	ND	ND	NS
Dibromochloromethane	ND	ND	ND	NS
Benzene	ND	ND	ND	NS
trans-1,3-dichloropropane	ND	ND	ND	NS
Bromoform	ND	ND	ND	NS
4-Methyl-2-Pentanone	ND	ND	ND	NS
2-Hexanone	ND	ND	ND	NS
1,1,2,2-Tetrachloroethane	ND	ND	ND	NS
Toluene	ND	ND	ND	NS
Chlorobenzene	ND	ND	ND	NS
Ethylbenzene	ND	ND	ND	NS
Stryene	ND	ND	ND	NS
Xylenes (total)	ND	ND	ND	NS

Table 2 Page 2

Location/compound	8/19/91	11/26/91	02/04/92	05/05/92
PS-3				
Methylene Chloride	5	15	5	ND
Acetone	9	ND	ND	9
1,2-Dichloroethene (total)	3	3	ND	ND
Chloroform	2	2	ND	ND
TCE	50	90	43	67
1,1,2-Trichloroethane	2	3	ND	ND
PCE	34	41	47	41
Chloromethane	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND
Chloroehtane	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND
1,1'1-Trichloroethane	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND
cis-1,3-Dichloropropane	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
trans-1,3-dichloropropane	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Stryene	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND

Table 2 Page 3

Location/compound	8/19/91	11/26/91	02/04/92	05/05/92
PS-4				
Methylene Chloride	3	8	ND	ND
Acetone	13	ND	9	9
1,2-Dichloroethene (total)	4	5	ND	ND
Chloroform	1	ND	ND	ND
TCE	40	41	39	36
PCE	25	43	27	28
1,1,2-Trichloroethane	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND
Chloroehtane	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND
1,1'1-Trichloroethane	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND
cis-1,3-Dichloropropane	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
trans-1,3-dichloropropane	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Stryene	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND

LEGEND
ND = NOT DETECTED
NS = NOT SAMPLED

It was discovered that by overriding the float controls the pump would deliver water for about 30 seconds and then run dry. The conclusion is that the pump control probes are not in the water, which disables the control circuit in the pump controller. The water table is too low to start the pumps. At this time, Hadley Industries recommends retaining a hydrogeologist to review the well logs, construction information, and other related data in order to make further recommendations concerning this problem. Upon notification a Hadley Industries hydrogeologist may be contracted on a time and material basis.

DISCUSSION OF RESULTS

During the period of June 30 through July 24, 1992, the Aquasorb^{tm} GAC system treated 37,085 cubic feet (277,340 gallons) of groundwater. Average total flow rate from the two purge wells for this 35 day period is 7.4 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 88 micrograms per liter (ug/l) of contaminants entering the treatment system (INFLUENT), 8 ug/l Methylene Chloride, 5 ug/l 1,2-Dichloroethene (total) and 11 ug/l of Trichloroethene at the BETWEEN STAGE, and 6 ug/l Acetone at the EFFLUENT.

With Trichloroethene being discovered in the between sampling location a carbon changeover is needed in the near future. Hadley Industries will await your response and will perform the changeover upon you request. The next quarterly sampling is scheduled for August 1992.

ACTIVITIES PLANNED FOR NEXT MONTH

The next monthly monitoring and sampling of the GAC treatment system will be performed on August 5. The end of the month inspection and data collection will be performed on August 24, 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	11/07/91	11/14/91	11/22/91	11/26/91	12/10/91	12/27/91
PS#1														
Meter reading (gal)	13120	165670	*	*	*	165720	170950	184410	NR	193720	NR	202010	211130	222380
Gallons pumped	NA	152550	NA	NA	NA	NA	5230	13460	NR	9310	NR	8290	9120	11250
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17
Average flow (gpm)	NA	2.7	NA	NA	NA	NA	0.52	0.45	NR	0.4	NR	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
Gallons pumped	NA	274270	53600	108920	41950	65960	59230	147900	NR	104320	NR	87980	95360	117320
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17
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
PS#4														
Meter reading (gal)	2457900	2570560	2624350	2726230	2759660	2813460	2859700	2984330	NR	3030140	NR	3030180	3121680	3229860
Gallons pumped	NA	112660	53790	101880	33430	53800	46240	124630	NR	45810	NR	40	91500	108180
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17
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
GAC EFFLUENT														
Meter reading (cu ft)	761668	816674	831100	859411	868150	878186	893109	929748	NR	945046	NR	957878	983941	1015379
Gallons pumped	NA	411445	107906	211766	65367	75069	111624	274060	NR	114429	NR	95983	194951	235156
# of days	NA	39	8	14	14	7	7	21	NR	16	NR	12	14	17
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
GOLF COURSE TANK														
Meter reading (cu ft)	NR	NR	NR	NR	NR	NR	9825000	11286900	NR	NA	NR	13087240	NR	13087240
Gallons pumped	NR	NR	NR	NR	NR	NR	NR	10935012	NR	NA	NR	13466543	NR	0
# of days	NR	NR	NR	NR	NR	NR	NR	21	NR	NA	NR	28	NR	17
Average flow	NR	NR	NR	NR	NR	NR	NR	362	NR	NA	NR	334	NR	0
Treated GW as % of Irrigation Water	NR	NR	NR	NR	NR	NR	NR	5.1	NA	NA	NA	3.4	NA	NA

