HYDRO GEO CHEM, INC.
Environmental Science & Technology

August 23, 2001

Mr. Dixon A. Oriola, Unit Chief
Senior Engineering Geologist
California Regional Water Quality Control Board,
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles CA 90013

Supplemental Site Closure Information
Former APW Facility, 777 Front Street, Burbank CA
RWQCB File No. 109.6162

Dear Mr. Oriola:

This letter presents the data, analysis and interpretation of results of the additional focused shallow soil remediation at the former APW facility in Burbank. The supplemental remediation targeted the residual volatile organic compound (VOC) concentrations in soil gas at monitoring probe B-02 (Figure 1). The supplemental work was conducted in response to issues raised during the May 30, 2001, meeting with Board staff to discuss APW's request for no further action closure of the facility[1].

This supplemental remediation targeted the residual VOC concentrations in soil gas at monitoring probe B-02@25. The work was conducted according to our June 8, 2001, work plan[2], approved by Board staff on June 12.

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[1] Hydro Geo Chem, Inc. 2001. Results of Site Remediation and Request for No Further Action Closure, Former APW Facility, 777 Front Street, Burbank, CA. Prepared for California Regional Water Quality Control Board. April 5, 2001.

[2] Hydro Geo Chem, Inc. 2001. Additional Remedial Effort in Shallow Soil, Former APW Facility, 777 Front Street, Burbank, CA. Letter to Mr. Dixon Oriola, California Regional Water Quality Control Board, June 8, 2001.

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Field Activities and Measurements

The supplemental soil remediation began on June 18, 2001, using shallow soil vapor extraction (SVE) and air injection wells in the vicinity of B-02 (Figure 1). The shallow SVE and injection wells are 20 feet deep and screened between depths of 5 and 20 feet. The B-02 soil gas probe is a nested array with three ½-inch diameter tubes installed to depths of 25, 50 and 75 feet, each screened over the lower 1 foot of tubing.

Additionally, to evaluate whether the source of VOCs detected at B-02 may be close to the surface, several holes were hand-drilled through the concrete slab within an approximate 15-foot radius of B-02 on June 12, 2001. The holes were 8 inches deep by 3/4 inches in diameter and were used to measure organic vapor levels with a photoionization detector (PID) in the soil immediately beneath the slab. PID concentrations, however, were all relatively low (between 3 and 27 parts per million by volume) and did not indicate proximity to a VOC source.

Soil vapor extraction took place from Ssve-18, Ssve-20, Ssve-50 and Ssve-53. Air injection took place into Sinj-12, Sinj15, Sinj-22, and Ssve-60 (which was converted from a shallow SVE well). Air velocity and organic vapor measurements were collected from each well on a weekly basis between June 18 and July 18, 2001, when the vapor extraction and air injection systems were turned off. These field measurements and run times are summarized in Table 1.

Soil Gas Sample Collection

Soil gas samples were collected from the shallow SVE wells, B-02@25, B02-@50, and the influent to the vapor extraction system at system startup on June 18, 2001 approximately two hours after the system was turned on. A final set of soil gas samples was collected on August 6 from B-02@25, Ssve18, Ssve-20, and Ssve-53, approximately three weeks after the system was turned off. These samples were collected and analyzed by InterPhase Environmental, Inc., under the direction of the Hydro Geo Chem field representative according to the field sampling procedures described in the closure work plan[3]. Samples were transported by InterPhase to their Los Angeles lab for analysis. The results are summarized in Table 2. The laboratory analytical reports are appended.

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[3] Hydro Geo Chem. 2000. Work Plan for No Further Action Closure: Soil Vapor Extraction and Groundwater Monitoring Systems, Former ZERO Facility, 777 Front Street, Burbank, CA. Submitted to California Regional Water Quality Control Board, June 26, 2000.

Results

Soil gas was extracted from the shallow SVE wells at a weighted average of 75 standard cubic feet per minute (scfm) for the 30-day extraction period. Analytical results (Table 2) indicate that perchloroethylene (PCE) and trichloroethylene (TCE) were the only VOCs detected in soil gas samples. The highest concentration of PCE, 605 micrograms per liter (µg/L), was detected in the June 18, 2001, the 25-foot soil gas sample from B-02 (B-02@25). This concentration is slightly lower than detected at that probe in January, 2001 (720 µg/L). The 50-foot sample from B-02 (B-02@50) had nondetectable soil gas PCE concentrations, a decrease from 16 µg/L of PCE detected in that probe in January, 2001. TCE was only detected in one sample, B-02@25, at 2.6 µg/L.

