YPLSF

QUARTERLY GROUND WATER MONITORING REPORT

YAKIMA AGRICULTURAL RESEARCH LABORATORY
QUARTER NUMBER 2 - NOVEMBER 1990

January 23, 1991
Our Project Number 90042

Prepared for
U.S. Department of Agriculture

HONG WEST & ASSOCIATES
P.O. Box 596
Lynnwood, Washington 98046
(206)774-0106

USEPA SF
1599694

HONG WEST & ASSOCIATES

• Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection •

January 22, 1991

Lyndia Countee, Chief
Service Contracts Section, CAD
U.S.D.A.
6303 Ivy Lane, Room 762
Greenbelt, MD 20770-1433

RECEIVED
AUG 14 1992
SUPERFUND

RE: Quarterly Monitoring Report # 2
November, 1990
Contract No. 53-3K06-0-24
Yakima Agricultural Research Laboratory

Dear Lyndia:

Attached please find one (1) copy of Hong West & Associates' Quarterly Monitoring Report # 2, submitted for USDA's use during the on-going RCRA Clean Closure effort. The Report is submitted in partial fulfillment of our contract with U.S.D.A. under Task 17. As required, five (5) copies of the Report have been transmitted to Mr. Alvin Humphrey of USDA for technical review and report dissemination.

In summary, the second monitoring event revealed minor concentrations of pesticides in ground water that may be of future concern. Subsequent sampling rounds should be used to qualify and confirm these detections.

Should there be any questions or comments concerning this Report submittal, please direct them to myself or Doug Geller.

Respectfully submitted;

HONG WEST & ASSOCIATES

Larry West

Larry West, Vice-President
Project Director

LW/dg

cc: G. Sundstrom
A. Humphrey
D. Goldman
G. Rosenthal

P.O. Box 596, Lynnwood, Washington 98046 • (206) 774-0106

United States
Department of
Agriculture

Agricultural
Research
Service

Pacific West Area

800 Buchanan Street
Albany, California
94710

January 30, 1991

Ms. Debbie Robinson
US EPA
1200 6th Ave.
Mail Stop HW112
Seattle, WA 98101

RE: QUARTERLY GROUND WATER MONITORING REPORT-YARL

Dear Ms. Robinson:

Enclosed is the Quarter Number 2 - November 1990, Quarterly Ground Water Monitoring Report for Yakima Agricultural Research Laboratory, Yakima, Washington.

If you have any questions, please don't hesitate to phone. My number is 415-559-6004.

Sincerely,

ALVIN HUMPHREY
Area Safety Manager

Enclosure

cc: (w/enclosure)
Jim Krysan, RL, Yakima

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1.0 Monitoring System Summary

Three additional ground water monitoring wells were installed at the YARL site during June and July of 1990. These in, combination with the wells installed during the previous study (Biospherics, Inc. 1988), complete the RCRA detection monitoring system required for the Clean Closure effort.

Details of the new wells appear in a separate report (Well Construction Report, August 29, 1990). To summarize, two of the new wells were screened at intervals similar to the other four wells (the uppermost 10 feet of the site aquifer). The third well was installed as a deep sampling piezometer at 125 feet to provide information regarding vertical hydraulic and chemical gradients within the upper aquifer.

The approved Sampling and Analysis Plan includes one year (5 rounds) of quarterly ground water monitoring, sampling and analysis for a variety of indicator parameters, organic and inorganic compounds. The objectives of the monitoring are as follows:

1. Determine depth to ground water and direction of ground water flow monthly.

2. Quantify ground water quality up-gradient and down-gradient from the former waste management area on a quarterly basis. This sampling should screen for indicator parameters and a specified list of organic and inorganic compounds.

3. Provide substantive data for hydrogeologic evaluation, risk assessment and final site closure.

2.0 Monitoring Procedures

2.1 Well Monitoring

The YARL site was visited on November 14, 1990 by the Hong West Team for the purpose of conducting the second quarterly ground water monitoring and sampling field work. As per the Sampling and Analysis plan, a specific procedure was followed. First, water levels were taken in all the wells, with measurements made to the nearest .01 foot. Between each measurement, the well probe was decontaminated with a methanol wash followed by a distilled water rinse, to minimize the potential for well cross-contamination.

2.2 Well Purging

Once the static water levels were obtained, well purging and sampling commenced. The predetermined sampling order was followed, beginning with up-gradient and off-gradient wells and proceeding to wells directly down-gradient from the former septic tank and drainfield areas. Although not physically closest to these source areas, MW-C was sampled last because of its prior history of low detectable levels of volatile organics. The following sampling order was followed:

1. MW-D
2. MW-G
3. MW-B

4. MW-F
5. MW-E
6. MW-A
7. MW-C

Each well was purged using the dedicated Well Wizard pumps driven by an automatic controller which sent regular, periodic surges of nitrogen gas to displace the ground water to the surface via the pump's teflon tubing. During well purging, the pumped water was monitored for pH, temperature and conductivity. Purging was continued for a minimum of 5 well volumes and until the indicator parameters stabilized.

2.3 Well Sampling

As per the Sampling and Analysis plan, samples were withdrawn from each well sequentially in decreasing order of volatility and instability, beginning with volatile organics (into 40 ml glass vials for 8240 analysis) then pesticides (into 1 liter amber bottles for 8080, 8140 and 8150 analyses) and metals (500 ml poly cubes for 6010, 7000 and 7470 analyses).

After each well was sampled, the bottles were sealed with Chain of Custody seals, labeled and placed in iced coolers for priority shipment to the laboratory. A chain of custody was filled out at the same time and signed by the sampling technician. A field blank (prepared in the field) and trip blank (filled in the lab and shipped to and from the field) were added to the samples prior to shipment. A duplicate from MW-E (90042-1190-E2) was also taken.

The sample numbering scheme is as follows:

90042-1190-A1 refers to HWA project number 90042, November, 1990
sample number one from Monitoring Well A.

3.0 Ground Water Observations

There is no history of high levels of ground water contamination at YARL; hence, sampling was performed at a personal safety level of D. During ground water sampling, no unusual water discoloration or odor was observed. The weather was seasonally cool, with temperatures in the 40s by early afternoon. Trace levels of precipitation had occurred in the Yakima area during the previous two weeks.