LEGEND:

NR - NOT RECORDED

NA - NOT AVAILIBLE

* - PUMP OFF LINE

TABLE 3

EL TORO GROUND WATER TREATMENT SYSTEM

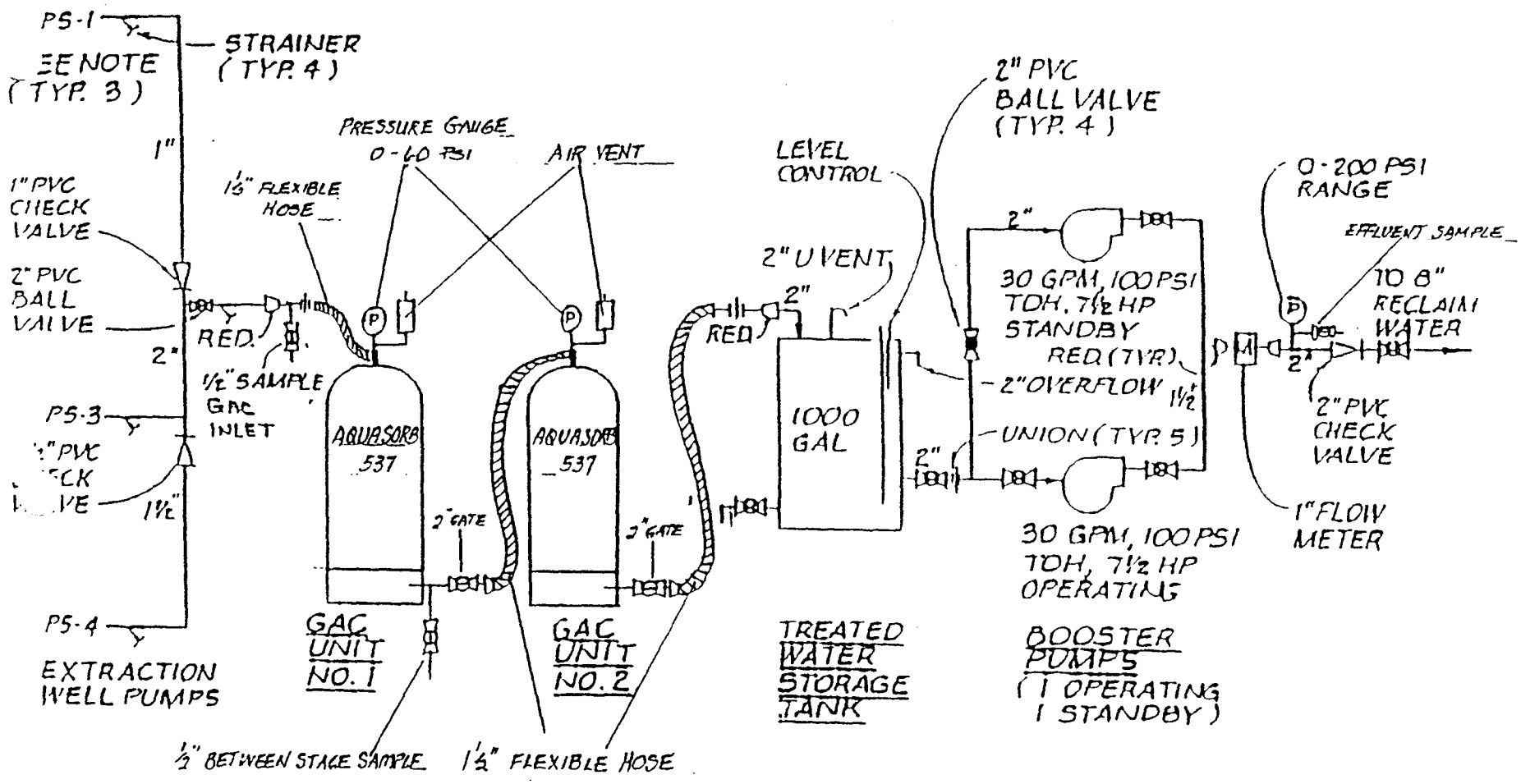
SUMMARY OF FLOW RATES

	01/07/92	01/28/92	02/04/92	02/24/92	03/05/92	03/31/92	04/07/92	04/28/92	05/05/92	05/26/92	06/09/92	06/30/92	07/14/92	07/24/92
PS#1														
Meter reading (gal)	230077	244720	249340	260760	268270	286650	291940	306650	308190	*	*	*	*	*
Gallons pumped	7697	14643	4620	11420	7510	18380	5290	14710	1540	NA	NA	NA	NA	NA
# of days	11	21	7	20	10	26	7	21	7	21	14	21	15	10
Average flow (gpm)	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.2	NA	NA	NA	NA	NA
PS#3														
Meter reading (gal)	4190710	4337670	4383130	4503770	4574150	4747550	4799980	4941250	4982720	5142290	5234000	5370050	5456640	5504090
Gallons pumped	80850	146960	45460	120640	70380	173400	52430	141270	41470	159570	91710	136050	86590	47450
# of days	11	21	7	20	10	26	7	21	7	21	14	21	15	10
Average flow (gpm)	5.1	4.9	4.5	4.2	4.9	4.6	5.2	4.7	4.1	5.3	4.5	4.5	4	3.3
PS#4														
Meter reading (gal)	3295600	3419860	3459990	3555060	3599890	3605990	3662790	3794360	3838390	3969990	4054320	4177210	4257530	4315330
Gallons pumped	65740	124260	40130	95070	44830	6100	56800	131570	44030	131600	84330	122890	80320	57800
# of days	11	21	7	20	10	26	7	21	7	21	14	21	15	10
Average flow (gpm)	4.2	4.1	4	3.3	3.1	0.2	5.6	4.5	4.4	4.4	4.2	4.1	3.7	4
GAC EFFLUENT														
Meter reading (cu ft)	1036010	1074332	1086318	1116846	1133367	1159890	1175365	1213824	1225418	1264756	1288594	1323703	1346461	1360788
Gallons pumped	154320	286649	89655	228349	123577	198392	114205	283827	86723	294248	178308	262615	170230	107166
# of days	11	21	7	20	10	26	7	21	7	21	14	21	15	10
Average flow (gpm)	9.7	9.6	8.9	8	8.6	5.3	11.3	9.4	8.6	9.7	8.8	8.7	7.9	7.4
GOLF COURSE TANK														
Meter reading (cu ft)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gallons pumped	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
