Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710 Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

					Analys	is Result	
Component Analyzed	Method	Unit	PQL	MW-6-D	MW-10-D	MW-16-D	Trip Blank
				01-03296-5	01-03296-6	01-03296-7	01-03296-8
Chromium (VI)	7196	mg/L	0.01	< 0.01	< 0.01	< 0.01	_
Dilution Factor				1	1	50	1
Perchlorate	314	$_{\mu g}/L$	4	< 4	39	1,300	-
Volatile Organic Compounds		μ0,				,	
Dilution Factor				1	1	1	1
Benzene	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromobenzene	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromochloromethane	524.2	_{µg/L}	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Butylbenzene	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
sec-Butylbenzene	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	524.2	$\mu g/L$	5	< 5	< 5	< 5	< 5
tert-Butylbenzene	524.2	$_{\mu \rm g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	524.2	$\mu g/L$	0.5	< 0.5	0.5	18.4	< 0.5
Chlorobenzene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorodibromomethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	524.2	$_{\mu}\mathrm{g/L}$	0.5	0.6	1.8	13.7	< 0.5
Chloromethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Chlorotoluene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-chloropropane (DB	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane (EDB)	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane .	524.2	$_{\mu}{ m g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	1	0.4J	< 0.5	< 0.5
1,2-Dichloroethane	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	1.7	< 0.5
cis-1,2-Dichloroethene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethene (Total)	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropane	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
2,2-Dichloropropane	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloropropene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5

CADHS ELAP No.: 1431 NFESC Approved since 11/01/94

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Cl-1288 D001 № 01-3296 b Page: 3

14 16 17

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710 Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

					Analys	is Result	
Component Analyzed	Method	Unit	PQL	MW-6-D	MW-10-D	MW-16-D	Trip Blank
				01-03296-5	01-03296-6	01-03296-7	01-03296-8
trans-1,3-Dichloropropene	524.2	$\mu g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexachlorobutadiene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Isopropylbenzene (Cumene)	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
p-Isopropyltoluene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methylene chloride	524.2	$_{\mu}g/L$	0.5	< 0.5	0.4J	0.4J	2.1
Methyl-t-Butyl ether (MTBE)	524.2	$_{\mu}g/L$	1	< 1	< 1	< 1	< 1
4-Methyl-2-Pentanone	524.2	$_{\mu \rm g/L}$	5	< 5	< 5	< 5	< 5
Naphthalene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Propylbenzene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	524.2	$_{\mu}\mathrm{g/L}$	0.5	1.8	< 0.5	< 0.5	ċ 0.5
Toluene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,3-Trichlorobenzene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trichlorobenzene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	524.2	$_{\mu \rm g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	19.1	3.3	< 0.5
Trichlorofluoromethane	524.2	$_{\mu}\mathrm{g/L}$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,3-Trichloropropane	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trimethylbenzene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5
m/p-Xylene	524.2	$_{\mu}g/L$	0.5	< 0.5	< 0.5	< 0.5	< 0.5

PQL: Practical Quantitation Limit. MDL: Method Detection Limit.

CRDL: Contract Required Detection Limit "-": Analysis is not required.

N.D.: Not Detected or less than the practical quantitation limit.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted, Dominic Lau

Laboratory Director Applied P & Ch Laboratory

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Q	Applied P	<u>& Ch</u>	Lab	orator	<u></u>					C	Ch	ai	n	С	of	C	us	to	dy	
	- <i>C L</i> 13760 Magnolia Av Tel: (909) 590-182	e. Chino 8 Fax: (9	CA 91 909) 590	710 -1498						\mathbf{P}	lease	Pri	nt i	n pe	en		Page _	1	of	-
Client: SOTA	ENVIRONMENTAL	Co	ontact:	PAVE J	EFFER	s Tel	#:	8	s8	40	92.	-810		c # :	85	8	48	50	812	-
Address: 168	35 N. BERNARDU #	ZLL Ci	ity: 5 1	Di ng	Eyo	Sta	te: (Ch	7.	 			Zip	o cod	e: 4	1217	17			
Bill to: Spn	15							Ģ		A	nalysi	s It	ems]
Project Name/C	Lode JPL	Jo	ob #00	400019	P.O. #		N	S	2	2	0						White	- With	report	
Project Address		A	PCL Qu	otation #			24	3		3	22						Yeilow	– Lab c	ору	
Due Date: Mre	gular []rush: days hor	irs Sa	mpled b	y:	Υ·····	T. 171	(i)	اد	A	ΞM.	1						Pink -	Origina	tor	
Field Sample	Sample	Date 7	Time	Sample	Preser-	# of	20	5	X	J.	SS S									
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	mw -16	430	1700	420	PERLAB		X	X	X	X							KE	QUIR	emen	[
	MW-16-D	4130	1700	H20	RELAB	5	X	X	X	X		_		_			EP	a la	EVEL	
	MW - 5	4/30	1545	H20	PSE LAB	10	X	X	X	<u>X</u> .	X						<u> </u>	<u> </u>	<u> </u>	
{	mw -10	430	1430	H20	PERLIPS	5	X	X	X	x								-		
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Sample Disposal	Beturn Disposal by APCI.	Hold for	c	lavs after re	ceiving date	If no	nt an	ecifi	ed. e	amn	lee w	ill be	disc	arde	1 45 4	dava	after sau	nnles a	re receive	a
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Sample Condition			, il -			#			4. *-	-7.	A		-mpe	ratur	e: [(
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APCL USE	ONLY Service #				Note	:														Ī
Clients und d to terminate 165 ser	that all terms described in the proposa vice or withhold delivery of any reports	ls, quotation if in APCL'	s for this 's sole disc	project, and cretion the t	/or the er	al terms provid roject have bee	led in en bro	the	curr	ent A	PCL	price	sched	ules v	will be	e follo	wed. AP	CL	es the rig) ht

May 16, 2001

Jim Lin Applied P & Ch Laboratories 13760 E. Magnolia Ave. Chino, CA 91710 TEL: (909) 590-1828 FAX (909) 590-1498

RE:

ELAP No: 1838 Work Order No.: 051017

Attention: Jim Lin

Enclosed are the results for sample(s) received on May 07, 2001 by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Edgar Caballero

Laboratory Director

This cover letter and a case narrative are an integral part of this analytical report.



Advanced Technology Laboratories

Advanced	Technology	Laborat	tories

Date: 16-May-01

CLIENT:Applied P & Ch LaboratoriesProject:1000 - 1000 -

CASE NARRATIVE

ATL samples 051017-001A / 027A did not require digestion. The Prep Date on the report is the analytical date of the turbidity check.



1

Advanced	Technolog	Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	ID: MW-4-5	5		
Project:	JPL			Collection D	ate: 4/4/01 1	1:50:00 AM		
Lab ID:	050813-001	4		Mat	rix: Water			
Analyses		Result	Limit Q	1al Units	DF	Date Analyzed		
ICP-MS META	LS		EPA	200.8				
RunID: IC	P4_010501A	BatchID: 4043		PrepDate:	5/1/01	Analyst: EFR		
Chromium		11	5.0	µg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range



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DO - Surrogate Diluted Out Advanced Technology

Laboratories

M - Not Monitored. Highly Reactive



Advanced Technology Laboratories				Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	e ID: MW-4-4	4				
Project:	JPL			Collection D	Date: 4/4/01 1	2:30:00 PM				
Lab ID:	050813-002	4		Ma	trix: Water					
Analyses		Result	t Limit	Qual Units	DF	Date Analyzed				
ICP-MS META	LS		i	EPA 200.8						
RunID: IC	P4_010501A	BatchID: 404:	3	PrepDate:	: 5/1/01	Analyst: EFR				
Chromium		NE	5.0	µg/L	1.0	5/1/01				

Sauger 2

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 2

 Advanced Technology
 3275 Walnut Avenue
 Signal Hill, CA 90807
 Tel: 562 989-4045
 Fax: 562 989-4040

Advanced Technology Laboratories				Print Date: 5/4/01							
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client S	Sample ID: MW-4	3					
Project:	JPL			Colle	ction Date: 4/4/01	1:10:00 PM					
Lab ID:	050813-0034	A			Matrix: Water						
Analyses		Resu	ılt Limi	t Qual Un	its DF	Date Analyzed					
ICP-MS META	LS			EPA 200.8							
RunID: IC	P4_010501A	BatchID: 40	43	Pre	pDate: 5/1/01	Analyst: EFR					
Chromium		١	ND 5.	0 µg/!	L 1.0	5/1/01					

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive

 Advanced Technology
 3275 Walnut Avenue

 Laboratories
 3275 Walnut Avenue



	5	J						
CLIENT: Applied P & Ch Laboratories					Client Sample	ID: MW-4-2	2	
Lab Order: 050813								
Project:	JPL				Collection D	ate: 4/4/01 1	:30:00 PM	
Lab ID:	050813-0044	4			Ma	trix: Water		
Analyses]	Result	Limit (Qual Units	DF	Date Analyzed	
ICP-MS META	LS			EF	PA 200.8			
RunID: ICI	P4_010501A	BatchID:	4043		PrepDate:	5/1/01	Analyst: EFR	
Chromium			19	5.0	µg/L	1.0	5/1/01	

Advanced Technology Laboratories

Print Date: *5/4/01*

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive

Advanced Technology Laboratories 3275 Walnut Ave

Advanced	Technolog	Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	e ID: MW-4-1	L		
Project:	JPL			Collection I	Date: 4/4/01 2	:15:00 PM		
Lab ID:	050813-0054	A		Ma	trix: Water			
Analyses		Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS META	LS		EF	PA 200.8				
RunID: ICI	P4_010501A	BatchID: 4043		PrepDate	: 5/1/01	Analyst: EFR		
Chromium		ND	5.0	µg/L	1.0	5/1/01		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 5 Advanced Technology Laboratories 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Advanced	Technolog	y Laboratories		Prin	t Date: 5/4/01			
CLIENT:	Applied P &	Ch Laboratories		Client Samp	le ID: ER-4			
Lab Order:	050813							
Project:	JPL			Collection	Date: 4/4/01 1	:00:00 PM		
Lab ID:	050813-006	A	Matrix: Water					
Analyses		Result	Limit Qu	ial Units	DF	Date Analyzed		
ICP-MS META	LS		EPA	200.8				
RunID: ICI	P4_010501A	BatchID: 4043		PrepDate	e: 5/1/01	Analyst: EFR		
Chromium		ND	5.0	µg/L	1.0	5/1/01		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 6

Advanced Technology Laboratories

Advanced	Technolog	Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	e ID: MW-17	-4		
Project:	JPL.			Collection I	Date: 4/5/01 1	1:35:00 AM		
Lab ID:	050813-0074	4		Ma	trix: Water			
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed		
ICP-MS META	LS		EPA	200.8				
RunID: ICI	P4_010501A	BatchID: 4043		PrepDate:	: 5/1/01	Analyst: EFR		
Chromium		ND	5.0	μg/L	1.0	5/1/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 7

 Advanced Technology
 2275 Walkaut Augure
 Signad Hill, CA, 00807 - Talk, 562,080,4045 - Exp. 562,080

Laboratories

Advanced	Technolog	Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories	(Client Sample	e ID: MW-17	-3		
Project:	JPL			Collection I	Date: 4/5/01 1	2:25:00 PM		
Lab ID:	050813-0084	A		Ma	atrix: Water			
Analyses		Result	Limit Qu	al Units	DF	Date Analyzed		
ICP-MS META	LS		EPA	200.8				
RunID: ICI	P4_010501A	BatchID: 4043		PrepDate	: 5/1/01	Analyst: EFR		
Chromium		ND	5.0	μg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time 4 Initials: ${\bf B}$ - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 8