Ground water levels were measured on October 22, 1990, during the November 14 sampling event and again on December 12, 1990. Depth to ground water averaged approximately 34 feet and flow was generally toward the southeast under a gradient of .004 ft/ft. The ground water contours for the October, November and December monitoring event are shown in Figures 2-A, 2-B and 2-C, respectively. HWA's ground water database depicting all YARL ground waters levels taken to date appears in Figure 2-D. Contours show the characteristic shift in flow direction across the site from easterly to southeasterly. The source of this discrepancy is at present unknown, but may be related to off-site pumping or irrigation. Original field monitoring data sheets are presented in Appendix 2-1.

The water level in the deep piezometer, MW-E, was significantly higher than the upper aquifer monitoring well adjacent to it (MW-F), indicating the presence of a vertical gradient within the upper-most aquifer. To obtain an estimate of the vertical gradient, the difference in water table elevation in each well is divided by the elevation change between the top of each screened interval in the two wells:

October, 1990	November, 1990	December, 1990
$\frac{.59'}{85.34'} = .007$ ft/ft	$\frac{1.05'}{85.34'} = .012$ ft/ft	$\frac{.75'}{85.34'} = .009$ ft/ft

Thus, the average vertical gradient is .01 ft/per foot of hydraulic head. Because the measured water level in the deep piezometer was higher than in the shallow well, the inferred vertical hydraulic gradient is upward, indicating the site is located in an area of ground water discharge.

Data from MW-E was not used to construct Figures 1-A and 1-B because of its position deep within the upper-most aquifer. Data from MW-B was not used because measured water levels in this well have consistently produced anomalous apparent flow patterns.

4.0 Analytical Methods and Results

For a complete description of each analytical method, refer to the Project Plan and Sampling and Analysis Plan. In summary, each sample was analyzed for a variety of organic and inorganic contaminants including:

- TCL Volatile Organics EPA method 8240
- Chlorinated Pesticides EPA method 8080
- Herbicides/Organophosphate Insecticides EPA methods 8150 and 8140
- TCL Metals EPA Method 6010, 7444, 7000

Analytical results are presented in Appendix 2-2.

5.0 Interpretation of Results

5.1 TCL Volatile Organics

No volatile organics were detected in any of the 28 samples taken or in the trip blank or field blank samples. Full analytical results are presented in Appendix 2-2.

5.2 Pesticides, Herbicides and Insecticides

Of the 33 compounds analyzed for, four were detected in three of the 8 well samples. None were detected in the trip blank or field blank samples. A discussion of pesticide detection appears in the Biospherics cover letter at the beginning of Appendix 2-2.

The November, 1990 monitoring event represents the first pesticide detections in ground water at YARL. Future monitoring events should aid in confirmation/clarification of these new detections.

5.3 TCL Metals

Detectable levels of some metals were recorded, however none of the concentrations exceed federal or state ground water standards for the state of Washington.

No other contaminants of concern were identified during the November, 1990 monitoring event. Analytical methodology, chronology and a non-conformance summary appear in Appendix 2-2. There were no non-conformances to report with volatile organics or PCBs analyses. Minor non-conformances were reported for the following:

900421190-D1: matrix spike for TEPP and surrogate below acceptable limit, matrix spike for methyl parathion was outside acceptable limits.

900421190-G1: reextracted outside the holding time due to poor surrogate recovery
Matrix spike/spike duplicate for DDT outside acceptable limits

FIGURES

Figure 2-A

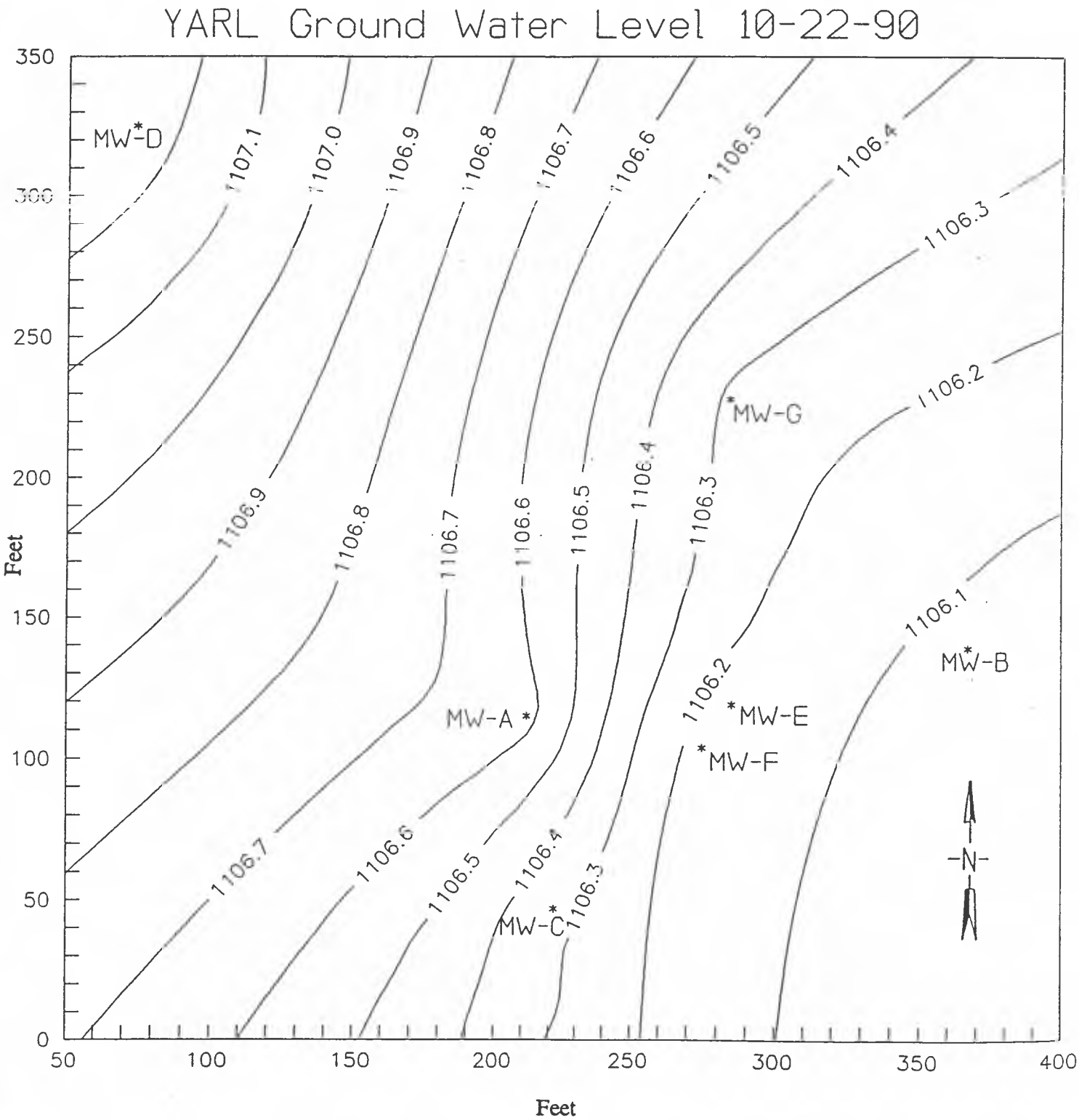
YARL Ground Water Level 10-22-90
MW*-D
1107.1
1107.0
1106.9
1106.8
1106.7
1106.6
1106.5
1106.4
1106.3
1106.2
1106.1
*MW-G
MW-A *
*MW-E
*MW-F
MW*-B
MW-C*
-N-
Feet
Feet
0
50
100
150
200
250
300
350
400