During this extraction period and subsequent rebound interval, soil gas PCE concentrations detected in B-02@25 declined from 605 to 11 µg/L, and soil gas PCE concentrations detected in Ssve-53 declined from 137 to 70 µg/L.

The flow measurements and concentration levels (Tables 1 and 2) indicate that most of the VOCs were extracted from Ssve-53. The blower influent concentration and flow rate indicates an initial VOC mass removal rate of 0.58 pounds per day. The final (August 6, 2001) VOC concentrations indicate a VOC concentration decrease of more than an order of magnitude, and a final mass removal rate of probably less than 0.1 pounds per day. The total VOC mass removal during this 30-day period, estimated by assuming an exponential decline from 0.58 to 0.1 pounds per day, is between 7 and 12 pounds.

Conclusions

The additional shallow remedial activities have resulted in a diminishment of soil gas concentrations in the shallow soils in the vicinity of B-02. VOC concentrations at that probe and the shallow SVE wells used for this focused remediation have declined to levels below the stringent Phase II cleanup goals.

The goal of this supplemental focused remediation has been achieved, and the issue raised about the B-02 VOC concentrations during the May 30, 2001 meeting has been addressed. HGC, on behalf of APW, again requests that the Board make a "no further action" determination for the subject site. This further request is based upon this letter report and our April 5, 2001, report. If you have any questions or concerns, please feel free to contact me.

Sincerely yours,

John J. Ward
Associate Hydrogeologist

cc: Elijah Hill/Water Quality Control Board
Ronald Habel/APW
Michael Francis, Esq/Demetriou, Del Guercio, Springer & Francis
Nancy Peterson, Esq/Quarles & Brady
Brian Bussa/Ford Motor Company
Donald C. Nanney, Esq/Gilchrist & Rutter

ATTACHMENTS

TABLES

FIGURE

APPENDICES

TABLES

TABLE 1
Field Measurements

Well	12-Jun-01		18-Jun-01		25-Jun-01		30-Jun-01		10-Jul-01		6-Aug-01	
	Flow Rate (scfm)	PID (ppmv)	Flow Rate (scfm)	PID (ppmv)	Flow Rate (scfm)	PID (ppmv)	Flow Rate (scfm)	PID (ppmv)	Flow Rate (scfm)	PID (ppmv)	Flow Rate (scfm)	PID (ppmv)
B-02@25	0	230	–	18	–	–	–	0.5	–	1.7	–	1.9
B-02@50	0	–	–	3.2	–	–	–	–	–	–	–	–
Ssve-18	0	7.1	6	2.0	7	–	8	0.3	9	0.3	0	0.9
Ssve-20	0	15.1	6	11.3	13	–	13	0.2	12	0.1	0	1.4
Ssve-50	0	11.9	12	7.4	11	–	0	–	0	–	0	
Ssve-53	0	47.1	44	23.5	41	–	41	3.9	46	2.9	0	10.4
Ssve-60	0	12.1	33	3.5	4	–	23	–	23	–	0	–
Sinj-12	0	–	2	–	2	–	0	–	0	–	0	–
Sinj-15	0	–	59	–	41	–	52	–	47	–	0	–
Sinj-22	0	–	47	–	39	–	43	–	44	–	0	–
SVE influent	0	15	100	17.4	72	–	62	4.6	67	1.9	0	–
Injection	0	–	109	–	86	–	118	--	115	–	0	–

Notes: *– No measurement*
Flow rates calculated in standard cubic feet per minute (scfm).
PID measurements are in parts per million by volume (ppmv).
Ssve-60 was converted to an injection well on June 25, 2001.
Ssve-50 and Sinj-12 were turned off on June 25, 2001.