# of days	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average flow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Treated GW as % of Irrigation Water	NA	NA	NA	NA	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



HADLEY INDUSTRIES
environmental technologies

APPENDIX A

ANALYTICAL RESULTS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

INFLUENT

Lab Name: PACIFIC ANALYTICAL Contract: D10098

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

Matrix: (soil/water) Lab Sample ID: ~~22601~~ 26201

Sample wt/vol: 5.0(g/mL) ML Lab File ID: II1121

Level: (low/med) LOW Date Received: 07/16/92

% Moisture: not dec. Date Analyzed: 07/24/92

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	8	J
67-64-1	Acetone	7	J
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	39	
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	34	
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: D10098

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

Matrix: (soil/water) Lab Sample ID: ~~22802~~ 26202

Sample wt/vol: 5.0(g/mL) ML Lab File ID: II1101

Level: (low/med) LOW Date Received: 07/16/92

% Moisture: not dec. Date Analyzed: 07/24/92

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	8	J
67-64-1	Acetone	10	U
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)	5	J
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	11	
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: D10098

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

Matrix: (soil/water) Lab Sample ID: ~~22603~~ 26203

Sample wt/vol: 5.0(g/mL) ML Lab File ID: II1091

Level: (low/med) LOW Date Received: 07/16/92

% Moisture: not dec. Date Analyzed: 07/24/92

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	10	J
67-64-1	Acetone	6	J
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