Figure 2-B

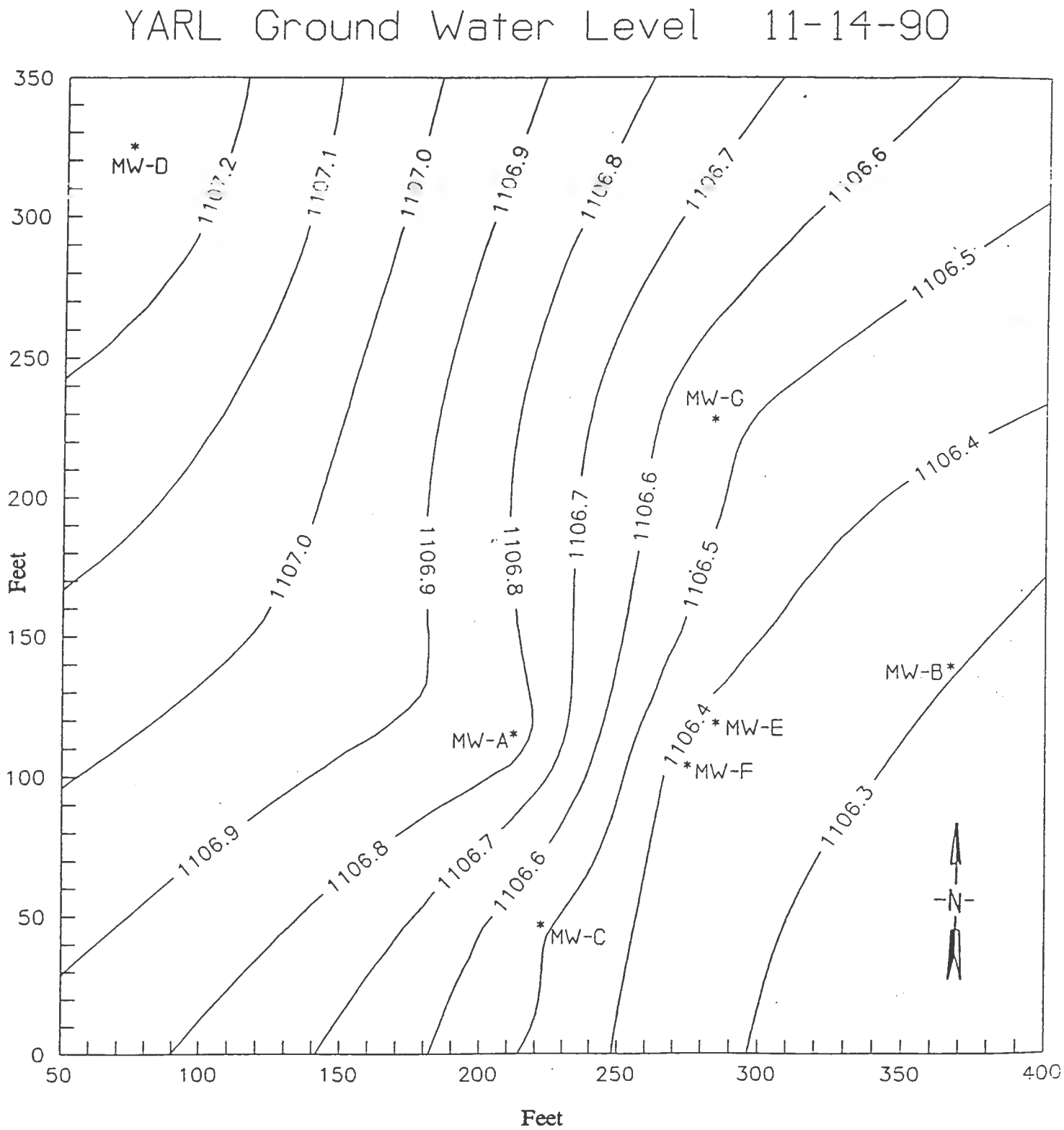
YARL Ground Water Level 11-14-90
MW-D
MW-G
MW-A*
MW-B*
*MW-E
*MW-F
*MW-C
1107.2
1107.1
1107.0
1106.9
1106.8
1106.7
1106.6
1106.5
1106.4
1106.3
-N-
Feet
Feet
0
50
100
150
200
250
300
350
400