TABLE 2
Results of Soil Gas Sampling,
June 18 and August 6, 2001

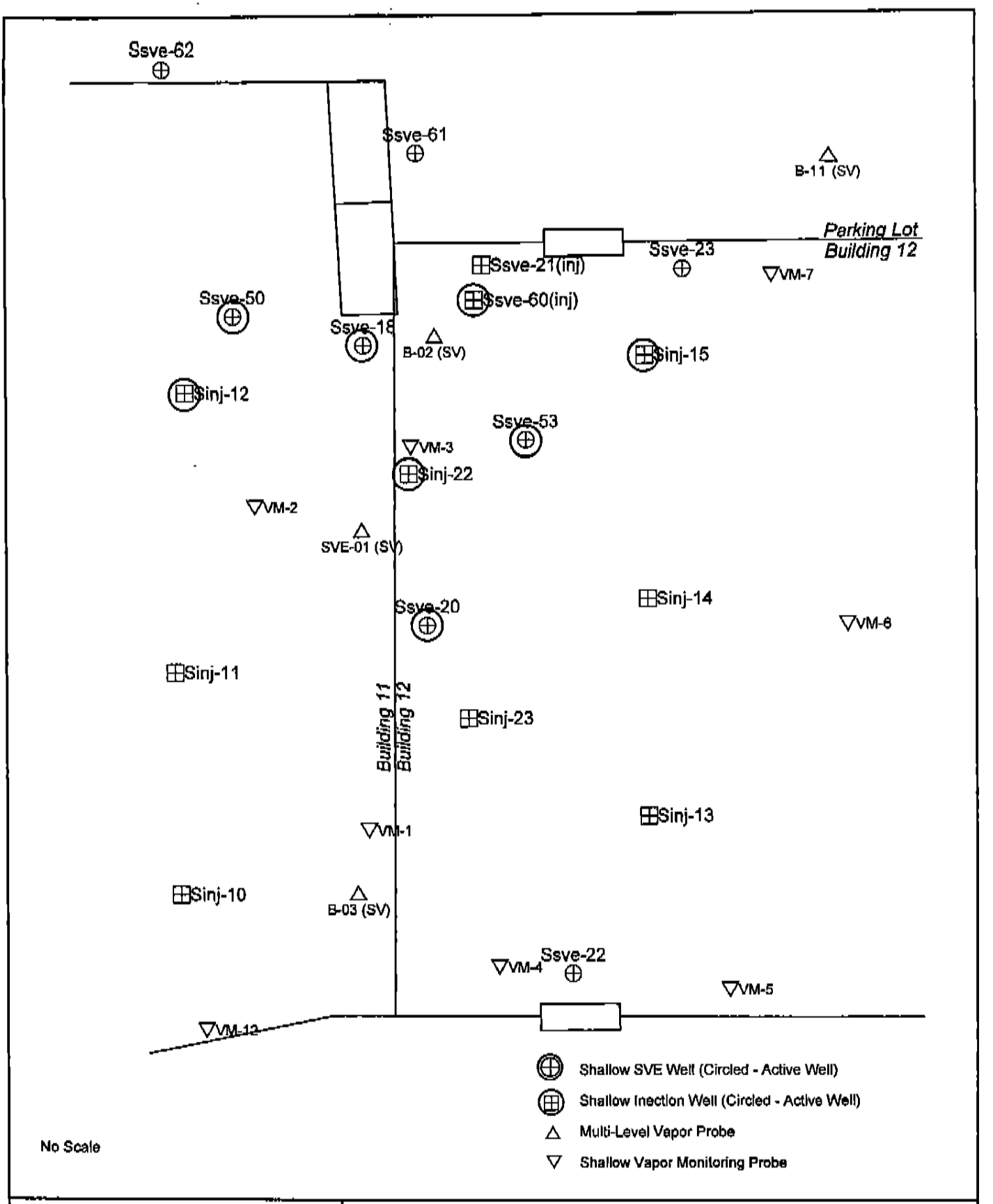
	18-Jun-01		6-Aug-01	
Sampling Point	PCE (µg/L)	TCE (µg/L)	PCE (µg/L)	TCE (µg/L)
B-02@25	605	2.6	11	ND (1.0)
B-02@50	ND (1.0)	ND (1.0)	NS	ND (1.0)
Ssve-18	25	ND (1.0)	6.7	ND (1.0)
Ssve-20	NS	NS	9.1	ND (1.0)
Ssve-53	137	nd (1.0)	70	ND (1.0)
Ssve-60	51	nd (1.0)	NS	NS
Blower Influent	71	nd (1.0)	NS	NS

NS: not sampled
µg/L: micrograms per liter in soil gas
scfm: standard cubic foot per minute
ND (1.0): not detected at 1 µg/L detection limit
Samples were analyzed for 21 VOCs according to February 1997 Well Investigation Program.
Ssve-60 was converted to an injection well.