Advanced Technology Laboratories

Advanced Technology Laboratories				Print Date: 5/4/01				
CLIENT:Applied P & Ch LaboratoriesLab Order:050813		Client Sample ID: MW-17-2 Collection Date: 4/5/01 3:00:00 PM Matrix: Water						
Project: JPL Lab ID: 050813-009A								
							Analyses	
ICP-MS METALS		EPA 200.8						
RunID: ICI	P4_010501A	BatchID:	4043			PrepDate:	5/1/01	Analyst: EFR
Chromium			ND	5.0		µg/L	1.0	5/1/01

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time
 Initials:

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 9

Advanced Technology Laboratories

Advanced	Technolog		Print Date: 5/4/01					
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sampl	e ID: MW-17	-2D		
Project: JPL				Collection Date: 4/5/01 3:15:00 PM				
Lab ID:	050813-010A			Matrix: Water				
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed		
ICP-MS META	LS		EP	A 200.8				
RunID: IC	P4_010501A	BatchID: 4043		PrepDate	: 5/1/01	Analyst: EFR		
Chromium		ND	5.0	μg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time E - Value above quantitation range B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

Laboratories

M - Not Monitored. Highly Reactive

Initials:



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Advanced Technology Laboratories				Print Date: 5/4/01				
CLIENT:Applied P & Ch LaboratoriesLab Order:050813			Client Sample ID: ER-17					
Project: JPL			Collection Date: 4/5/01 12:10:00 PM					
Lab ID: 050813-011A			Matrix: Water					
Analyses Result			Limit	Qual	Units	DF	Date Analyzed	
ICP-MS META	LS			E	EPA 20	0.8		
RunID: ICI	P4_010501A	BatchID: 4	043			PrepDate:	5/1/01	Analyst: EFR
Chromium			ND	5.0		µg/L	1.0	5/1/01

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 11 Advanced Technology 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040 Laboratories

Advanced	Technolog	y Laborato	ries	Print Date: 5/4/01					
CLIENT:Applied P & Ch LaboratoriesLab Order:050813					Client Sample ID: MW-3-4				
Project:	roject: JPL				Collection Date: 4/6/01 11:00:00 AM				
Lab ID:	050813-0124	A		Matrix: Water					
Analyses		Res	sult	Limit	Qual Units	DF	Date Analyzed		
ICP-MS META	LS			E	PA 200.8				
RunID: ICI	P4_010501A	BatchID: 4	043		PrepDate	: 5/1/01	Analyst: EFR		
Chromium			ND	5.0	μg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time **Initials:** E - Value above quantitation range B - Analyte detected in the associated Method Blank



DO - Surrogate Diluted Out



Advanced Technology Laboratories

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M - Not Monitored. Highly Reactive

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Advanced	Technolog	y Laboratories	Print Date: 5/4/01				
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sampl	e ID: MW-3-3	3	
Project:	JPL			Collection]	Date: 4/6/01 1	1:45:00 AM	
Lab ID: 050813-013A			Matrix: Water				
Analyses		Result	Limit Qu	al Units	DF	Date Analyzed	
ICP-MS META	LS		EPA	200.8			
RunID: IC	P4_010501A	BatchID: 4043		PrepDate	e: 5/1/01	Analyst: EFR	
Chromium		ND	5.0	µg/L	1.0	5/1/01	

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 13 Advanced Technology

Laboratories

Advanced	Technolog	y Laboratories		Print Date: 5/4/01					
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample ID: MW-3-2					
Project:	JPL			Collection Date: 4/6/01 12:10:00 PM					
Lab ID:	050813-014	A	Matrix: Water						
Analyses		Result	Limit Q	ial Units	DF	Date Analyzed			
ICP-MS META	LS		EPA	200.8					
RunID: ICI	P4_010501A	BatchID: 4043		PrepDate	e: 5/1/01	Analyst: EFR			
Chromium		ND	5.0 µg/L 1.0 5/1/01						

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive



Advanced Technology Laboratories

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Advanced	Technolog	y Laboratories	Print Date: 5/4/01					
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	ID: ER-3			
Project:	JPL			Collection D	Date: 4/6/01 1	.2:30:00 PM		
Lab ID: 050813-015A			Matrix: Water					
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed		
ICP-MS META	LS		EP	A 200.8				
RunID: IC	P4_010501A	BatchID: 4043		PrepDate:	5/1/01	Analyst: EFR		
Chromium		ND	5.0	µg/L	1.0	5/1/01		

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 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive

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 Fax: 562 989-4040

Advanced	Technolog		Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample ID: MW-18-4					
Project:	JPL			Collection Date: 4/13/01 11:20:00 AM					
Lab ID:	050813-016	A	Matrix: Water						
Analyses		Result	Limit Qu	al Units	DF	Date Analyzed			
ICP-MS META	LS		EPA	200.8					
RunID: IC	P4_010501A	BatchID: 4043		PrepDate:	5/1/01	Analyst: EFR			
Chromium		ND	5.0	µg/L	1.0	5/1/01			

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

- E Value above quantitation range

Initials:

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Advanced	Technolog	y Laboratories	Print Date: 5/4/01					
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	e ID: MW-18	-3		
Project: JPL				Collection Date: 4/13/01 11:55:00 AM				
Lab ID:	ab ID: 050813-017A			Matrix: Water				
Analyses Result			Limit Q	ual Units	DF	Date Analyzed		
ICP-MS META	LS		EP	A 200.8				
RunID: IC	P4_010501A	BatchID: 4043		PrepDate	: 5/1/01	Analyst: EFR		
Chromium		6.9	5.0	µg/L	1.0	5/1/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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 Fax: 562 989-4040

Advanced Technology Laboratories				Print Date: 5/4/01					
CLIENT:Applied P & Ch LaboratoriesLab Order:050813			Client Sample ID: MW-18-2						
Project: JPL			Collection Date: 4/13/01						
Lab ID: 050813-018A			Matrix: Water						
Analyses]	Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS META	LS			E	EPA 200.8				
RunID: ICI	P4_010501A	BatchID:	4043		PrepDate:	: 5/1/01	Analyst: EFR		
Chromium			ND	5.0	µg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out
<u>Advanced Technology</u>
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Laboratories

- H Samples exceeding analytical holding time
- E Value above quantitation range

Initials:



M - Not Monitored. Highly Reactive

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Advanced Technology Laboratories				Print Date: 5/4/01				
CLIENT: Applied P & Ch Laboratories			Client Sample ID: ER-18					
Lab Order:	050813				_			
Project: JPL			Collection Date: 4/13/01 11:30:00 AM					
Lab ID: 050813-019A			Matrix: Water					
Analyses		I	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS META	LS			E	EPA 20	0.8		
RunID: ICP4_010501A BatchID: 4043					PrepDate:	5/1/01	Analyst: EFR	
Chromium			ND	5.0		µg/L	1.0	5/1/01

ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: E - Value above quantitation range B - Analyte detected in the associated Method Blank M - Not Monitored. Highly Reactive 19 DO - Surrogate Diluted Out

Advanced Technology Laboratories

Advanced	Technolog	y Laboratories		Print Date: 5/4/01				
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample ID: MW-14-4				
Project:	JPL			Collection Date: 4/17/01 2:20:00 PM				
Lab ID:	050813-0204	A		Matrix: Water				
Analyses	Analyses Result			Qual Units	DF	Date Analyzed		
ICP-MS META	LS		Eł	PA 200.8				
RunID: ICI	P4_010501A	BatchID: 4043		PrepDate	: 5/1/01	Analyst: EFR		
Chromium		5.1	5.0	µg/L	1.0	5/1/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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 Fax: 562 989-4040

Advanced Technology Laboratories				Print Date: 5/4/01				
CLIENT:Applied P & Ch LaboratoriesLab Order:050813			Client Sample ID: MW-14-3					
Project:	JPL 050813-021A			Collection Date: 4/17/01 2:55:00 PM Matrix: Water				
Lab ID:								
Analyses]	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS META	LS			E	EPA 20	0.8		
RunID: ICI	P4_010501B	BatchID:	4044			PrepDate:	5/1/01	Analyst: EFR
Chromium			ND	5.0		µg/L	1.0	5/1/01

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 21

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 Signal Hill, CA 90807
 Tel: 562 989-4045
 Fax: 562 989-4040

	U	•					
CLIENT: Applied P & Ch Laboratories			Client Sample ID: MW-14-2				
Lab Order:	050813		-				
Project: JPL			Collection Date: 4/17/01 3:20:00 PM				
Lab ID:	050813-022	4	Matrix: Water				
Analyses		Result	Limit Qu	ial Units	DF	Date Analyzed	
ICP-MS META	LS		EPA	200.8			
RunID: ICI	P4_010501B	BatchID: 4044		PrepDate	: 5/1/01	Analyst: EFR	
Chromium		ND	5.0	μg/L	1.0	5/1/01	

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 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 22

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Laboratories

Advanced	Technolog	y Laboratories	Print Date: 5/4/01				
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories	Client Sample ID: MW-14-1 Collection Date: 4/17/01 4:30:00 PM				
Project:	JPL						
Lab ID:	050813-023	A	Matrix: Water				
Analyses		Result	Limit Qı	1al Units	DF	Date Analyzed	
ICP-MS META	LS		EPA	200.8			
RunID: ICI	P4_010501B	BatchID: 4044		PrepDate:	5/1/01	Analyst: EFR	
Chromium		ND	5.0	µg/L	1.0	5/1/01	

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 23 Advanced Technology 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040 Laboratories



Advanced	Technolog	ories	Print Date: 5/4/01						
CLIENT: Lab Order:	ENT:Applied P & Ch LaboratoriesOrder:050813				Client Sample ID: MW-14-1D				
Project:	JPL			Collection Date: 4/17/01 4:45:00 PM					
Lab ID:	050813-024	4		Matrix: Water					
Analyses	Analyses Result			Limit Qu	al Units	DF	Date Analyzed		
ICP-MS META	LS			EPA	200.8				
RunID: ICI	P4_010501B	BatchID:	4044		PrepDate	e: 5/1/01	Analyst: EFR		
Chromium			ND	5.0	µg/L	1.0	5/1/01		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 24 Advanced Technology

Laboratories

Advanced Technology Laboratories				Print Date: 5/4/01					
CLIENT: Applied P & Ch Laboratories				Client Sample ID: ER-14					
Lab Order:	050813								
Project:	ject: JPL				Collection Date: 4/17/01 3:30:00 PM				
Lab ID:	050813-0252	A		Matrix: Water					
Analyses		R	Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS META	LS			E	EPA 200.8				
RunID: IC	P4_010501B	BatchID:	4044		PrepDate	: 5/1/01	Analyst: EFR		
Chromium			ND	5.0	μg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: RA E - Value above quantitation range B - Analyte detected in the associated Method Blank M - Not Monitored. Highly Reactive 25 DO - Surrogate Diluted Out Advanced Technology 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040 Laboratories

Advanced Technology Laboratories				Print Date: 5/4/01					
CLIENT:	LIENT: Applied P & Ch Laboratories b Order: 050813				Client Sample ID: MW-22-2				
Project:	JPL			Collection Date: 4/18/01 3:50:00 PM					
Lab ID:	050813-026A			Matrix: Water					
Analyses		1	Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS META	LS			E	PA 200.8				
RunID: ICI	P4_010501B	BatchID:	4044		PrepDate:	: 5/1/01	Analyst: EFR		
Chromium	ium ND				µg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: Y B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 26 Advanced Technology