Figure 2-C

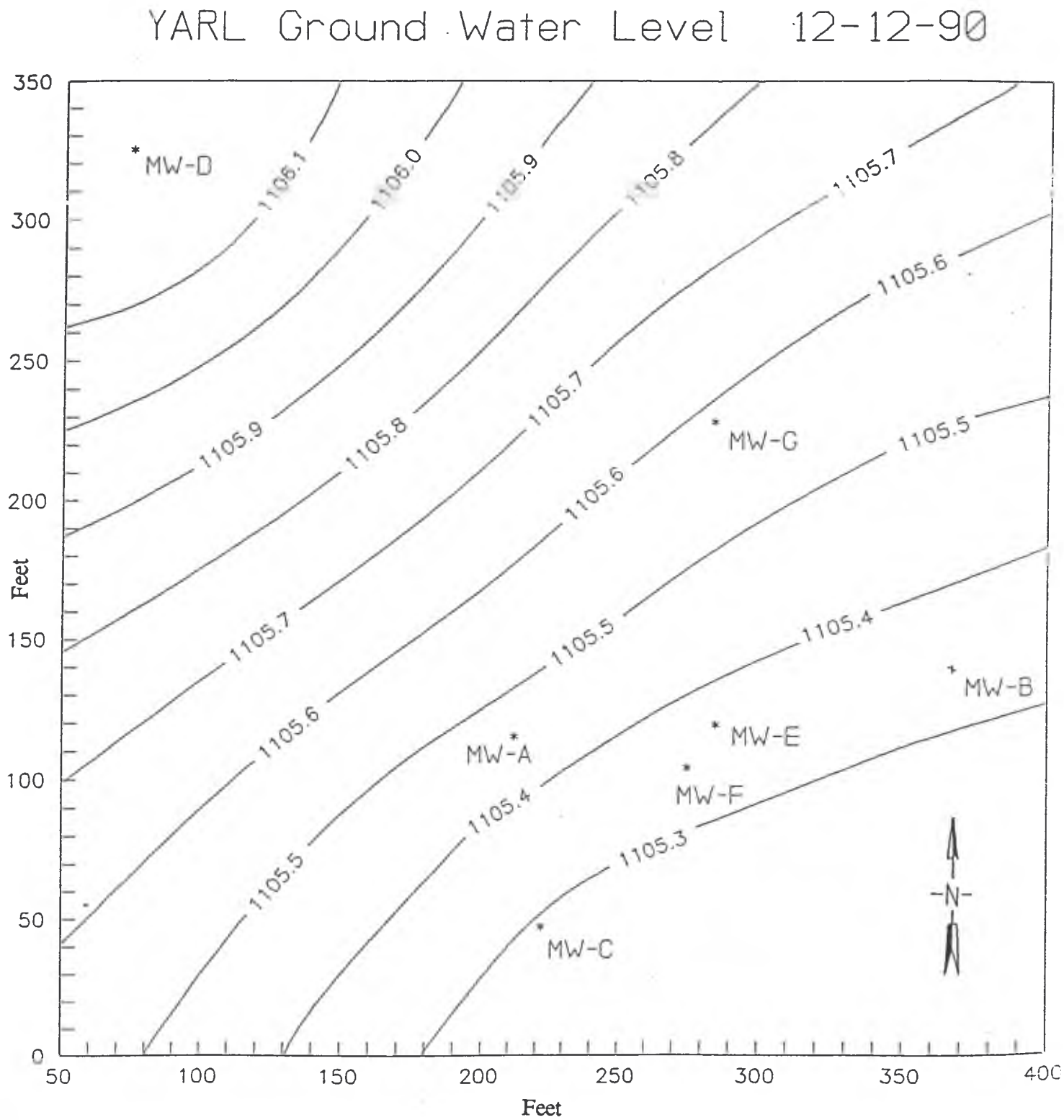
YARL Ground Water Level 12-12-90
MW-D
MW-G
MW-B
MW-E
MW-A
MW-F
MW-C
1106.1
1106.0
1105.9
1105.8
1105.7
1105.6
1105.5
1105.4
1105.3
-N-
Feet
Feet
0
50
100
150
200
250
300
350
400

Figure 2-D Ground Water Database

Elevations in Feet

	MW-A	MW-B	MW-C	MW-D	MW-E	MW-F	MW-G
TOC	1141.54	1141.94	1140.98	1141.00	1141.03	1141.28	1142.43
6-88	1106.18	1106.36	1106.04	1107.19			
7-88	1106.43	1106.21	1106.23	1107.43			
8-88	1106.60	1106.78	1106.43	1107.66			
9-88	1106.59	1106.78	1106.50	1107.74			
12-88	1105.72	1105.90	1105.54	1106.71			
3-89	1105.16	1105.35	1104.88	1106.25			
6-89	1105.29	1105.48	1105.11	1106.40			
9-89	1106.57	1106.74	1106.37	1107.64			
3-90	1104.98	1105.14	1104.78	1106.06			
6-25-90	1105.47	1105.62	1105.33	1106.45	1106.49	1106.05	1105.69
8-7-90	1106.64	1106.70	1106.32	1107.32	1107.15	1106.13	1106.28
9-4-90	1106.33	1106.51	1106.13	1107.25	1106.82	1106.26	1106.48
10-22-90	1106.18	1106.34	1106.10	1107.05	1106.77	1106.18	1106.38
11-14-90	1106.86	1106.85	1106.51	1107.30	1107.39	1106.34	1106.52
12-12-90	1105.46	1105.64	1105.26	1106.27	1106.13	1105.38	1105.57

APPENDIX 2-1

FIELD MONITORING DATA SHEETS

HONG WEST & ASSOCIATES

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FIELD MONITORING DATA SHEET

PROJECT NAME: YARL
PROJECT NUMBER: 90042
PAGE 1 OF 2 WEATHER: SUNNY 60°

LOCATION: YARL
ADDRESS: 3706 W Nob Hill
DATE: OCT. 22 1990
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-B	10-22 1555			44.05	35.60'		
MW-F	10-22 1559			48.90	35.10'		
MW-E	10-22 1558			127.2	34.26'		
MW-C	10-22 1602			42.25	34.97'		

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	RINSE METH.	APPROX. FLOW, GPM	ELASPED T 95% EQ.

