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MCAS EL TORO
SSIC # 5090.3

HADLEY INDUSTRIES

October 11, 1991

Mr. Andy Piszkin, RPM
Southwest Division, NAVFACENGCOM
122O Pacific Highway Code 0214
San Diego, California 92132

RE: MCAS EL TORO GROUNDWATER REMEDIATION PROJECT

Dear Mr. Piszkin:

Enclosed is the monitoring report for the month of September, 1991, submitted by Hadley Industries Environmental Technologies, for the Groundwater Remediation System at MCAS El Toro in Santa Ana, California.

Hadley Industries has been contracted by the Department of Navy to operate and maintain the system for a three month period, beginning in July, 1991. This contract includes monthly monitoring and inspection, as well as scheduled collection and analysis of groundwater samples.

Please feel free to call me at 1-800-345-4227 if you have any questions regarding this report.

Sincerely,
HADLEY INDUSTRIES

Donald A. Klemm
Operations Manager

pc: Chrisa Mitchell, MCAS El Toro
Renee Moye, Hadley California

Enclosure

DAK:vlb

HADLEY INDUSTRIES
environmental technologies

MCAS EL TORO

AQUASORB™ TREATMENT SYSTEM

MONITORING REPORT

SEPTEMBER 1991

PREPARED FOR: MR. ANDY PISZKIN, RPM
SOUTHWEST NAVFACENGCOM
1220 PACIFIC HIGHWAY (CODE 0214)
SAN DIEGO, CALIFORNIA 92132

CONTRACT #N68711-91-D-0309
CONTRACT AMOUNT: $55,224.00
CONTRACT COMPETITIVELY AWARDED

PREPARED BY: MR. DONALD KLEMM, OPERATIONS MGR.
HADLEY INDUSTRIES
5900 W. FOURTH STREET P.O. BOX 489
LUDINGTON, MICHIGAN 49431

HADLEY INDUSTRIES

MCAS EL TORO
AQUASORB™ GROUNDWATER TREATMENT SYSTEM
MONITORING REPORT
SEPTEMBER 1991

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 September 1991 monthly monitoring report.

The system consists of three purge wells (PS#1, PS#3, and PS#4) which pump groundwater from along the southwestern perimeter of the Base. The purged groundwater is directed to a central area for treatment through the Aquasorb™ 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 September 10, 1991 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>September 10, 1991</u>
System inspection and sampling was performed by Richard Sidlin. Total groundwater treated since August 27, 1991 was 28,311 cubic feet (211,766 gallons) for an average of 10.5 gallons per minute. PS#1 is still off line.

<u>September 11, 1991</u>
Repairs to a small leak at the between stage plumbing were completed.

<u>September 24, 1991</u>
System inspection was performed by Richard Sidlin. Total groundwater treated since September 10 was 8,739 cubic feet (65,368 gallons) for an average of 3.2 gallons per minute. Pump PS#1 is still off line.

TABLE 1

EL TORO INTERIM GROUNDWATER TREATMENT SYSTE

SUMMARY OF ANALYTICAL RESULTS

	Sample Date, Concentration, ppb (ug/L)	
Location/Compound	19-Aug-91	10-Sep-91
GAC INFLUENT		
PCE	19	42
TCE	36	47
1, 2 Dichloroethene (total)	2	3
Acetone	22	ND
Methylene Chloride	10	ND
Chloroform	ND	1
GAC BETWEEN		
Methylene Chloride	A	2
GAC EFFLUENT		
Methylene Chloride	7	4
Acetone	12	ND
Chloroform	2	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
PS-1	
Acetone	8
TCE	17
Methylene Chloride	15
PS-3	
Methylene Chloride	5
Acetone	9
1,2-Dichloroethene (total)	3
Chloroform	2
TCE	50
1,1,2-Trichloroethane	2
PCE	34
PS-4	
Methylene Chloride	3
Acetone	13
1,2-Dichloroethene (total)	4
Chloroform	1
TCE	40
PCE	25

MAINTENANCE DATA

Conducted general housekeeping around all the sites.

Repaired leak at between stage plumbing.

Repaired leak and removed pressure switch at PS#1, and restarted pump.

DISCUSSION OF RESULTS

During the period of August 27 through September 24, 1991, the Aquasorb^{tm} GAC system treated 37,050 cubic feet (277,134 gallons) of groundwater. Average total flow rate from the three purge wells is 6.9 gpm. PS#1 has been off line since August 19 due to water leaks at the well head. This problem was repaired on October 1, and PS#1 is currently on line.