Laboratories

Advanced	Technolog	y Laboratori	es	Print Date: 5/4/01				
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample ID: MW-22-1 Collection Date: 4/18/01 4:30:00 PM Matrix: Water				
Project:	JPL							
Lab ID:	050813-0274	A						
Analyses		Resul	t Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS			E	EPA 200.8				
RunID: IC	P4_010501B	BatchID: 404	4	PrepDate	: 5/1/01	Analyst: EFR		
Chromium		5.4	B 5.0	µg/L	1.0	5/1/01		

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range M - Not Monitored. Highly Reactive DO - Surrogate Diluted Out

Advanced Technology Laboratories

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Advanced	Technolog	y Labora	tories	Print Date: 5/4/01				
CLIENT: Lab Order:	Applied P & 050813	Ch Laborator	ries	Client Sample ID: MW-22-1D Collection Date: 4/18/01 4:45:00 PM				
Project:	JPL							
Lab ID:	050813-028A			Matrix: Water				
Analyses]	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS META	LS			E	PA 200.8			
RunID: IC	P4_010501B	BatchID:	4044		PrepDate	: 5/1/01	Analyst: EFR	
Chromium			6.9	5.0	µg/L	1.0	5/1/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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Laboratories

Advanced Technology Laboratories				Print Date: 5/4/01				
CLIENT: Lab Order:	LIENT: Applied P & Ch Laboratories ab Order: 050813 roject: JPL ab ID: 050813-029A			Client Sample ID: ER-22 Collection Date: 4/18/01 2:30:00 PM Matrix: Water				
Project:								
Lab ID:								
Analyses		I	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS METALS		E	EPA 200.8					
RunID: IC	P4_010501B	BatchID:	4044		PrepDate	: 5/1/01	Analyst: EFR	
Chromium			ND	5.0	µg/L	1.0	5/1/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 29

Advanced Technology Laboratories

Advanced	Technolog	y Laboratorie	S	Print Date: 5/4/01					
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample ID: MW-20-5					
Project:	JPL			Collection Date: 4/19/01 11:30:00 AM					
Lab ID:	050813-0304	A		Matrix: Water					
Analyses		Result	Limit	Qual Units	DF	Date Analyzed			
ICP-MS META	LS		I	EPA 200.8					
RunID: ICI	P4_010501B	BatchID: 4044		PrepDate	: 5/1/01	Analyst: EFR			
Chromium		ND	5.0	µg/L	1.0	5/1/01			

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time RAY Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 30 Advanced Technology Laboratories 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories				Print Date: 5/4/01				
CLIENT: Lab Order:	Applied P & Ch Laboratories :: 050813			Client Sample ID: MW-20-4				
Project:	JPL			Collection Date: 4/19/01 12:15:00 PM				
Lab ID:	050813-031A			Matrix: Water				
Analyses		F	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS META	LS			E	EPA 200.8			
RunID: ICI	P4_010501B	BatchID:	4044		PrepDate	e: 5/1/01	Analyst: EFR	
Chromium			ND	5.0	µg/L	1.0	5/1/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive

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Laboratories

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Advanced	Advanced Technology Laboratoria CLIENT: Applied P & Ch Laboratories ab Order: 050813					Print	Date: 5/4/01					
CLIENT: Lab Order:	Client Sample ID: MW-20-3											
Project:	JPL			Collection Date: 4/19/01 1:00:00 PM								
Lab ID:	ID: 050813-032A					Matrix: Water						
Analyses]	Result	Limit	Qual	Units	DF	Date Analyzed				
ICP-MS META	LS			E	EPA 20	0.8						
RunID: IC	P4_010501B	BatchID:	4044			PrepDate:	5/1/01	Analyst: EFR				
Chromium			ND	5.0		µg/L	1.0	5/1/01				

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 32 Advanced Technology

Laboratories

Advanced	Technolog	y Laboratories		Print	Date: 5/4/01					
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories	Client Sample ID: MW-20-2							
Project:	JPL		Collection Date: 4/19/01 2:25:00 PM							
Lab ID:	050813-0332	A	Matrix: Water							
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed				
ICP-MS META	LS		EPA	200.8						
RuniD: ICI	P4_010501B	BatchID: 4044		PrepDate:	5/1/01	Analyst: EFR				
Chromium		ND	5.0	µg/L	1.0	5/1/01				

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 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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 3275 Walnut Avenue
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 Fax: 562 989-4040

Advanced	Technolog	y Laboratories	Print Date: 5/4/01						
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories	Client Sample ID: MW-20-1						
Project:	JPL		Collection Date: 4/19/01 3:00:00 PM						
Lab ID:	050813-034/	A	Matrix: Water						
Analyses		Result	Limit Qu	ial Units	DF	Date Analyzed			
ICP-MS META	LS		EPA	200.8					
RuniD: IC	P4_010501B	BatchID: 4044		PrepDate	: 5/1/01	Analyst: EFR			
Chromium		ND	5.0	µg/L	1.0	5/1/01			

Print Date: 5/4/01

S - Spike/Surrogate outside of limits due to matrix interference. ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range M - Not Monitored. Highly Reactive DO - Surrogate Diluted Out Advanced Technology

Laboratories

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Auvanceu	rechnolog	y Laboratories		11111	Date: 5/4/01				
CLIENT: Lab Order:	Applied P & 050813	Ch Laboratories		Client Sample	ID: ER-20				
Project:	JPL		Collection Date: 4/19/01 12:00:00 PM Matrix: Water						
Lab ID:	050813-0354	A							
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed			
ICP-MS META	LS		EPA	200.8					
RunID: IC	P4_010501B	BatchID: 4044		PrepDate:	5/1/01	Analyst: EFR			
Chromium		ND	5.0	ug/L	1.0	5/1/01			

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time
 PA

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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 Fax: 562 989-4040

Print Date: 5/4/01

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Advanced Technology Laboratories

ldvanc La	Advanced T	echnology Labor								Date: 1	6-May-01		
ed Technolog boratories	CLIENT: Work Order: Project:	Applied P & Ch Labor 051017	atories							QC SUI	MMAR	Y REPC	DRT Blank
<u>v</u>	Sample ID MB-42 MBLK	18 Batch ID: 4218		Test Nam	ICPMS ME	TALS		Uni SeqNo:	ts µg/L A 1343	Analysis Date: 5/1	0/01	Prep Date: 4	5/10/01
327	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
75 W.	Chromium		ND	5.0		0				0			
alı	0			T N								<u> </u>	

Sample ID MB-4219	Batch ID: 4219	Test Nam	e ICPMS METALS	Units µg/L Analysis Date: 5/10/01 Prep Date: 5/10/01
MBLK				SeqNo: 134445
Analyte	Result	PQL	SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	5.0	0	0

Qualifiers:	ND - Not Detected at the Reporting Limit
	J - Analyte detected below quantitation limits
	R - RPD outside accented recovery limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

Initials:

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

Advan	Advanced 7	Technology Labor	atories					Date: 16-May-01 QC SUMMARY REP Sample Du						
ced Technolog	CLIENT: Work Order: Project:	Applied P & Ch Labor 051017	ratories											
2	Sample ID 05101	7-010ADU Batch ID: 4218		Test Nam	e ICPMS ME	TALS		Uni SeaNo:	its μg/L /	Analysis Date:	5/10/01	Prep Date:	5/10/01	
5	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
75 11	Chromium		ND	5.0	0	0	0	0	0	0	0	30		
almut A	Sample ID 05101 DUP	7-019ADU Batch ID: 4218		Test Nam	e ICPMS ME	TALS		Uni SeqNo:	its µg/L /	Analysis Date: 101	5/10/01	Prep Date:	5/10/01	
	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
5	Chromium	<u> </u>	3	5.0	0	0	0	0	0	3.4	3	30	J	
rianal.	Sample ID 05101	17-025ADU Batch ID: 4219		Test Nam	ne ICPMS ME	TALS		Uni	its µg/L /	Analysis Date:	5/10/01	Prep Date:	5/10/01	
U :11	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
>	Chromium		4	5.0	0	0	0	0	0	4.7	6	30	J	

3275 Walnut Avenue Signal Hill, CA 90807

Laboratories

ND - Not Detected at the Reporting Limit Qualifiers:

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

M - Not Monitored. Highly Reactive

R - RPD outside accepted recovery limits S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials:

051017

Date: 16-May-01

bora	ed T	CLIENT:
tori	ech	Work Order:
es	nol	Project:

CLIENT: Applied P & Ch Laboratories

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID 051017-019AMS Batch ID: 4218		Test Nam	e ICPMS ME	TALS		Uni	ts µg/L A	nalysis Date:	5/10/01	Prep Date:	5/10/01
MS						SeqNo:	1343	92			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	13	5.0	10	3.4	96	80	120	0			<u> </u>
Sample ID 051017-019AMS Batch ID: 4218		Test Name ICPMS METALS				Uni	ts µg/L A	nalysis Date:	5/10/01	Prep Date:	5/10/01
MSD						SeqNo:	1343	93			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Quai
Chromium	13	5.0	10	3.4	96	80	120	13	2	20	
Sample ID 051017-025AMS Batch ID: 4219 Test Name ICPMS METALS						Uni	ts µg/LA	nalysis Date:	5/10/01	Prep Date:	5/10/01
MS						SeqNo:	1344	52			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14	5.0	10	4.7	93	80	120	0		·····	
Sample ID 051017-025AMS Batch ID: 4219		Test Nam	e ICPMS ME	TALS		Uni	ts µg/L. A	nalysis Date:	5/10/01	Prep Date:	5/10/01
MSD						SeqNo:	1344	53			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14	5.0	10	4.7	93	80	120	14	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

Initials:

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

Date: 16-May-01

CLIENT:	Applied P & Ch Laboratories	ΟΓ SUMMADY DEDODT
Work Order:	051017	QC SUMMARI REFURI
Project:		Laboratory Control Spike - generic

Sample ID LCS-4218	Batch ID: 4218	Test Nan	ne ICPMS ME	ETALS		Uni	ts μg/L A	nalysis Date:	5/10/01	Prep Date:	5/10/01
LCS						SeqNo:	1343	72			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.9	5.0	10	0	99	80	120	0			· <u></u>
Sample ID LCS-4219	Batch ID: 4219	Test Nan	ne ICPMS ME	TALS		Uni	ts μg/L A	nalysis Date:	5/10/01	Prep Date:	5/10/01
Sample ID LCS-4219 LCS	Batch ID: 4219	Test Nan	ne ICPMS ME	ETALS		Uni SeqNo:	ts μg/L A 1344	analysis Date: 46	5/10/01	Prep Date:	5/10/01
Sample ID LCS-4219 LCS Analyte	Batch ID: 4219 Result	Test Nan PQL	ne ICPMS ME SPK value	ETALS SPK Ref Val	%REC	Uni SeqNo: LowLimit	ts µg/L A 1344 HighLimit	nalysis Date: 46 RPD Ref Val	5/10/01 %RPD	Prep Date: RPDLimit	5/10/01 Qual

Qualifiers: ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

 ${\bf B}$ - Analyte detected in the associated Method Blank

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

Rt

Initials:

DO - Surrogate Diluted Out

May 07, 2001

Jim Lin Applied P & Ch Laboratories 13760 E. Magnolia Ave. Chino, CA 91710 TEL: (909) 590-1828 FAX (909) 590-1498

RE: JPL

ELAP No: 1838 Work Order No.: 050813

Attention: Jim Lin

Enclosed are the results for sample(s) received on April 26, 2001 by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,

Edgar Caballero

Laboratory Director

This cover letter and a case narrative are an integral part of this analytical report.