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION) TEMP	COND.	pH	(AFTER SAMPLING) TEMP	COND.	pH

COMMENTS:

NAME:

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FIELD MONITORING DATA SHEET

PROJECT NAME: YAEL
PROJECT NUMBER: 90042
PAGE 2 OF 2 WEATHER: SUNNY 60°

LOCATION: YAEL
ADDRESS: 3705 W. NOB HILL BLVD
DATE: 10-22-90
CLIENT: USDA

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-A	10-22 1600			43.86	35.36'		
MW-G	10-22 1550			50.61	36.05'		
MW-D	10-22 1544			41.35'	33.95'		

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	RINSE METH.	APPROX. FLOW, GPM	ELASPED T 95% EQ.

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION) TEMP	COND.	pH	(AFTER SAMPLING) TEMP	COND.	pH

COMMENTS:

NAME:

P.O. Box 596, Lynnwood, Washington 98046 • (206) 774-0106

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2ND QUARTER

FIELD MONITORING DATA SHEET

PROJECT NAME: YARL
PROJECT NUMBER: 90042
PAGE 1 OF 2 WEATHER: SUNNY 50°

LOCATION: YARL
ADDRESS: 3706 W. Nob Hill
DATE: 11-14-90
CLIENT: USDA/ARS

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV. **	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-A	11-14-90 1030	1141.54	N/A	42	34.68	1106.86	1.17
MW-B	11-14-90 0950	1141.94	N/A	47	35.09	1106.85	1.92
MW-C	11-14-90 1430	1140.98	N/A	42	34.47	1106.51	1.20
MW-D	11-14-90 0820	1141.00	N/A	46	33.70	1107.30	1.97

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	RINSE METH.	APPROX. FLOW, GPM	ELASPED T 95% EQ.
MW-A	11-14-90 1035	WELL WIZARD	3	N/A	< 1	< 5 min
MW-B	11-14-90 1000	"	"	"	"	"
MW-C	11-14-90 1440	"	"	"	"	"
MW-D	11-14-90 830	"	"	"	"	"

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	PLAST
MW-A	11-14-90 1040	90042-1190 - A1		8240			6010		8140 8150 8080	
MW-B	11-14-90 1010	- B1		"			"		"	
MW-C	11-14-90 1450	- C1		"			"		"	
MW-D	11-14-90 840	- D1		"			"		"	

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION) TEMP	COND.	pH	(AFTER SAMPLING) TEMP	COND.	pH
MW-A		14°C	945	7.44			
MW-B		13	1537	7.35			
MW-C		14	829	7.32			
MW-D		13	1082	7.13			

COMMENTS:

1. water clear + odorless. 500 ml. poly preserved w/ HNO_3
2. Sampled by Russell Thompson, Sweet-Edwards/EMCOW
3. All Samples iced and sealed

** Top of Casing

NAME: Doug Geller

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FIELD MONITORING DATA SHEET

PROJECT NAME: YARL
PROJECT NUMBER: 90042
PAGE 2 OF 2 WEATHER: SUNNY 50°

LOCATION: YARL
ADDRESS: 3706 W. Nob Hill YAK.
DATE: 11-14-90
CLIENT: USDA/ARS

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-E	11-14-90 1200	1141.03	N/A	128	33.64	1107.39	15.09
MW-F	11-14-90 1100	1141.28	N/A	40	34.94	1106.34	2.25
MW-G	11-14-90 0920	1142.43	N/A	50	35.97	1106.52	2.24

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	RINSE METH.	APPROX. FLOW, GPM	ELASPED T 95% EQ.
MW-E	11-14-90 1205	WELL WIZARD	3	N/A	<1	<5
MW-F	11-14-90 1105	"	"	"	"	"
MW-G	11-14-90 0930	"	"	"	"	"

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	PLAST
MW-E	11-14-90 1210	90042-1190 E1*		8240			6010		8140 8150 8080	
MW-F	11-14-90 1110	F1		"			"		"	
MW-G	11-14-90 0940	G1		"			"		"	

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION) TEMP	COND.	pH	(AFTER SAMPLING) TEMP	COND.	pH
MW-E	11-14-90 1210	13	706	7.73			
MW-F	11-14-90 1110	13	897	7.57			
MW-G	11-14-90 0940	13	939	7.43			

COMMENTS: 1. * E2 is duplicate of G1

NAME: Doug Geller

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FIELD MONITORING DATA SHEET

PROJECT NAME:
PROJECT NUMBER:
PAGE OF WEATHER:

LOCATION:
ADDRESS:
DATE:
CLIENT:

WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
D							
G				142.43		1105.57	
B				141.94		1105.64	
E				141.03		1106.13	

WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	RINSE METH.	APPROX. FLOW, GPM	ELASPED T 95% EQ.
F			28			
C			20.98		5.26	

WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	PLAST

INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION) TEMP	COND.	pH	(AFTER SAMPLING) TEMP	COND.	pH

COMMENTS:

NAME:

P.O. Box 596, Lynnwood, Washington 98046 • (206) 774-0106

APPENDIX 2-2

ORIGINAL LABORATORY DATA AND CHAIN OF CUSTODY

January 17, 1991

BIOSPHERICS® INCORPORATED

Technologies for Environment and Health

Doug Geller, Project Manager/Senior Geologist
Hong West and Associates
P.O. Box 596
Lynnwood, Washington 98046

Dear Mr. Geller:

Please find enclosed the final results of the analyses performed for the Yakima Agricultural Research Laboratory task 14 quarterly ground water monitoring conducted on November 14, 1990. As you are aware, the delay in getting this report to you has been the result of difficulties experienced in the attempt to obtain the required detection limits for the organophosphorus pesticides analyses. Please understand that Biospherics Incorporated worked diligently to obtain these results as soon as it was possible. With the exception of the organophosphorus pesticide results, the results of the task 14 analyses were verbally reported to Larry West on December 17, 1990 and telefaxed to you on January 4, 1991. Therefore, you already know that there were some pesticide detections in some of the ground water samples. These detections are summarized below.