Table 3 provides a summary of flow rates from each of the three purge wells, gallons treated at the GAC system, and meter readings taken at the golf course storage tank. Figure 1 is an updated schematic flow diagram of the complete system, including the two new Aquasorb^{tm} carbon adsorbers, and plumbing changes at the system.

Analytical results indicate a total of 93 micrograms per liter (ug/L) of contaminants entering the treatment system (INFLUENT), 2 ug/L Methylene Chloride at the BETWEEN STAGE, and 4 ug/L Methylene Chloride at the EFFLUENT.

On September 17, the complete system was turned off due to the booster pump not operating. The holding tank after the treatment system overflowed when this booster pump failed to operate. The problem was resolved after it was determined that the main breaker inside Bldg. 319 was being turned off by MCAS personnel.

ACTIVITIES PLANNED FOR NEXT MONTH

The next monthly monitoring and sampling of the GAC treatment system will be performed on Tuesday, October 8. At this time a site visit will be conducted by Mr. Sidlin for base personnel Chrisa Mitchell and Kathy Britton, and project manager Andy Piszkin. The end of the month inspection and data collection will be performed on Tuesday, October 29.

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
PS#1					
Meter reading (gal)	13120	165670	*	*	*
Gallons pumped	NA	ERR	NA	NA	NA
# of days	NA	39	8	14	14
Average flow (gpm)	NA	0.47	NA	NA	NA
PS#3					
Meter reading (gal)	2953050	3227320	3280920	3389840	3431790
Gallons pumped	NA	274270	53600	108920	41950
# of days	NA	39	8	14	14
Average flow (gpm)	NA	4.88	4.65	5.4	2
PS#4					
Meter reading (gal)	2457900	2570560	2624350	2726230	2759660
Gallons pumped	NA	112660	53790	101880	33430
# of days	NA	39	8	14	14
Average flow (gpm)	NA	2	4.66	5.1	1.7
GAC EFFLUENT					
Meter reading (cu ft)	761668	816674	831100	859411	868150
Gallons pumped	NA	411445	107906	211766	65367
# of days	NA	39	8	14	14
Average flow (gpm)	NA	7.32	9.36	10.5	3.2
GOLF COURSE TANK					
Meter reading (cu ft)	NR	NR	NR	NR	NR
Gallons pumped	NR	NR	NR	NR	NR
# of days	NR	NR	NR	NR	NR
Average flow	NR	NR	NR	NR	NR
Treated GW as % of Irrigation Water	NR	NR	NR	NR	NR

LEGEND:

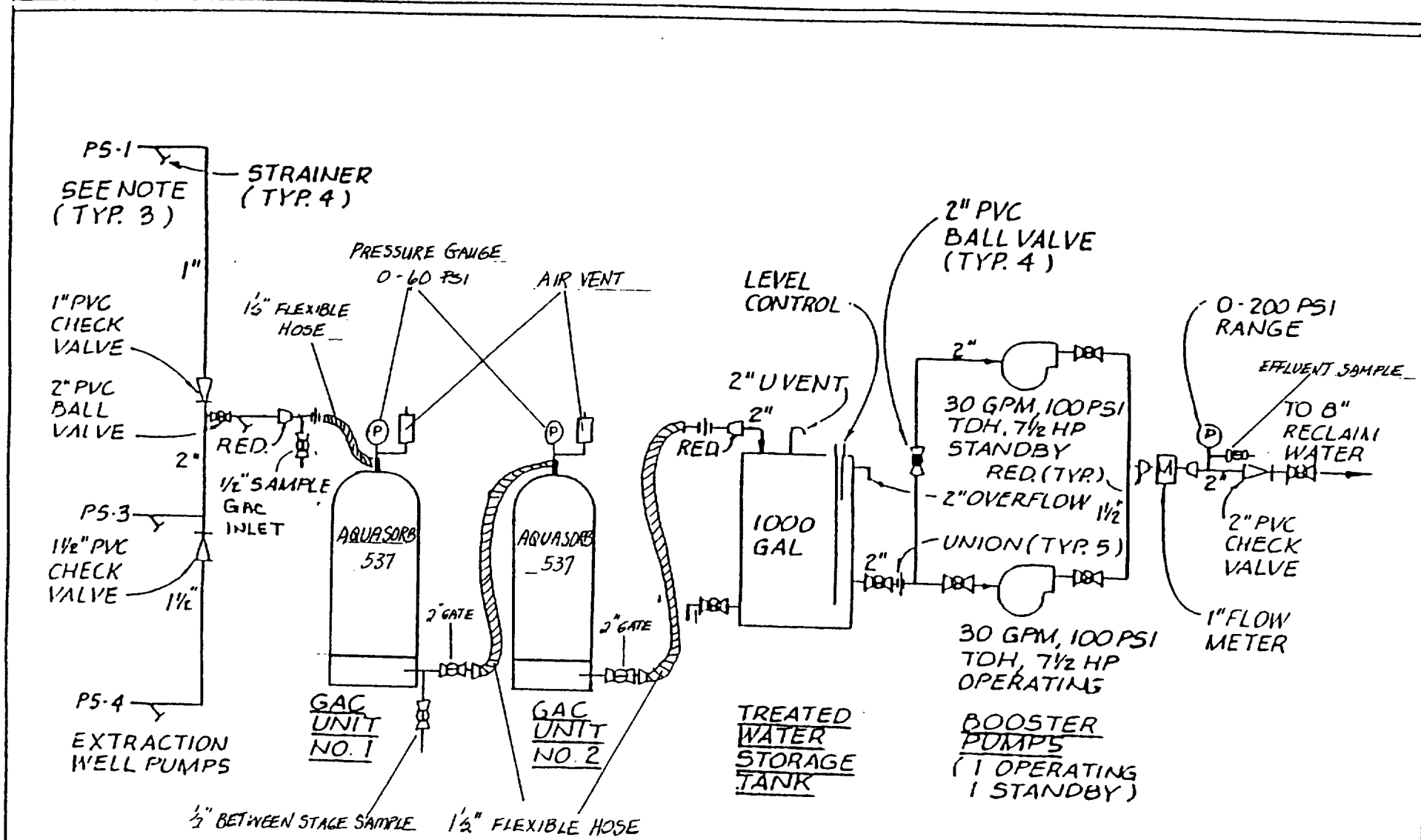
NR - NOT RECORDED

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: COMPUCHEM,RTP Contract: (3-90)-REVS

Lab Code: COMPU Case No.: 23861 SAS No.: _____ SDG No.: 7

Matrix: (soil/water) WATER Lab Sample ID: 445465

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CR045465C53

Level: (low/med) LOW Date Received: 09/15/91

% Moisture: not dec. ____ Date Analyzed: 09/19/91

GC Column: DB624 ID: 0.530 (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	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	3	J
67-66-3	Chloroform	1	J
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	47	
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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	42	
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

INFLUENT

Lab Name: COMPUCHEM,RTP Contract: (3-90)-REVS

Lab Code: COMPU Case No.: 23861 SAS No.: _____ SDG No.: 7

Matrix: (soil/water) WATER Lab Sample ID: 445465

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CR045465C53

Level: (low/med) LOW Date Received: 09/15/91

% Moisture: not dec. ____ Date Analyzed: 09/19/91

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BETWEEN ~~FILTERETT~~

Lab Name: COMPUCHEM,RTP Contract: (3-90)-REVS

Lab Code: COMPU Case No.: 23861 SAS No.: _____ SDG No.: 7

Matrix: (soil/water) WATER Lab Sample ID: 445464

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CN045464A53

Level: (low/med) LOW Date Received: 09/15/91

% Moisture: not dec. ____ Date Analyzed: 09/18/91

GC Column: DB624 ID: 0.530 (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	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BETWEEN
~~FILTEREFF~~

Lab Name: COMPUCHEM,RTP Contract: (3-90)-REVS

Lab Code: COMPU Case No.: 23861 SAS No.: _____ SDG No.: 7

Matrix: (soil/water) WATER Lab Sample ID: 445464

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CN045464A53

Level: (low/med) LOW Date Received: 09/15/91

% Moisture: not dec. ____ Date Analyzed: 09/18/91

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM,RTP Contract: (3-90)-REVS

Lab Code: COMPU Case No.: 23861 SAS No.: _____ SDG No.: 7

Matrix: (soil/water) WATER Lab Sample ID: 445460

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CN045460A53

Level: (low/med) LOW Date Received: 09/15/91

% Moisture: not dec. ____ Date Analyzed: 09/18/91

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		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	4	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM,RTP Contract: (3-90)-REVS

Lab Code: COMPU Case No.: 23861 SAS No.: _____ SDG No.: 7

Matrix: (soil/water) WATER Lab Sample ID: 445460

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: CN045460A53

Level: (low/med) LOW Date Received: 09/15/91

% Moisture: not dec. ____ Date Analyzed: 09/18/91

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q