Advanced Technology Laboratories

Date: 07-May-01

CLIENT:Applied P & Ch LaboratoriesProject:JPLLab Order:050813

CASE NARRATIVE

ATL samples 050813-001A / 035A did not require digestion. The Prep Date on the report is the analytical date of the turbidity check.



Advanced	Technolog	y Laboratories	Print Date: 5/16/01				
CLIENT:	Applied P &	Ch Laboratories	Client Sample ID: MW-24-4				
Project: 051017			Collection Date: 4/23/01 1:15:00 PM				
Lab ID:	051017-0012	4	Matrix: Water				
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed	
ICP-MS METALS		EPA 200.8					
RunID: IC	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR	
Chromium		ND	5.0	µg/L	1.0	5/10/01	

ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time (LA) Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 2

Advanced Technology Laboratories

Advanced Technology Laboratories			Print Date: 5/16/01					
CLIENT: Lab Order:	Applied P & 051017	pplied P & Ch Laboratories 51017			Client Sample ID: MW-24-3			
Project:					Collection I	Date: 4/23/01	2:00:00 PM	
Lab ID:	051017-002A			Matrix: Water				
Analyses		I	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS METALS		EPA 200.8						
RunID: IC	P4_010510B	BatchID:	4218		PrepDate	: 5/10/01	Analyst: EFR	
Chromium			ND	5.0	µg/L	1.0	5/10/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 3

 Advanced Technology
 3275 Walnut Avenue
 Signal Hill, CA 90807
 Tel: 562 989-4045
 Fax: 562 989-4040

Advanced Technology Laboratories			Print Date: 5/16/01					
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories	· · · · · · · · · · · · · · · · · · ·	Client Sample	e ID: MW-24	MW-24-2		
Project:				Collection I	Date: 4/23/01	2:45:00 PM		
Lab ID:	051017-003	A		Ma	trix: Water	Water		
Analyses	· · · · · · · · · · · · · · · · · · ·	Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS		E	EPA 200.8					
RunID: ICI	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR		
Chromium		ND	5.0	µg/L	1.0	5/10/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive

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Advanced	Technolog	y Laboratories	Print Date: 5/16/01			
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories	Client Sample ID: MW-24-1			
Project:				Collection	Date: 4/23/01	3:30:00 PM
Lab ID:	051017-0044	A	Matrix: Water			
Analyses		Result	Limit Qu	al Units	DF	Date Analyzed
ICP-MS METALS		EPA 200.8				
RunID: ICI	P4_010510B	BatchID: 4218		PrepDate	e: 5/10/01	Analyst: EFR
Chromium		5.7	5.0	µg/L	1.0	5/10/01

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials B - Analyte detected in the associated Method Blank E - Value above quantitation range

DO - Surrogate Diluted Out



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- Advanced Technology Laboratories

M - Not Monitored. Highly Reactive

Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT:	Applied P &	Ch Laborator	ries		Client Sample ID: ER-24			
Lab Order:	051017							
Project:					Collection D	ate: 4/23/01	2:25:00 PM	
Lab ID:	051017-005A			Matrix: Water				
Analyses]	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS METALS		E	PA 200.8					
RunID: IC	P4_010510B	BatchID:	4218		PrepDate:	5/10/01	Analyst: EFR	
Chromium			ND	5.0	µg/L	1.0	5/10/01	

Print Date: 5/16/01

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit H - Samples exceeding analytical holding time KA J - Analyte detected below quantitation limits Initials: E - Value above quantitation range B - Analyte detected in the associated Method Blank DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 6 Advanced Technology 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040 Laboratories

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Advanced Technology Laboratories			Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories		Client Sample	e ID: MW-23-4		
Project:				Collection D	ate: 4/24/01	12:25:00 PM	
Lab ID:	051017-006	A	Matrix: Water				
Analyses		Result	Limit Qu	1al Units	DF	Date Analyzed	
ICP-MS METALS		EPA 200.8					
RunID: ICI	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR	
Chromium		ND	5.0	µg/∟	1.0	5/10/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time
 Initials:

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 7

 Advanced Technology
 3275 Walnut Avenue
 Signal Hill, CA 90807
 Tel: 562 989-4045
 Fax: 562 989-4040

Advance	d Technolog	y Laboratories	Print Date: 5/16/01			
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories		Client Sample	e ID: MW-23-	-3
Project:				Collection E	Date: 4/24/01	1:05:00 PM
Lab ID:	051017-007	A				
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed
ICP-MS METALS RunID: ICP4 010510B BatchID: 4218		EPA 200.8 PrepDate: 5/10/01			Analyst: EFR	
Chromium	_	5.5	5.0	μg/L	1.0	5/10/01

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time RA Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive



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Advanced	Technolog	y Laboratories	Print Date: 5/16/01				
CLIENT:	Applied P &	Ch Laboratories	Client Sample ID: MW-23-2				
Project:	051017			Collection	Date: 4/24/01	1:55:00 PM	
Lab ID:	051017-008	A	Matrix: Water				
Analyses Result			Limit Qu	al Units	DF	Date Analyzed	
ICP-MS METALS RunID: ICP4 010510B BatchID: 4218		EPA 200.8 PrepDate: 5/10/01			Analyst: EFR		
Chromium	—	5.7	5.0	µg/L	1.0	5/10/01	

Print Date: 5/16/01

ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 9



Advanced Technology

Laboratories

Advanced Technology Laboratories			Print Date: 5/16/01			
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories	Client Sample ID: MW-23-1			
Project:			Collection Date: 4/24/01 2:15:00 PM			
Lab ID:	051017-009A	A	Matrix: Water			
Analyses		Result	Limit	Qual Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			
RunID: IC	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR
Chromium		7.2	5.0	μg/L	1.0	5/10/01

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

- E Value above quantitation range
- M Not Monitored. Highly Reactive

PA Initials: 10

Advanced Technology Laboratories

Advanced Technology Laboratories			es	Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories		Client Sample ID: ER-23				
Project:				Collection I	Date: 4/24/01	1:30:00 PM		
Lab ID:	051017-010	A		Matrix: Water				
Analyses		Resul	t Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS		1	EPA 200.8					
RunID: ICI	P4_010510B	BatchID: 421	8	PrepDate	: 5/10/01	Analyst: EFR		
Chromium		NE	5.0	μg/L	1.0	5/10/01		

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials:_ B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive



Advanced Technology Laboratories



Advanced	Technology	y Laboratories	Print Date: 5/16/01					
CLIENT:	Applied P & Ch Laboratories		Client Sample ID: MW-11-3					
Lab Order:	051017			-				
Project:				Collection D	ate: 4/25/01	11:45:00 AM		
Lab ID:	051017-011A	L	Matrix: Water					
Analyses		Result	Limit Q	ial Units	DF	Date Analyzed		
ICP-MS METALS		EPA 200.8						
RunID: ICI	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR		
Chromium		ND	5.0	µg/L	1.0	5/10/01		

Advanced Technology Laboratories

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CLIENT:	Applied P & Ch Laboratories		(Client Sample	ID: MW-11	: MW-11-2		
Lab Order:	051017	1017		-				
Project:			Collection Date: 4/25/01 1:00:00 PM Matrix: Water			1:00:00 PM		
Lab ID:	051017-012A	、						
Analyses		Result	Limit Qu	al Units	DF	Date Analyzed		
ICP-MS METALS		EPA	200.8					
RuniD: IC	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR		
Chromium		ND	5.0	µg/L	1.0	5/10/01		

Advanced Technology Laboratories Print Date: 5/16/01

 Qualifiers:
 ND - Not Detected at the Reporting Limit
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 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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 Advanced Technology
 2275 Web = 14, 542, 080, 4045
 E = 562,080, 4045

Laboratories

Advanced	Technolog	y Laboratories	Print Date: 5/16/01					
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories	Client Sample ID: MW-11-1					
Project:				Collection D	ate: 4/25/01	12:30:00 PM		
Lab ID:	D: 051017-013A			Matrix: Water				
Analyses		Result	Limit Q	ual Units	DF	Date Analyzed		
ICP-MS METALS		EPA 200.8						
RunID: IC	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR		
Chromium		ND	5.0	ua/L	1.0	5/10/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

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 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive

Advanced Technology Laboratories

Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & Ch Laboratories 051017			Client Sample ID: ER-11				
Project:			Collection Date: 4/25/01 12:00:00 PM					
Lab ID:	051017-014A			Matrix: Water				
Analyses]	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS METALS		E	EPA 200.8					
RunID: ICI	P4_010510B	BatchID:	4218			PrepDate:	5/10/01	Analyst: EFR
Chromium			ND	5.0		µg/L	1.0	5/10/01

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 15 Advanced Technology 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040 Laboratories

Advanced Technology Laboratories				Print Date: 5/16/01					
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories			Client Sample	e ID: MW-12	: MW-12-3		
Project:					Collection I	Date: 4/26/01	12:20:00 PM		
Lab ID:	051017-015A			Matrix: Water					
Analyses	······································	Res	ult	Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS		E	EPA 200.8						
RunID: ICI	P4_010510B	BatchID: 4	218		PrepDate	: 5/10/01	Analyst: EFR		
Chromium			ND	5.0	μg/L	1.0	5/10/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time
 Initials:

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 16

 Advanced Technology
 3275 Walnut Avenue
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 Fax: 562 989-4040

Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories		Client Sample ID: MW-12-2				
Project:				Collection Date: 4/26/01 12:50:00 PM				
Lab ID:	051017-016	4		Matrix: Water				
Analyses		Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS		E	EPA 200.8					
RunID: ICF	P4_010510B	BatchID: 4218		PrepDate	: 5/10/01	Analyst: EFR		
Chromium		6.2	5.0	μg/L	1.0	5/10/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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Advanced Technology Laboratories

Advanced	Technolog	y Laboratories	Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories		Client Sample	-1		
Project:				Collection D	Date: 4/26/01	1:10:00 PM	
Lab ID:	051017-017	A	Matrix: Water				
Analyses		Result	Limit Ç	Qual Units	DF	Date Analyzed	
ICP-MS METALS		EPA 200.8					
RunID: ICI	P4_010510B	BatchID: 4218		PrepDate:	5/10/01	Analyst: EFR	
Chromium		8.1	5.0	µg/L	1.0	5/10/01	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: KA B - Analyte detected in the associated Method Blank E - Value above quantitation range



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Advanced Technology Laboratories

DO - Surrogate Diluted Out

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M - Not Monitored. Highly Reactive

Technolog	y Laboratories	Print Date: 5/16/01					
Applied P &	Ch Laboratories	Client Sample ID: ER-12					
051017		Collection Date: 4/26/01 1:05:00 PM					
: 051017-018A			Matrix: Water				
	Result	Limit Qı	al Units	DF	Date Analyzed		
ICP-MS METALS		EPA 200.8					
4_0103108	ND	5.0	ua/L	1.0	5/10/01		
	Applied P & 051017 051017-0184 -S 4_010510B	Technology Laboratories Applied P & Ch Laboratories 051017 051017-018A Result S 4_010510B BatchID: 4218 ND	Technology Laboratories Applied P & Ch Laboratories 051017 051017-018A Result Limit Qu S 4_010510B BatchID: 4218 ND 5.0	Technology Laboratories Print Applied P & Ch Laboratories Client Sample 051017 Collection 051017-018A M Result Limit Qual Units .S EPA 200.8 4_010510B BatchID: 4218 PrepDate ND 5.0 µg/L	Technology LaboratoriesPrint Date: 5/16/0Applied P & Ch LaboratoriesClient Sample ID: ER-12051017Collection Date: 4/26/01051017-018AMatrix: WaterResultLimit Qual UnitsDF.SEPA 200.84_010510BBatchID: 4218PrepDate: 5/10/01ND5.0µg/L1.0		