Summary of Pesticide Detections for the 11/14/90 Quarterly Sampling

Sample ID	Pesticide	Concentration *ug/L*
90042-1190-B1	malathion	0.23
90042-1190-C1	heptachlor	0.06
	4,4'-DDT	0.11
90042-1190-E2	heptachlor epoxide	0.10

The only change from that initial report is that malathion was detected in the sample 90042-1190-B1 at 0.23 *ug/L*. Malathion is not regulated under the Safe Drinking Water Act (SDWA) and was not listed in the state of Washington's 5/90 draft ground water quality criteria. Both the heptachlor and the heptachlor epoxide detections are below the SDWA National Primary Drinking Water Regulation proposed MCLs (heptachlor = 0.4 *ug/L* and heptachlor epoxide = 0.2 *ug/L*). However, they are both above the state of Washington's more restrictive proposed criteria (heptachlor = 0.02 *ug/L* and heptachlor epoxide = 0.009 *ug/L*). 4,4'-DDT is below the state of Washington's proposed standard of 0.3 *ug/L*. There is no MCL established for DDT.

No volatile organics were detected.

Some metals were detected. None of the metals concentrations exceeded the SDWA established or proposed MCLs/SMCLs or proposed ground water standards for the state of Washington.

☒ **Corporate Headquarters**
12051 Indian Creek Court
Beltsville, Maryland 20705
(301) 369-3900
Telefax (301) 725-4908/09
Telex 898 072

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☐ **Cumberland Regional Office**
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8241B Sandy Court
Jessup, Maryland 20794
(301) 470-2553

BIOSPHERICS® INCORPORATED

Please contact us at (301) 369-3900 if there are any questions.

Sincerely,

Thomas Durborow

Thomas Durborow
Environmental Scientist,
Ground Water and Environmental Programs

Enclosure

BIOSPHERICS INCORPORATED

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

LAB I.D.: 90-11-1501

Analytical Methodology/Sample Chronicle

Parameter	Method	Date Extracted	Date Analyzed
Metals	EPA 6010/7000's 7470	11/19,12/4/90 11/15/90	11/27-12/6/90 11/16/90
Pesticides/PCB's	EPA 8080	11/16/90	11/20/90
Organophosphorus Pesticides	EPA 8140	11/16,12/4/90 1/7/91	11/27,12/6/90 1/9/91
Volatile Organics	EPA 8240		11/21/90
Herbicides	EPA 8150	11/17,12/04/90	11/20,12/07/90

Non-conformance Summary

Volatile Organics, PCB's
There are no non-conformances to report.

Metals
The process blank, replicate, matrix spike and laboratory control sample results were within acceptable limits except for the following: the matrix spike recovery for thallium was 31%. A post digestion spike was done on the sample and the recovery was 34%. Samples were diluted 20 fold until the post digestion spike was within the acceptable limits of 75-125% (80%). Due to matrix interferences the detection limit for tin was raised to 50 μg/L.

Organophosphorus Pesticides
Samples were originally extracted within holding time. However, due to poor recovery of the surrogates samples were reextracted outside of holding time. The matrix spike duplicate for 90042-1190-D1 for TEPP (24%) and for the surrogate (<20%) was below acceptable limits of 25%. The matrix spike for 90042-1190-D1 for methyl parathion was outside of acceptable limits of 175% (193%).

Herbicides
Sample 90042-1190-G1 was reextracted outside of holding time due to poor recovery of the surrogates.

Pesticides
The matrix spike/matrix spike duplicate for 90042-1190-G1 for DDT was outside the acceptable limits of 125% (140%). The relative percent difference for the MS/MSD was 0% for DDT. All other spiking compounds were within the acceptable limits.

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS: μg/L

LAB ID: 90-11-1501

Client I.D.:	90042-1190-D1	90042-1190-G1	90042-1190-B1	90042-1190-A1
Lab I.D.:	1	2	3	4
Parameter:				
Aluminum	<200	<200	<200	<200
Antimony	<60	<60	<60	<60
Arsenic	<10	<10	<10	<10
Barium	<200	<200	<200	<200
Beryllium	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0
Calcium	79300	72800	126000	73700
Chromium	<10	<10	<10	<10
Cobalt	<50	<50	<50	<50
Copper	<25	<25	<25	<25
Iron	<100	<100	288	<100
Lead	<3.0	<3.0	<3.0	<3.0
Magnesium	46400	43400	78200	40600
Manganese	<15	<15	<15	<15
Mercury	<0.2	<0.2	<0.2	<0.2
Nickel	<40	<40	<40	<40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS: μg/L

LAB REP: 90-11-1501

Client I.D.:	90042-1190-D1	90042-1190-G1	90042-1190-B1	90042-1190-A1
Lab I.D.:	1	2	3	4
Parameter:				
Potassium	<5000	<5000	<5000	<5000
Selenium	<5.0	<5.0	<5.0	<5.0
Silver	<10	<10	<10	<10
Sodium	70900	61600	79300	61000
Thallium	<200	<200	<200	<200
Tin	<50	<50	<50	<50
Vanadium	77.6	65.4	60.5	52.0
Zinc	26.3	<20	20.0	<20

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS: $\mu g/L$

LAB I.D.: 90-11-1501

Client I.D.:	90042-1190-F1	90042-1190-E1	90042-1190-E2	90042-1190-C1
Lab I.D.:	5	6	7	8
Parameter:				
Aluminum	<200	<200	<200	<200
Antimony	<60	<60	<60	<60
Arsenic	<10	<10	<10	<10
Barium	<200	<200	<200	<200
Beryllium	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0
Calcium	68600	64600	63000	65600
Chromium	<10	<10	<10	<10
Cobalt	<50	<50	<50	<50
Copper	<25	<25	<25	<25
Iron	<100	<100	<100	<100
Lead	<3.0	<3.0	<3.0	<3.0
Magnesium	39600	30000	28900	37100
Manganese	<15	<15	<15	<15
Mercury	<0.2	<0.2	<0.2	<0.2
Nickel	<40	<40	<40	<40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS: $\mu g/L$