FIGURE

APPENDIX A

REPORT OF SOIL GAS ANALYSIS, INTERPHASE ENVIRONMENTAL, JUNE 18, 2001



HYDRO GEO CHEM, INC.

LOCATIONS OF SHALLOW SVE AND INJECTION WELLS AND PROBES IN BUILDING 12

Approved	Date	Reference	Figure
JJW	7/12/01	H:/46500/46512 Location/All Wells.srf	1

INTERPHASE ENVIRONMENTAL, INC.

MOBILE LABORATORIES AND DIRECT PUSH DRILLING

Tuesday, July 03, 2001

Mr. John Ward
Hydro GeoChem, Inc.
51 Wetmore, Suite 101
Tucson, AZ 85705-1678

Re: Soil Gas Investigation
InterPhase Project #: 01134
Zero Facility
Burbank, CA

Dear Mr. Ward:

This report presents the results of the soil gas investigation performed on Monday, June 18, 2001 in Burbank, California. InterPhase Environmental, Inc. (InterPhase) under contract to Hydro GeoChem, Inc. conducted the investigation.

Soil gas analyses were performed in accordance with our firms Standard Operating Procedures, which was based on the guidelines for soil gas investigation set by California Regional Water Quality Control Board, Los Angeles (February 25, 1997).

Please do not hesitate to give us a call if you have any questions or need further information.

Sincerely,
InterPhase Environmental, Inc.

Chipper R. Greene

Chipper R. Greene
Senior Chemist

6200 PEACHTREE STREET, LOS ANGELES, CA 90040 1-800-457-3300 - FAX 323-278-7707 OFFICE@INTERPHASE-INC.COM

Table I. Analytical Result of Samples

Lab ID: Phase 17

Operator: Daniel Alvarez

Sample ID :			SB010618	B-2 @ 25'	B-2 @ 50'	SSVE-60	SSVE-18	SSVE-53	SSVE-53/DUP	BLOWER INFLUENT
Date Collected :			6/18/01	6/18/01	6/18/01	6/18/01	6/18/01	6/18/01	6/18/01	6/18/01
Time Collected :			7:05	13:37	13:47	13:53	13:57	14:01	14:01	14:07
Date Analyzed :			6/18/01	6/18/01	6/18/01	6/18/01	6/18/01	6/18/01	6/18/01	6/18/01
Time Analyzed :			7:08	14:36	14:45	15:00	15:15	15:20	15:30	15:25
Volume Analyzed (ml) :			1	1	1	1	1	1	1	1
Compound Name	*Detector*	*RT (min)*								
Dichlorodifluoromethane	ELCD	1.83	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	ELCD	2.33	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ELCD	3.00	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	ELCD	3.38	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	ELCD	4.62	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ELCD	4.97	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ELCD	5.48	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ELCD	6.23	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	ELCD	6.66	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	ELCD	6.90	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	ELCD	7.15	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ELCD	7.44	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ELCD	8.43	<1	2.6	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	ELCD	11.40	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ELCD	11.69	<1	605	<1	51	25	137	146	71
1,1,1,2-Tetrachloroethane	ELCD	13.65	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ELCD	15.87	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	PID	3.99	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	PID	7.39	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	PID	10.59	<1	<1	<1	<1	<1	<1	<1	<1
Ethyl Benzene	PID	13.70	<1	<1	<1	<1	<1	<1	<1	<1
m/p-Xylene	PID	13.98	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	PID	14.76	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichlorotrifluoroethane	FID	3.98	<1	<1	<1	<1	<1	<1	<1	<1
% C13DCPE Recovery (ELCD)		10.02	90	97	100	95	97	92	91	92
% C13DCPE Recovery (PID)		9.98	98	96	96	89	94	98	98	94
% 4CLTOL Recovery (PID)		16.21	104	98	95	89	94	96	95	95
% C13DCPE Recovery (FID)		8.54	103	100	99	99	99	99	99	100
% 4CLTOL Recovery (FID)		15.44	110	102	99	96	98	98	98	99

Unit of Concentration is ug/L

NA – Not Applicable, or Not Available

APPENDIX B

REPORT OF SOIL GAS ANALYSIS, INTERPHASE ENVIRONMENTAL, AUGUST 6, 2001

INTERPHASE ENVIRONMENTAL, INC.