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 19 Advanced Technology

Laboratories

Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laborator	ries		Client Sample ID: MW-8			
Project:					Collection	Date: 4/27/01	11:20:00 AM	
Lab ID:	051017-019A			Matrix: Water				
Analyses]	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS METALS		EPA 200.8						
RunID: I CI	P4_010510B	BatchID:	4218		PrepDa	te: 5/10/01	Analyst: EFR	
Chromium			ND	5.0	µg/L	1.0	5/10/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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 Signal Hill, CA 90807
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 Fax: 562 989-4040

Advanced	Technolog	y Laboratories	Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories	Client Sample ID: MW-13				
Project:			Collection Date: 4/27/01 1:00:00 PM				
Lab ID:	051017-020	A	Matrix: Water				
Analyses		Result	Limit Qu	al Units	DF	Date Analyzed	
ICP-MS METALS RunID: ICP4_010510B BatchID: 4218		EPA	200.8 PrepDate:	5/10/01	Analyst: EFR		
Chromium		19	5.0	µg/L	1.0	5/10/01	

Print Date: 5/16/01

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit H - Samples exceeding analytical holding time J - Analyte detected below quantitation limits Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 21

Advanced Technology Laboratories

Advanced	Technolog	y Laboratorie	s	Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories		Client Sample ID: MW-6				
Project:				Collection I	Date: 4/30/01	12:30:00 PM		
Lab ID:	b ID: 051017-021A			Matrix: Water				
Analyses		Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS		E	EPA 200.8					
RunID: ICI	P4_010510C	BatchID: 4219		PrepDate	: 5/10/01	Analyst: EFR		
Chromium		10	5.0	µg/L	1.0	5/10/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time
 Initials:

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
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Advanced Technology Laboratories

Advanced	Technolog	y Laboratories	Print Date: 5/16/01					
CLIENT: Lab Order:	Applied P & 051017	Ch Laboratories	Client Sample ID: MW-6-D					
Project:				Collection D	Date: 4/30/01	12:30:00 PM		
Lab ID:	ID: 051017-022A			Matrix: Water				
Analyses	·	Result	Limit Qu	al Units	DF	Date Analyzed		
ICP-MS METALS		EPA 200.8		E110/04				
	4_0103100	DatcinD, 4213	5.0	riepbale.	5/10/01	Allalyst. EFK		
Chromium		10	5.0	µg/∟	1.0	5/10/01		

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 23

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Laboratories

Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT: Applied P & Ch Laboratories Lab Order: 051017		Client Sample ID: MW-16						
Project:					Collection I	Date: 4/30/01	5:00:00 PM	
Lab ID: 051017-023A		Matrix: Water						
Analyses]	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS META	LS			E	EPA 200.8			
RuniD: ICI	P4_010510C	BatchID:	4219		PrepDate	: 5/10/01	Analyst: EFR	
Chromium			11	5.0	µg/L	1.0	5/10/01	

S - Spike/Surrogate outside of limits due to matrix interference. Qualifiers: ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range M - Not Monitored. Highly Reactive DO - Surrogate Diluted Out 24 Advanced Technology Laboratories 3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Advanced	Technology	Print Date: 5/16/01												
CLIENT:Applied P & Ch LaboratoriesLab Order:051017Project:051017-024A			Client Sample ID: MW-16-D Collection Date: 4/30/01 5:00:00 PM Matrix: Water											
								Analyses	· · · · · · · · · · · · · · · · · · ·	Result	Limit Qu	al Units	DF	Date Analyzed
								ICP-MS METALS		EPA 200.8				
RunID: ICI	P4_010510C	BatchID: 4219		PrepDates	: 5/10/01	Analyst: EFR								
Chromium		11	5.0	uo/l	1.0	5/10/01								

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference. J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time Initials: B - Analyte detected in the associated Method Blank E - Value above quantitation range DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 25 Advanced Technology

Laboratories

Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT: Applied P & Ch Laboratories			Client Sample ID: MW-5					
Lab Order:	051017							
Project:					С	ollection Da	ate: 4/30/01	3:45:00 PM
Lab ID: 051017-025A			Matrix: Water					
Analyses		R	sult	Limit	Qual	Units	DF	Date Analyzed
ICP-MS META	LS			E	EPA 20	0.8		
RunID: IC	P4_010510C	BatchID:	4219			PrepDate:	5/10/01	Analyst: EFR
Chromium			ND	5.0		µg/L	1.0	5/10/01

Print Date: 5/16/01

DO - Surrogate Diluted Out

ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike/Surrogate outside of limits due to matrix interference.

H - Samples exceeding analytical holding time

E - Value above quantitation range M - Not Monitored. Highly Reactive Initials:

Advanced Technology Laboratories

Qualifiers:

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Advanced	Technolog		Print Date: 5/16/01					
CLIENT:Applied P & Ch LaboratoriesLab Order:051017Project:				Client Sample ID: MW-10 Collection Date: 4/30/01 2:30:00 PM Matrix: Water				
Lab ID:	ab ID: 051017-026A							
Analyses		Result	Limit	Qual Units	DF	Date Analyzed		
ICP-MS METALS			EF	EPA 200.8				
RunID: ICI	P4_010510C	BatchID: 4219		PrepDate	: 5/10/01	Analyst: EFR		
Chromium		13	5.0	ua/L	1.0	5/10/01		

Advanced Technology Laboratories
Advanced Technology Laboratories				Print Date: 5/16/01				
CLIENT: Lab Order:	Applied P & 051017	Ch Laborator	ies		Client Sample	ID: MW-10	-D	
Project:					Collection I	Date: 4/30/01	2:30:00 PM	
Lab ID:	051017-027	4			Ma	trix: Water		
Analyses		J	Result	Limit	Qual Units	DF	Date Analyzed	
ICP-MS META	LS			E	PA 200.8			
RunID: ICI	P4_010510C	BatchID:	4219		PrepDate:	5/10/01	Analyst: EFR	
Chromium			11	5.0	µg/L	1.0	5/10/01	

 Qualifiers:
 ND - Not Detected at the Reporting Limit
 S - Spike/Surrogate outside of limits due to matrix interference.

 J - Analyte detected below quantitation limits
 H - Samples exceeding analytical holding time

 B - Analyte detected in the associated Method Blank
 E - Value above quantitation range
 Initials:

 DO - Surrogate Diluted Out
 M - Not Monitored. Highly Reactive
 28

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Laboratories

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orat	d Te	C
ories	chine	V
	nlogy	P

CLIENT: Work Order: Project:	Applied P & Ch L 050813 JPL	aboratories							QC SI	J MMAR Sa	Y REP	ORT olicate
Sample ID 0508	13-020ADU Batch ID: 4	043	Test Nam	e ICPMS ME	TALS		Unit	ts µg/L A	nalysis Date: 5	5/1/01	Prep Date:	5/1/01
DUP							SeqNo:	12843	39			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		5.1	5.0	0	0	0	0	0	5.1	0	30	
Sample ID 0508	13-008ADU Batch ID: 4	.043	Test Nam	e ICPMS ME	TALS		Unit	ts µg/L A	nalysis Date: 5	5/1/01	Prep Date:	5/1/01
DUP							SeqNo:	1284	40			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		4	5.0	0	0	0	0	0	4.2	1	30	J
Sample ID 0508	13-026ADU Batch ID: 4	044	Test Nam	e ICPMS ME	TALS		Uni	ts µg/L A	nalysis Date: 5	5/1/01	Prep Date:	5/1/01
DUP							SeqNo:	1284	60			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		4	5.0	0	0	0	0	0	3.7	2	30	J
Sample ID 0508	13-035ADU Batch ID: 4	1044	Test Nam	e ICPMS ME	TALS		Uni	ts μg/L A	nalysis Date:	5/1/01	Prep Date:	5/1/01
DUP							SeqNo:	1284	61			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	<u> </u>	0.3	5.0	0	0	0	0	0	0.29	6	30	J

Date: 04-May-01

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Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

Initials:

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

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Advanced Technology Laboratories

Advanced	Technology Laboratories	Date: 04-May-01
oratories	Applied P & Ch Laboratories 050813 JPL	QC SUMMARY REPORT Laboratory Control Spike - generic

Sample ID LCS-4043	Batch ID: 4043		Test Nam	e ICPMS ME	TALS		Uni	isµg/L A	nalysis Date:	5/1/01	Prep Date:	5/1/01
LCS							SeqNo:	1284	16			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10	5.0	10	0	100	80	120	0			
Sample ID LCS-4044	Batch ID: 4044		Test Nam	e ICPMS ME	TALS	<u></u>	Uni	ts µg/L A	nalysis Date:	5/1/01	Prep Date:	5/1/01
Sample ID LCS-4044 LCS	Batch ID: 4044		Test Nam	ICPMS ME	TALS		Uni SeqNo:	ts μg/L Α 1284	nalysis Date: 42	5/1/01	Prep Date:	5/1/01
Sample ID LCS-4044 LCS Analyte	Batch ID: 4044	Result	Test Nam PQL	e ICPMS ME	SPK Ref Val	%REC	Uni SeqNo: LowLimit	ts µg/L A 1284 HighLimit	nalysis Date: 42 RPD Ref Val	5/1/01 %RPD	Prep Date: RPDLimit	5/1/01 Qual

ND - Not Detected at the Reporting Limit Qualifiers: J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

Initials: A

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories

Applied P & Ch Laboratories

Date: 04-May-01

CLIENT: Work Order: Project:	Applied P & Ch Labo 050813 JPL	ratories							QC SUM	IMAR Samp	Y REP	ORT Spike
Sample ID 05081	3-008AMS Batch ID: 4043		Test Nam	e ICPMS ME	TALS		Uni	ts µg/L A	Analysis Date: 5/1/0	1	Prep Date:	5/1/01
MS							SeqNo:	1284	25			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		13	5.0	10	4.2	88	80	120	0			
Sample ID 05081	3-008AMS Batch ID: 4043		Test Nam	ne ICPMS ME	TALS		Uni	tsµg/L A	Analysis Date: 5/1/0	1	Prep Date:	5/1/01
MSD							SeqNo:	1284	26			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		13	5.0	10	4.2	88	80	120	13	1	20	
Sample ID 05081	13-026AMS Batch ID: 4044		Test Nam	ne ICPMS ME	TALS		Uni	ts µg/L A	Analysis Date: 5/1/0	1	Prep Date:	5/1/01
MS							SeqNo:	1284	49			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Quai
Chromium		12	5.0	10	3.7	83	80	120	0			
Sample ID 05081	13-026AMS Batch ID: 4044		Test Nam	ne ICPMS ME	TALS		Uni	ts µg/L A	Analysis Date: 5/1/0	1	Prep Date:	5/1/01
MSD							SeqNo:	1284	50			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Quai
Chromium		12	5.0	10	3.7	83	80	120	12	1	20	

CLIENT:

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Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

Initials:

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

Auvanceu I	echnology Laboratories)		
CLIENT: Work Order: Project:	Applied P & Ch Laboratories 050813 JPL			QC SUMMARY REPORT Method Blan
Sample ID MB-40	043 Batch ID: 4043	Test Nan	ne ICPMS METALS	Units µg/L Analysis Date: 5/1/01 Prep Date: 5/1/01 SeqNo: 128415
Analyte	Result	PQL	SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qua
Chromium	ND	50	0	0

Analyte	Resu	ılt PQL	SPK value SPK Ref Val	al %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimi	t Qual
Chromium	N	D 5.0	0	0 0	
Sample ID MB-4044	Batch ID: 4044	Test Na	me ICPMS METALS	Units µg/L Analysis Date: 5/1/01 Prep Date	: 5/1/01
MBLK				SeqNo: 128441	
Analyte	Resu	ult PQL	SPK value SPK Ref Val	al %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimi	it Qual
Chromium	N	D 5.0	0	0 0	