LAB ID: 90 11 1501

Client I.D.:	90042-1190-F1	90042-1190-E1	90042-1190-E2	90042-1190-C1
Lab I.D.:	5	6	7	8
Parameter:				
Potassium	<5000	5750	5380	<5000
Selenium	<5.0	<5.0	<5.0	<5.0
Silver	<10	<10	<10	<10
Sodium	59000	33500	33100	53700
Thallium	<200	<200	<200	<200
Tin	<50	<50	<50	<50
Vanadium	66.9	<50	<50	59.6
Zinc	<20	<20	<20	<20

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS: $\mu g/L$

LAB ID: 90-11-1501

Client I.D.:	Blank	Quanitation Limit
Lab I.D.:	9	
Parameter:		
Aluminum	<200	200
Antimony	<60	60
Arsenic	<10	10
Barium	<200	200
Beryllium	<5.0	5.0
Cadmium	<5.0	5.0
Calcium	<1000	1000
Chromium	<10	10
Cobalt	<50	50
Copper	<25	25
Iron	<100	100
Lead	<3.0	3.0
Magnesium	<1000	1000
Manganese	<15	15
Mercury	<0.2	0.2
Nickel	<40	40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS: μg/L

LAB I.D.: 90-11-1501

Client I.D.:	Blank	Quanitation Limit
Lab I.D.:	9	
Parameter:		
Potassium	<5000	5000
Selenium	<5.0	5.0
Silver	<10	10
Sodium	<5000	5000
Thallium	<200	200
Tin	<50	50
Vanadium	<50	50
Zinc	<20	20

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF362::QT
Lab. No.: 90111501-1
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-D1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 18:14

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit. Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF365::D3
Lab. No.: 90111501-2
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-G1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 21:05

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit.
Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF366::D3
Lab. No.: 90111501-3
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-B1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 21:30

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit. Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF367::D3
Lab. No.: 90111501-4
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-A1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 21:54

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit. Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF368::D3
Lab. No.: 90111501-5
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-F1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 22:18

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit. Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF369::D3
Lab. No.: 90111501-6
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-E1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 22:42

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit. Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF370::D3
Lab. No.: 90111501-7
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-E2)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 23:06

CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N
74-83-9	Bromomethane	10.	N
75-01-4	Vinyl Chloride	10.	N
75-00-3	Chloroethane	10.	N
75-09-2	Methylene Chloride	5.	N
67-64-1	Acetone	100.	N
75-15-0	Carbon Disulfide	5.	N
75-35-4	1,1-Dichloroethene	5.	N
75-34-3	1,1-Dichloroethane	5.	N
540-59-0	trans-1,2-Dichloroethene	5.	N
67-66-3	Chloroform	5.	N
107-06-2	1,2-Dichloroethane	5.	N
78-93-3	2-Butanone	100.	N
71-55-6	1,1,1-Trichloroethane	5.	N
56-23-5	Carbon Tetrachloride	5.	N
108-05-4	Vinyl Acetate	50.	N
75-27-4	Bromodichloromethane	5.	N

CAS #	Compound Name	Conc(ug/L)	
78-87-5	1,2-Dichloropropane	5.	N
10061-01-5	cis-1,3-Dichloropropene	5.	N
79-01-6	Trichloroethene	5.	N
124-48-1	Dibromochloromethane	5.	N
79-00-5	1,1,2-Trichloroethane	5.	N
71-43-2	Benzene	5.	N
10061-02-6	trans-1,3-Dichloropropene	5.	N
75-25-2	Bromoform	5.	N
108-10-1	4-Methyl-2-Pentanone	50.	N
591-78-6	2-Hexanone	50.	N
127-18-4	Tetrachloroethene	5.	N
79-34-5	1,1,2,2-Tetrachloroethane	5.	N
108-88-3	Toluene	5.	N
108-90-7	Chlorobenzene	5.	N
100-41-4	Ethylbenzene	5.	N
100-42-5	Styrene	5.	N
1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit. Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF371::D4
Lab. No.: 90111501-8
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(90042-1190-C1)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 23:31

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit.
Number reported is concentration in sample.

BIOSPHERICS
VOLATILE ANALYSIS REPORT
REFERENCED METHOD:8240

Data File: >BF373::D4
Lab. No.: 90111501-10
Matrix: WATER
Instrument ID: GC/MS #2 (HP5970)

Client ID: HONG-WEST(TRIP BLANK)
Date Collected: 11/14/90
Date Analyzed: 11/21/90 23:56

CAS #	Compound Name	Conc(ug/L)		CAS #	Compound Name	Conc(ug/L)	
74-87-3	Chloromethane	10.	N	78-87-5	1,2-Dichloropropane	5.	N
74-83-9	Bromomethane	10.	N	10061-01-5	cis-1,3-Dichloropropene	5.	N
75-01-4	Vinyl Chloride	10.	N	79-01-6	Trichloroethene	5.	N
75-00-3	Chloroethane	10.	N	124-48-1	Dibromochloromethane	5.	N
75-09-2	Methylene Chloride	5.	N	79-00-5	1,1,2-Trichloroethane	5.	N
67-64-1	Acetone	100.	N	71-43-2	Benzene	5.	N
75-15-0	Carbon Disulfide	5.	N	10061-02-6	trans-1,3-Dichloropropene	5.	N
75-35-4	1,1-Dichloroethene	5.	N	75-25-2	Bromoform	5.	N
75-34-3	1,1-Dichloroethane	5.	N	108-10-1	4-Methyl-2-Pentanone	50.	N
540-59-0	trans-1,2-Dichloroethene	5.	N	591-78-6	2-Hexanone	50.	N
67-66-3	Chloroform	5.	N	127-18-4	Tetrachloroethene	5.	N
107-06-2	1,2-Dichloroethane	5.	N	79-34-5	1,1,2,2-Tetrachloroethane	5.	N
78-93-3	2-Butanone	100.	N	108-88-3	Toluene	5.	N
71-55-6	1,1,1-Trichloroethane	5.	N	108-90-7	Chlorobenzene	5.	N
56-23-5	Carbon Tetrachloride	5.	N	100-41-4	Ethylbenzene	5.	N
108-05-4	Vinyl Acetate	50.	N	100-42-5	Styrene	5.	N
75-27-4	Bromodichloromethane	5.	N	1330-20-7	Total Xylenes	5.	N

Qualifier descriptions: N - Compound analyzed for but not detected
Number reported is the quantitation limit.
* - Compound is present but less than quantitation limit. Should be considered an approximation.
\# - Common laboratory solvent. EPA-CLP acceptable limits are 25 and 50 ppb for methylene chloride and acetone respectively.
BLANK - Compound present above quantitation limit.
Number reported is concentration in sample.