MOBILE LABORATORIES AND DIRECT PUSH DRILLING

Tuesday, August 14, 2001

Mr. John Ward
Hydro GeoChem, Inc.
51 Wetmore, Suite 101
Tucson, AZ 85705-1678

Re: Soil Gas Investigation
InterPhase Project #: 01171
Zero Facility
Burbank, CA

Dear Mr. Ward:

This report presents the results of the soil gas investigation performed on Monday, August 6, 2001 in Burbank, California. InterPhase Environmental, Inc. (InterPhase) under contract to Hydro GeoChem, Inc. conducted the investigation.

Soil gas analyses were performed in accordance with our firms Standard Operating Procedures, which was based on the guidelines for soil gas investigation set by California Regional Water Quality Control Board, Los Angeles (February 25, 1997).

Please do not hesitate to give us a call if you have any questions or need further information.

Sincerely,

Chipper R Greene

InterPhase Environmental, Inc.
Mr. Chipper R. Greene
Senior Chemist

Table I. Analytical Result of Samples

Lab ID: Phase 17
Operator: Daniel Alvarez

Date Calibrated: August 06, 2001
Calibration Standard: CAL9904
LCS Standard: CAL9903
Date Standard Prepared: August 25, 1999
Analyst: Daniel Alvarez
Date LCS Checked: 6-Aug-01
Time LCS Checked: 9:18
Volume of LCS Injected (mL): 0.2

Compound Name	*Detector*	*RT (min)*	*Stnd Conc. (ug/L)*	Area	RF	Cal. Avr. RF	% Dev.	Acpt. Rng.
Dichlorodifluoromethane	ELCD	1.83	351	239115	2.94E-04	2.81E-04	4.4	±25
Vinyl Chloride	ELCD	2.33	349	207418	3.37E-04	3.16E-04	6.5	±25
Chloroethane	ELCD	3.00	361	221191	3.26E-04	3.11E-04	5.1	±25
Trichlorofluoromethane	ELCD	3.38	382	295031	2.59E-04	2.30E-04	12.4	±25
Dichloromethane	ELCD	4.62	354	267269	2.65E-04	2.48E-04	7.0	±15
trans-1,2-Dichloroethene	ELCD	4.97	352	250914	2.81E-04	2.66E-04	5.5	±15
1,1-Dichloroethane	ELCD	5.48	293	224185	2.61E-04	2.69E-04	-3.0	±15
cis-1,2-Dichloroethene	ELCD	6.23	357	241713	2.95E-04	2.91E-04	1.7	±15
Chloroform	ELCD	6.66	352	297182	2.37E-04	2.29E-04	3.3	±15
1,1,1-Trichloroethane	ELCD	6.90	349	289820	2.41E-04	2.30E-04	4.5	±15
Carbon Tetrachloride	ELCD	7.15	350	328652	2.13E-04	2.00E-04	6.3	±15
1,2-Dichloroethane	ELCD	7.44	348	249682	2.79E-04	2.64E-04	5.6	±15
Trichloroethene	ELCD	8.43	350	264234	2.65E-04	2.40E-04	10.5	±15
1,1,2-Trichloroethane	ELCD	11.40	349	269756	2.59E-04	2.50E-04	3.4	±15
Tetrachloroethene	ELCD	11.69	369	301743	2.45E-04	2.18E-04	11.9	±15
1,1,1,2-Tetrachloroethane	ELCD	13.65	355	296325	2.40E-04	2.20E-04	8.8	±15
1,1,2,2-Tetrachloroethane	ELCD	15.87	351	282746	2.48E-04	2.27E-04	9.2	±15
1,1-Dichloroethene	PID	3.99	362	103681	6.98E-04	7.16E-04	-2.5	±15
Benzene	PID	7.39	359	257930	2.78E-04	2.97E-04	-6.1	±15
Toluene	PID	10.59	352	221199	3.18E-04	3.32E-04	-4.1	±15
Ethyl Benzene	PID	13.70	351	194788	3.60E-04	3.73E-04	-3.3	±15
m/p-Xylene	PID	13.98	707	475610	2.97E-04	2.97E-04	0.1	±15
o-Xylene	PID	14.76	353	191294	3.69E-04	3.74E-04	-1.2	±15
1,1,2-Trichlorotrifluoroethane	FID	3.98	344	20174	3.41E-03	3.33E-03	2.3	±25