Tel: 562 989-4045

Fax: 562 989-4040

Qualifiers: ND - Not Detected at the Reporting Limit J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

M - Not Monitored. Highly Reactive

S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials: KA

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Date: 04-May-01

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Advanced Technology Laboratories

3275 Walnut Avenue

Signal Hill, CA 90807

Data Validation

VOC

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
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Collection Date: April 30, 2001

LDC Report Date: May 31, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3296

Sample Identification

MW-5 MW-6 MW-10 MW-16 MW-6-D MW-10-D MW-16-D TRIP BLANK MW-5MS MW-5MSD

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/5/01	4-Methyl-2-pentanone	36.26	MW-5 MW-6 MW-10 MW-16 MW-6-D MW-5MS MW-5MS 01G2624MB01	J (all detects) UJ (all non-detects)	Ρ
5/7/01	2,2-Dichloropropane	34.25	MW-10-D MW-16-D TRIP BLANK 01G2639MB01	J (all detects) UJ (all non-detects)	Ρ

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01G2624MB01	5/5/01	Methylene chloride	1.5 ug/L	MW-5 MW-6 MW-10 MW-16 MW-6-D
01 G2638MB01	5/8/01	Methylene chloride 2-Butanone	1.8 ug/L 4 ug/L	MW-10-D MW-16-D TRIP BLANK

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported	Modified Final
	TIC (RT in minutes)	Concentration	Concentration
MW-10-D	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-16-D	Methylene chloride	0.4 ug/L	0.5U ug/L
TRIP BLANK	Methylene chloride	2.1 ug/L	2.1U ug/L
	2-Butanone	4.4 ug/L	5U ug/L

Sample "TRIP BLANK" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank iD	Sampling Date	Compound	Concentration	Associated Samples
TRIP BLANK	4/30/01	Methylene chloride 2-Butanone	2.1 ug/L 4.4 ug/L	MW-5 MW-6 MW-10 MW-16 MW-6-D MW-10-D MW-16-D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-10-D	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-16-D	Methylene chloride	0.4 ug/L	0.5U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	 Compound	Flag	A or P
MW-5	1,4-Dichlorobenzene-d4	386003 (397963-739073)	Bromobenzene n-Butylbenzene sec-Butylbenzene tert-Butylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dibromo-3-chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene Hexachlorobutadiene Isopropylbenzene p-Isopropylbenzene 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichloropropane 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	J (all detects) UJ (all non-detects)	A
01G2638MB01	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	398668 (408484-758612) 357744 (435425-808646)	Bromoform Chlorobenzene 1,3-Dichloropropane Ethylbenzene 4-Methyl-2-pentanone Styrene 1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane Tetrachloroethene o-Xylene m,p-Xylene Bromobenzene n-Butylbenzene sec-Butylbenzene sec-Butylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dibromo-3-chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene Hexachlorobutadiene Isopropylbenzene p-Isopropylbenzene 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,2,4-Trimethylbenzene	J (all detects) UJ (all non-detects)	Ρ

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Sample	Internal Standards	Area (Limits)	 Compound	Flag	A or P
TRIP BLANK	1,4-Dichlorobenzene-d4	373219 (435425-808646)	Bromobenzene In-Butylbenzene sec-Butylbenzene tert-Butylbenzene 2-Chlorotoluene 1,2-Dibromo-3-chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,4-Dichlorobenzene Hexachlorobutadiene Isopropylbenzene p-Isopropylbenzene 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	J (all detects) UJ (all non-detects)	P

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-6 and MW-6-D, samples MW-10 and MW-10-D, and samples MW-16 and MW-16-D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

	Concentration (ug/L)		
Compound	MW-6	MW-6-D	RPD
Chioroform	0.5	0.6	18
1,1-Dichloroethane	1.0	1	0
Tetrachloroethene	2.1	1.8	15
Trichloroethene	0.3	0.5U	200

	Concentra		
Compound	MW-10	MW-10-D	RPD
Carbon tetrachloride	0.6	0.5	18
Chloroform	1.9	1.8	5
1,1-Dichloroethane	0.4	0.4	0
Trichloroethene	20.4	19.1	7
Methylene chloride	0.5U	0.4	200

	Concentr	Concentration (ug/L)	
Compound	MW-16	MW-16-D	RPD
Carbon tetrachloride	21.0	18.4	13
Chloroform	15.3	13.7	11
1,1-Dichloroethene	1.6	1.7	6
Trichloroethene	3.6	3.3	9
Methylene chloride	0.5U	0.4	200

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3296

SDG	Sample	Compound	Flag	A or P	Reason
01-3296	MW-5 MW-6 MW-10 MW-16 MW-6-D	4-Methyl-2-pentanone	J (all detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)
01-3296	MW-10-D MW-16-D TRIP BLANK	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)
01-3296	MW-5	Bromobenzene n-Butylbenzene sec-Butylbenzene tert-Butylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dibromo-3-chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,4-Dichlorobenzene Hexachlorobutadiene Isopropylbenzene p-Isopropylbenzene 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichloropropane 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	J (all detects) UJ (all non-detects)	A	Internal standards (area)
01-3296	TRIP BLANK	Bromobenzene n-Butylbenzene sec-Butylbenzene tert-Butylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,2-Dibromo-3-chloropropane 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,3-Trichlorobenzene 1,2,3-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	J (all detects) UJ (all non-detects)	Ρ	Internai standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3296

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-3296	MW-10-D	Methylene chloride	0.5U ug/L	A
01-3296	MW-16-D	Methylene chloride	0.5U ug/L	A
01-3296	TRIP BLANK	Methylene chloride 2-Butanone	2.1U ug/L 5U ug/L	A

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3296

SDG	Sample	Compound	Modified Final Concentration	A or P
01-3296	MW-10-D	Methylene chloride	0.5U ug/L	A
01-3296	MW-16-D	Methylene chloride	0.5U ug/L	A

LDC Report# 6334A1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 12, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

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Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3000

Sample Identification

ER-19 MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 Trip Blank MW-19-1MS MW-19-1MSD

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Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01G2345MB01	4/13/01	Methylene chlo <i>ri</i> de	0.5 ug/L	All samples in SDG 01-3000

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Sample ER-19 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

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No field duplicates were identified in this SDG.

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JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3000

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3000

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3000

No Sample Data Qualified in this SDG

LDC Report# 6334B1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 13, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3025

Sample Identification

ER-18 MW-18-2 MW-18-3 MW-18-4 MW-18-5 Trip Blank

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Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-18 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits. المرد ورودا

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3025

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No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3025

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3025

No Sample Data Qualified in this SDG

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Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 4, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-2877

Sample Identification

ER-4 MW-4-1 MW-4-2 MW-4-3 Trip blank

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/9/01	Naphthalene	33.09	ER-4 MW-4-1 MW-4-2 MW-4-3 01G2297MB01	J (all detects) UJ (all non-detects)	Ρ

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01G2297MB01	4/10/01	Methylene chlorice	0.8 ug/L	ER-4 MW-4-1 MW-4-2 MW-4-3

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Sample ER-4 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-4	4/4/01	Chloroform	3 ug/L	MW-4-1 MW-4-2 MW-4-3

Sample "Trip blank" was identified as a trip blank. No volatile contaminants were found in this blank.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample Compound		Reported Concentration	Modified Final Concentration	
MW-4-2	Chloroform	0.6 ug/L	0.6U ug/L	

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	internal Standards	Area (Limits)	Compound	Flag	A or P
Trip blank	1,4-Dichlorobenzene-d4	145766 (149449-277549)	1,2,3-Trichloropropane Isopropylbenzene Bromobenzene n-Propylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene sec-Butylbenzene p-Isopropyttoluene 1,2-Dichlorobenzene n-Butylbenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene Hexachlorobutadiene	J (all detects) UJ (all non-detects)	Ρ.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-2877

SDG	Sample	Compound	Flag	A or P	Reason
01-2877	ER-4 MW-4-1 MW-4-2 MW-4-3	Naphthalene	J (ail detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)
01-2877	Trip blank	1,2,3-Trichloropropane Isopropylbenzene Bromobenzene n-Propylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,3,5-Trimethylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene sec-Butylbenzene p-Isopropyltoluene 1,2-Dichlorobenzene n-Butylbenzene 1,2-Dibloromo-3-chloropropane 1,2,4-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene Hexachlorobutadiene	J (ali detects) UJ (ali non-detects)	Ρ	Internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-2877

No Sample Data Qualified in this SDG

JPL, 00HW019

Volatiles - Field Blank Data Qualification Summary - SDG 01-2877

SDG	Sample	Compound	Modified Final Concentration	A or P
01-2877	MW-4-2	Chloroform	0.6U ug/L	A

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Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
Collection Date:	April 5, 2001
LDC Report Date:	May 2, 2001
Matrix:	Water
Parameters:	Volatiles
Validation Level:	EPA Level IV
Laboratory:	Applied P & Ch Laboratory
Sample Delivery Group (SDG):	01-2883

Sample Identification

ER-17 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D Trip Blank MW-17-3MS MW-17-3MSD

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Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/9/01	Naphthalene	33.09	All samples in SDG 01-2883	J (all detects) UJ (all non-detects)	P

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01G2297MB01	4/10/01	Methylene chloride	0.8 ug/L	All samples in SDG 01-2883

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-17-4	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-17-5	Methylene chloride	0.4 ug/L	0.5U ug/L
Trip Blank	Methylene chloride	0.8 ug/L	0.8U ug/L

Sample ER-17 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/5/01	Methylene chloride	0.8 ug/L	ER-17 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-17-4	Methylene chloride	0.4 ug/L	0.5U ug/L
MW-17-5	Methylene chloride	0.4 ug/L	0.5U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
MW-17-3	1,4-Dichlorobenzene-d4	139745 (144562-268472)	1,2,3-Trichloropropane Isopropylbenzene Bromobenzene n-Propylbenzene 2-Chlorotoluene 4-Chlorotoluene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene sec-Butylbenzene p-Isopropyltoluene 1,2-Dichlorobenzene n-Butylbenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene Hexachlorobutadiene	J (all detects) UJ (all non-detects)	Ρ.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-17-2 and MW-17-2D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

	Concentr	ation (ug/L)	
Compound	MW-17-2	MW-17-2D	RPD
Chloroform	0.4	0.4	o

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-2883

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SDG	Sample	Compound	Flag	A or P	Reason
01-2883	ER-17 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D Trip Blank	Naphthalene	J (all detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)
01-2883	MW-17-3	1,2,3-Trichloropropane Isopropylbenzene Bromobenzene 2-Chlorotoluene 4-Chiorotoluene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene sec-Butylbenzene 1,2-Dichlorobenzene n-Butylbenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene Hexachlorobutadiene	J (all detects) UJ (all non-detects)	Ρ	Internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-2883

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-2883	MW-17-4	Methylene chloride	0.5U ug/L	A
01-2883	MW-17-5	Methylene chloride	0.5U ug/L	A
01-2883	Trip Blank	Methylene chloride	0.8U ug/L	A

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JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-2883

SDG	Sample	Compound	Modifled Final Concentration	A or P
01-2883	MW-17-4	Methylene chloride	0.5U ug/L	A
01-2883	MW-17-5	Methylene chloride	0.5U ug/L	A

LDC Report# 6345C1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL,	00HW019
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Collection Date: April 6, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-2898