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	μg/L
LAB No.:	90111501-1	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-D1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20,12/05, 12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 150

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	µg/L
LAB No.:	90111501-2	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-G1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 140

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	µg/L
LAB No.:	90111501-3	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-B1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 130

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	µg/L
LAB No.:	90111501-4	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-A1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	μg/L
LAB No.:	90111501-5	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-F1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 130

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	$\mu g/L$
LAB No.:	90111501-6	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-E1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 140

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	µg/L
LAB No.:	90111501-7	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-E2	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	0.10	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 160

BQL - Below Practical Quantitation Limit
Positive results qualitatively confirmed by second column.

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	µg/L
LAB No.:	90111501-8	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-C1	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	0.06	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	0.11	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 160

BQL - Below Practical Quantitation Limit
Positive results qualitatively confirmed by second column.

ORGANIC ANALYSIS DATA SHEET
PESTICIDES/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	90111501	UNITS:	μg/L
LAB No.:	90111501-9	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	Blank	DATE EXTRACTED:	11/16/90
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	11/20/90,12/01-12/10/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.05
319-87-7	Beta-BHC	BQL	0.05
319-86-8	Delta-BHC	BQL	0.05
58-89-9	Lindane	BQL	0.05
76-44-8	Heptachlor	BQL	0.05
309-00-2	Aldrin	BQL	0.05
1024-57-3	Heptachlor Epoxide	BQL	0.05
959-98-8	Endosulfan I	BQL	0.05
60-57-1	Dieldrin	BQL	0.10
75-55-9	4,4'-DDE	BQL	0.10
72-20-8	Endrin	BQL	0.10
33213-65-9	Endosulfan II	BQL	0.10
72-54-8	4,4'-DDD	BQL	0.10
1031-07-8	Endosulfan Sulfate	BQL	0.10
50-29-3	4,4'-DDT	BQL	0.10
72-43-5	Methoxychlor	BQL	0.50
7421-93-4	Endrin Aldehyde	BQL	0.10
57-74-9	Chlordane	BQL	0.50
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.5
11104-28-2	Aroclor-1221	BQL	0.5
11141-16-5	Aroclor-1232	BQL	0.5
53469-21-9	Aroclor-1242	BQL	0.5
12672-29-6	Aroclor-1248	BQL	0.5
11097-6901	Aroclor-1254	BQL	1.0
11096-82-5	Aroclor-1260	BQL	1.0

Surrogate % Rec. 160

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-1	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-D1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-2	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-G1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 92

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-3	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-B1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	0.23	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 63

BQL - Below Practical Quantitation Limit
All positive results qualitatively confirmed by second column.

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-4	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-A1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 86

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-5	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-F1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 106

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-6	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-E1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 91

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	$\mu g/L$
LAB No.:	90111501-7	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-E2	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 91

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-8	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-1190-C1	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 79

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
ORGANOPHOSPHORUS PESTICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-9	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	Blank	DATE EXTRACTED:	1/7/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	1/9/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 72

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-1	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-D1	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 76

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-2	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-G1	DATE EXTRACTED:	12/04/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	12/07/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-3	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-B1	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 100

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-4	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-A1	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 90

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-5	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-F1	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 46

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-6	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-E1	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 97

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-7	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-E2	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 100

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-8	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	90042-11-C1	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET
HERBICIDES

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	CS 90111501	UNITS:	µg/L
LAB No.:	90111501-9	DATE COLLECTED:	11/14/90
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	11/15/90
CLIENT I.D.:	Blank	DATE EXTRACTED:	11/17/90
REFERENCED METHOD:	EPA 8150	DATE ANALYZED:	11/20/90

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.10
93-72-1	Silvex	BQL	0.10
93-76-5	2,4,5-T	BQL	0.10

Surrogate % Rec. 99

BQL - Below Practical Quantitation Limit

BIOSPHERICS® INCORPORATED

12051 Indian Creek Ct.
Beltsville, MD 20705
(301) 369-3900

Chain of Custody Record

Project: T38-01.01 Site: Yard
Client: Hong West Phone:
Address:

Sampler's Name/Firm: Russell Thompson SIE/E
Phone: Sampler's Signature:

Sample Number	Date	Time	Matrix	No. of Containers	VOC 8240	metals TCL	8150	8080	8140				Remarks or Sample Location
Preservative Used					Ref 4C	HNO3	Ref 4C	Ref 4C	Ref 4C				
90042-1190-D1	11/14/90		water	4	X	X	X	X	X				
" " -G1	"		"	4	X	X	X	X	X				
" " -B1	"		"	4	X	X	X	X	X				
" " -A1	"		"	4	X	X	X	X	X				
" " -F1	"		"	4	X	X	X	X	X				
" " -E1	"		"	4	X	X	X	X	X				
" " -E2	"		"	4	X	X	X	X	X				
" " -C1	"		"	4	X	X	X	X	X				
Blank	"		"	2		X	X	X	X				
Trip Blank	"		"	1	X								

Relinquished by: (Signature) 1	Date/Time	Received by: (Signature)	Relinquished by: (Signature) 4	Date/Time	Shipping Carrier:
	11/14/90 1300				Fed Ex
Relinquished by: (Signature) 2	Date/Time	Received by: (Signature)	Received for Laboratory by: (Signature)	Date/Time	Shipping Ticket Number:
				11/15/90 8AM	
Relinquished by: (Signature) 3	Date/Time	Received by: (Signature)	Chain of Custody Seal: (Circle) Intact Broken Absent	Lab Remarks Received Cool / 14°C	

White-Return to Client Yellow-Retain by Lab (Project File)