Sample Identification

ER-3 MW-3-2 MW-3-3 MW-3-4 Trip Blank MW-3-2MS MW-3-2MSD

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Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-3 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-3	4/6/01	Methylene chloride	0.5 ug/L	MW-3-2 MW-3-3 MW-3-4

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/6/01	Methylene chloride	1.5 ug/L	ER-3 MW-3-2 MW-3-3 MW-3-4

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-3	Methylene chloride	0.5 ug/L	0.5U ug/L
MW-3-2	Methylene chloride	0.5 ug/L	0.5U ug/L
MW-3-3	Methylene chloride	0.4 ug/L	0.5U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-2898

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-2898

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-2898

SDG	Sample	Compound	Modified Final Concentration	A or P
01-2898	ER-3	Methylene chloride	0.5U ug/L	A
01-2898	MW-3-2	Methylene chloride	0.5U ug/L	A
01-2898	MW-3-3	Methylene chloride	0.5U ug/L	A

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
Collection Date:	April 7, 2001
LDC Report Date:	May 15, 2001
Matrix:	Water
Parameters:	Volatiles
Validation Level:	EPA Level IV
Laboratory:	Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3059

Sample Identification

ER-14 MW-14-1 MW-14-2 MW-14-3 MW-14-3 MW-14-5 MW-14-5 TRIP BLANK MW-14-2MS MW-14-2MSD

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Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-14 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-14-1 and MW-14-1D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

	Concentration (ug/L)		
Compound	MW-14-1	MW-14-1D	RPD
Chloroform	0.4	0.4	1
1,1-Dichloroethane	0.7	0.6	15
Tetrachloroethene	0.7	0.6	15

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JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3059

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3059

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3059

No Sample Data Qualified in this SDG

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LDC Report# 6379B1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 18, 2001

LDC Report Date: May 15, 2001

Matrix:

Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3086

Sample Identification

ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-1D TRIP BLANK MW-22-2MS MW-22-2MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
4/19/01	Methyl-tert-butyl ether	34.21	All samples in SDG 01-3086	J (ail detects) UJ (all non-detects)	Ρ

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-22 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TRIP BLANK	4/18/01	Methylene chloride	0.7 ug/L	ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-1D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

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XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-22-1 and MW-22-1D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

	Concentration (ug/L)		
Compound	MW-22-1	MW-22-1D	RPD
Chloroform	0.4	0.5U	200
1,1-Dichloroethane	1.5	0.3	50
Tetrachloroethene	4.0	1.8	76

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3086

SDG	Sample	Compound	Flag	A or P	Reason
01-3086	ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-1D TRIP BLANK	Methyl-tert-butyl ether	J (all detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3086

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3086

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No Sample Data Qualified in this SDG

LDC Report# 6403A1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Nan	ne: JPL	., 00HW019
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Collection Date: April 24, 2001

LDC Report Date: May 15, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3176

Sample Identification

ER-23 MW-23-1 MW-23-2 MW-23-3 Trip Blank

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-14 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/24/01	Methylene chloride	1.9 ug/L	ER-23 MW-23-1 MW-23-2 MW-23-3

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
G2482MB	1,4-Dichlorobenzene-d4	383994 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene n-Butylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ

Sample	internal Standards	Area (Limits)	Compound	Flag	A or P
Trip Blank	1,4-Dichlorobenzene-d4	349248 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (ali detects) UJ (ali non-detects)	Ρ
MW-23-1	1,4-Dichlorobenzene-d4	339918 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P

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Sample	internal Standards	Area (Limits)	Compound	Flag	A or P
MW-23-2	1,4-Dichlorobenzene-d4	416895 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ
MW-23-3	1,4-Dichlorobenzene-d4	373351 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene p-Isopropyttoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

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XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3176

SDG	Sample	Compound	Flag	A or P	Reason
01-3176	MW-23-1 MW-23-2 MW-23-3 Trip Blank	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P	Internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3176

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3176

No Sample Data Qualified in this SDG

LDC Report# 6403B1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:

JPL, 00HW019

Collection Date: April 20, 2001

LDC Report Date: May 15, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3129

Sample Identification

ER-21 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5 Trip Blank

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-21 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-21	4/20/01	Methylene chloride	0.3 ug/L	MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

Sample "Trip Blank" was identified as trip blank. No volatile contaminants were found in this blank with the following exceptions:
Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/20/01	Methylene chloride	0.8 ug/L	ER-21 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-21	Methylene chloride	0.3 ug/L	0.5U ug/L
MW-21-4	Methylene chloride	0.6 ug/L	0.6U ug/L
MW-21-5	Methylene chloride	0.4 ug/L	0.5U ug/L.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3129

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3129

No Sample Data Qualified in this SDG

JPL, 00HW019

Volatiles - Field Blank Data Qualification Summary - SDG 01-3129

SDG	Sample	Compound	Modified Final Concentration	A or P
01-3129	ER-21	Methylene chloride	0.5U ug/L	A
01-3129	MW-21-4	Methylene chloride	0.6U ug/L	A
01-3129	MW-21-5	Methylene chloride	0.5U ug/L	A

LDC Report# 6403C1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
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Collection Date: April 23, 2001

LDC Report Date: May 15, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3150

Sample Identification

ER-24 MW-24-1 MW-24-2 MW-24-3 Trip Blank ER-24MS ER-24MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-24 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as trip blank. No volatile contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
G2482MB	1,4-Dichlorobenzene-d4	383994 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P

Sample	Internal Standards	Area (Límits)	Compound	Flag	A or P
MW-24-1	1,4-Dichlorobenzene-d4	337954 (>421576)	1,2-Dibromo-3-chioropropane Isopropy/benzene Bromobenzene 1,2,3-Trichloropropane n-Propy/benzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ
MW-24-3	1,4-Dichlorobenzene-d4	379355 (>421576)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3150

SDG	Sample	Compound	Flag	A or P	Reason
01-3150	MW-24-1 MW-24-3	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ	internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3150

No Sample Data Qualified in this SDG

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3150

No Sample Data Qualified in this SDG

LDC Report# 6403D1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
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Collection Date: April 19, 2001

LDC Report Date: May 15, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

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Sample Delivery Group (SDG): 01-3111

Sample Identification

ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-3 MW-20-5 Trip Blank

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample ER-20 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "Trip Blank" was identified as trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/19/01	Methylene chioride	0.9 ug/L	ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

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XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3111

No Sample Data Qualified in this SDG

JPL, 00HW019

Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3111

No Sample Data Qualified in this SDG

JPL, 00HW019

Volatiles - Field Blank Data Qualification Summary - SDG 01-3111

No Sample Data Qualified in this SDG

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LDC Report# 6442A1

Laboratory Data Consultants, Inc. Data Validation Report

- Project/Site Name: JPL, 00HW019
- Collection Date: April 25, 2001

LDC Report Date: May 25, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3206

Sample Identification

ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4 Trip Blank ER-11MS ER-11MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

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Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01 G2583MB01	5/3/01	Methylene chloride	3.8 ug/L	MW-11-1 MW-11-2 MW-11-3 MW-11-4 Trip Blank

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-11-1	Methylene chloride	2.7 ug/L	2.7U ug/L
MW-11-2	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-11-3	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-11-4	Methylene chloride	1.2 ug/L	1.2U ug/L
Trip Blank	Methylene chloride	2.8 ug/L	2.8U ug/L

Sample ER-11 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-11	4/25/01	2-Butanone	3 ug/L	MW-11-1 MW-11-2 MW-11-3 MW-11-4

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/25/01	Methylene chloride	2.8 ug/L	ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-11-1	Methylene chloride	2.7 ug/L	2.7U ug/L
MW-11-2	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-11-3	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-11-4	Methylene chloride	1.2 ug/ L	1.2U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A as D
				riag	A or P
MVV-11-1	1,4-Dichlorobenzene-d4	354389 (449677-835115)	1,2-Dibromo-3-chloropropane isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P
MW-11-2	1,4-Dichlorobenzene-d4	410707 (449677-835115)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P

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Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
MW-11-4	1,4-Dichlorobenzene-d4	416010 (449677-835115)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ
Trip Blank	1,4-Dichlorobenzene-d4	402342 (449677-835115)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-isopropyltoluene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

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The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3206

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SDG	Sample	Compound	Flag	A or P	Reason
01-3206	MW-11-1 MW-11-2 MW-11-4 Trip Blank	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ	internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3206

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-3206	MW-11-1	Methylene chloride	2.7Uug/L	Â
01-3206	MW-11-2	Methylene chloride	1.2Uug/L	A
01-3206	MW-11-3	Methylene chloride	1.3Uug/L	A
01-3206	MW-11-4	Methylene chloride	1.2Uug/L	A
01-3206	Trip Blank	Methylene chloride	2.8Uug/L	A

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JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3206

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SDG	Sample	Compound	Modified Final Concentration	A or P
01-3206	MW-11-1	Methylene chloride	2.7U g/L	A
01-3206	MW-11-2	Methylene chloride	1.2Uug/L	A
01-3206	MW-11-3	Methylene chloride	1.3Uug/L	A
01-3206	MW-11-4	Methylene chloride	1.2Uug/L	A

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LDC Report# 6442B1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 26, 2001

LDC Report Date: May 24, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3252

Sample Identification

ER-12 Field Blank Field BlankRE MW-12-1 MW-12-2 MW-12-2 MW-12-3 MW-12-3 MW-12-5 Trip Blank

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/3/01	2,2-Dichloropropane	32.54	Field BlankRE MW-12-2RE Trip Blank 01 G2597MB01	J (all detects) UJ (all non-detects)	Ρ

V. Blanks

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Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01 G2583MB01	5/3/01	Methylene chloride	3.8 ug/L	ER-12 Field Blank MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5
01G2597MB01	5/4/01	Methylene chloride	7.6 ug/L	Field BlankRE MW-12-2RE Trip Blank

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT In minutes)	Reported Concentration	Modified Final Concentration
Field Blank	Methylene chloride	3.6 ug/L	3.6U ug/L
MW-12-1	Methylene chloride	4.0 ug/L	4.0U ug/L
MW-12-2	Methylene chloride	3.8 ug/L	3.8U ug/L
MW-12-3	Methylene chloride	3.6 ug/L	3.6U ug/L
MW-12-4	Methylene chloride	3.1 ug/L	3.1U ug/L
MW-12-5	Methylene chloride	3.0 ug/L	3.0U ug/L
Field BlankRE	Methylene chloride	4.0 ug/L	4.0U ug/L
MW-12-2RE	Methylene chloride	4.6 ug/L	4.6U ug/L
Trip Blank	Methylene chloride	6.2 ug/L	6.2U ug/L

Sample ER-12 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-12	4/26/01	2-Butanone	4 ug/L	MW-12-1 MW-12-2 MW-12-2RE MW-12-3 MW-12-4 MW-12-5

Samples "Field Blank" and "Field BlankRE" were identified as field blanks. No volatile contaminants were found in these blanks with the following exceptions:

Field Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Field Blank	4/26/01	Methylene chloride	3.6 ug/L	MW-12-1 MW-12-2 MW-12-2RE MW-12-3 MW-12-4 MW-12-5
Field BlankRE	4/26/01	Methylene chloride	4.0 ug/L	MW-12-1 MW-12-2 MW-12-2RE MW-12-3 MW-12-4 MW-12-5

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
Trip Blank	4/26/01	Methylene chloride 2-Butanone	6.2 ug/L 6 ug/L	ER-12 Field Blank Field BlankRE MW-12-1 MW-12-2 MW-12-2 MW-12-2RE MW-12-3 MW-12-4 MW-12-5

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Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-12	2-Butanone	4 ug/L	5U ug/L
Field Blank	Methylene chloride	3.6 ug/L	3.6U ug/L
Field BlankRE	Methylene chloride	4.0 ug/L	4.0U ug/Ļ
MW-12-1	Methylene chloride	4.0 ug/L	4.0U ug/L
MW-12-2	Methylene chloride	3.8 ug/L	3.8U ug/L
MW-12-2RE	Methylene chloride	4.6 ug/L	4.6U ug/L
MW-12-3	Methylene chloride	3.6 ug/L	3.6U ug/L.
MW-12-4	Methylene chloride	3.1 ug/L	3.1U ug/L
MW-12-5	Methylene chloride	3.0 ug/L	3.0U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
Field Blank	Bromofluorobenzene	128 (75-121)	All TCL compounds	J (all detects)	A
MW-12-2	Bromofluorobenzene	128 (75-121)	All TCL compounds	J (all detects)	A
Field BlankRE	Toluene-d8	75 (77-122)	All TCL compounds	J (all detects) UJ (all non-detects)	A
MW-12-2RE	Toluene-d8	72 (77-122)	All TCL compounds	J (all detects) UJ (all non-detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	internal Standards	Area (Llmits)	Compound	Flag	A or P
Field Blank	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	431845 (438098-813610) 319854 (449677-835115)	Bromoform 4-Methyl-2-pentanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Chlorobenzene Ethylbenzene Styrene 1,3-Dichloropropane 1,1,1,2-Tetrachloroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
MW-12-1	1,4-Dichlorobenzene-d4	354408 (449677-835115)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P
MW-12-2	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	405836 (438098-813610) 311227 (449677-835115)	Bromoform 4-Methyl-2-pentanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Chlorobenzene Ethylbenzene Styrene 1,3-Dichloropropane 1,1,1,2-Tetrachloroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chloropropane Isopropylbenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyttoluene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A

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Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
MW-12-3	1,4-Dichiorobenzene-d4	400554 (449677-835115)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ
MW-12-4	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	433834 (438098-813610) 350028 (449677-835115)	Bromoform 4-Methyl-2-pentanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Chlorobenzene Ethylbenzene Styrene 1,3-Dichloropropane 1,1,1,2-Tetrachloroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2,4-Trimethylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
MW-12-5	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	435625 (438098-813610) 350562 (449677-835115)	Bromoform 4-Methyl-2-pentanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Chlorobenzene Ethylbenzene Styrene 1,3-Dichloropropane 1,1,1,2-Tetrachloroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chloropropane lsopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P
ER-12	1,4-Dichlorobenzene-d4	445255 (449677-835115)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ

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Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
Field BlankRE	1,4-Dichlorobenzene-d4	333871 (416333-773189)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A
MW-12-2RE	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	401058 (406926-755720) 303304 (416333-773189)	Bromoform 4-Methyl-2-pentanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Chlorobenzene Ethylbenzene Styrene 1,3-Dichloropropane 1,3-Dichloropropane 1,2-Tetrachloroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3252

000	0	0d	Flag	A D	5
SDG	Sample	Compound	riag	AOPP	Heason
01-3252	Field BlankRE MW-12-2RE Trip Blank	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)
01-3252	Field Blank MW-12-2	All TCL compounds	J (all detects)	A	Surrogate recovery (%R)
01-3252	Field BlankRE MW-12-2RE	All TCL compounds	J (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)
01-3252	Field Blank MW-12-2 MW-12-2RE	Bromoform 4-Methyl-2-pentanone Tetrachioroethene 1,1,2,2-Tetrachioroethane Chiorobenzene Ethylbenzene Styrene 1,3-Dichioropropane 1,1,1,2-Tetrachioroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chioropropane Isopropylbenzene Bromobenzene 1,2,3-Trichioropropane n-Propylbenzene 2-Chiorotoluene 1,3,5-Trimethylbenzene 4-Chiorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichiorobenzene p-Isopropyltoluene 1,4-Dichiorobenzene n-Butylbenzene 1,2,4-Trichiorobenzene 1,2,4-Trichiorobenzene hexachiorobutadiene Naphthalene 1,2,3-Trichiorobenzene	J (all detects) UJ (all non-detects)	A	Internal standards (area)

	Sample	Compound	Flag	A or P	Reason
01-3252	MW-12-1 MW-12-3 ER-12	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	P	internal standards (area)
01-3252	MW-12-4 MW-12-5	Bromoform 4-Methyl-2-pentanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Chlorobenzene Ethylbenzene Styrene 1,3-Dichloropropane 1,1,1,2-Tetrachloroethane m,p-Xylenes o-Xylene 1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ	Internal standards (area)

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SDG	Sample	Compound	Flag	A or P	Reason
01-3252	Field BlankRE	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (ail non-detects)	A	internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3252

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-3252	Field Blank	Methylene chloride	3.6U ug/L	A
01-3252	MW-12-1	Methylene chloride	4.0U ug/L	A
01-3252	MW-12-2	Methylene chloride	3.8U ug/L	A
01-3252	MW-12-3	Methylene chloride	3.6U ug/L	A
01-3252	MW-12-4	Methylene chloride	3.1U ug/L	A
01-3252	MW-12-5	Methylene chloride	3.0U ug/L	A
01-3252	Field BlankRE	Methylene chloride	4.0U ug/L	A
01-3252	MW-12-2RE	Methylene chloride	4.6U ug/L	A
01-3252	Trip Blank	Methylene chloride	6.2U ug/L	A

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3252

SDG	Sample	Compound	Modified Final Concentration	A or P
01-3252	ER-12	2-Butanone	5U ug/L	A
01-3252	Field Blank	Methylene chloride	3.6U ug/L	A
01-3252	Field BlankRE	Methylene chloride	4.0U ug/L	A
01-3252	MW-12-1	Methylene chloride	4.0U ug/L	A
01-3252	MW-12-2	Methylene chloride	3.8U ug/L	A
01-3252	MW-12-2RE	Methylene chloride	4.6U ug/L	A
01-3252	MW-12-3	Methylene chloride	3.6U ug/L	A
01-3252	MW-12-4	Methylene chloride	3.1U ug/L	A
01-3252	MW-12-5	Methylene chloride	3.0U ug/L	A

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LDC Report# 6442C1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 27, 2001

LDC Report Date: May 24, 2001

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory:Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3268

Sample Identification

MW-8 MW-13 Trip Blank

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
5/3/01	2,2-Dichloropropane	32.54	All samples in SDG 01-3268	J (all detects) UJ (all non-detects)	Р

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
01G2597MB01	5/4/01	Methylene chloride	7.6 ug/L	All samples in SDG 01-3268

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-8	Methylene chloride	5.2 ug/L	5.2U ug/L
MW-13	Methylene chloride	3.8 ug/L	3.8U ug/L

Sample "Trip Blank" was identified as a trip blank. No volatile contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	 Compound	Flag	A or P
MW-13	1,4-Dichlorobenzene-d4	374343 (416333-773189)	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyttoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Volatiles - Data Qualification Summary - SDG 01-3268

SDG	Sample	Compound	Flag	A or P	Reason
01-3268	MW-8 MW-13 Tríp Blank	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	Ρ	Continuing calibration (%D)
01-3268	MW-13	1,2-Dibromo-3-chloropropane Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,3-Dichlorobenzene p-Isopropyltoluene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	Ρ	Internal standards (area)

JPL, 00HW019 Volatiles - Laboratory Blank Data Qualification Summary - SDG 01-3268

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
01-3268	MW-8	Methylene chloride	5.2U ug/L	A
01-3268	MW-13	Methylene chloride	3.8U ug/L	A

JPL, 00HW019 Volatiles - Field Blank Data Qualification Summary - SDG 01-3268

No Sample Data Qualified in this SDG

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Metals

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site	Name:	JPL,	00HW019
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Collection Date: April 4 through April 19, 2001

LDC Report Date: June 18, 2001

Matrix: Water

Parameters:

Validation Level: EPA Level IV

Laboratory:

Advanced Technology Laboratories

Chromium

Sample Delivery Group (SDG): 050813

Sample Identification

MW-4-5	MW-14-3	MW-22-2MSD
MW-4-4	MW-14-2	MW-22-2DUP
MW-4-3	MW-14-1	ER-20DUP
MW-4-2	MW-14-1D	
MW-4-1	ER-14	
ER-4	MW-22-2	
MW-17-4	MW-22-1	
MW-17-3	MW-22-1D	
MW-17-2	ER-22	
MW-17-2D	MW-20-5	
ER-17	MW-20-4	
MW-3-4	MW-20-3	
MW-3-3	MW-20-2	
MW-3-2	MW-20-1	
ER-3	ER-20	
MW-18-4	MW-17-3MS	
MW-18-3	MW-17-3MSD	
MW-18-2	MW-17-3DUP	
ER-18	MW-14-4DUP	
MW-14-4	MW-22-2MS	

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Introduction

This data review covers 43 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial and continuing blanks (ICB/CCBs) was based on the maximum contaminant concentration in the ICB/CCBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial and continuing blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium	0.952 ug/L	All samples in SDG 050813

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Samples ER-4, ER-17, ER-3, ER-18, ER-14, ER-22 and ER-20 were identified as equipment rinsates. No chromium contaminants were found in these blanks.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not required by the method.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-17-2 and MW-17-2D, samples MW-14-1 and MW-14-1D and samples MW-22-1 and MW-22-1D were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

		Concentra	Concentration (ug/L)		
	Analyte	MW-22-1	MW-22-1D	RPD	
-	Chromium	5.8	6.9	17	

JPL, 00HW019 Chromium - Data Qualification Summary - SDG 050813

No Sample Data Qualified in this SDG

JPL, 00HW019

Chromium - Laboratory Blank Data Qualification Summary - SDG 050813

No Sample Data Qualified in this SDG

JPL, 00HW019 Chromium - Field Blank Data Qualification Summary - SDG 050813

No Sample Data Qualified in this SDG

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LDC Report# 6548B4

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
Collection Date:	April 23 through April 30, 2001
LDC Report Date:	June 18, 2001
Matrix:	Water
Parameters:	Chromium
Validation Level:	EPA Level IV
Laboratory:	Advanced Technology Laboratories

Sample Delivery Group (SDG): 051017

Sample Identification

	N
MW-6	
MW-6-D	
MW-16	
MW-16-D	
MW-5	
MW-10	
MW-10-D	
ER-23DUP	
MW-8MS	
MW-8MSD	
MW-8DUP	
MW-5MS	
MW-5MSD	
MW-5DUP	
	MW-6 MW-16 MW-16-D MW-5 MW-10 MW-10-D ER-23DUP MW-8MS MW-8MSD MW-8DUP MW-5MS MW-5DUP

MW-13

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Introduction

This data review covers 34 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial and continuing blanks (ICB/CCBs) was based on the maximum contaminant concentration in the ICB/CCBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial and continuing blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium	0.363 ug/L	All samples in SDG 051017

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Samples ER-24, ER-23, ER-11 and ER-12 were identified as equipment rinsates. No chromium contaminants were found in these blanks.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not required by the method.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-6 and MW-6-D, samples MW-16 and MW-16-D, and samples MW-10 and MW-10-D were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

		Concentration (ug/L)			
-	Analyte	MW-6	MW-6-D	RPD	
-	Chromium	10	10	0	

4

	Concentra		
Analyte	MW-16	MW-16-D	RPD
Chromium	11	11	0

	Concentra		
Analyte	MW-10	MW-10-D	RPD
Chromium	13	11	17

No Sample Data Qualified in this SDG

JPL, 00HW019 Chromium - Laboratory Blank Data Qualification Summary - SDG 051017

No Sample Data Qualified in this SDG

JPL, 00HW019 Chromium - Field Blank Data Qualification Summary - SDG 051017

No Sample Data Qualified in this SDG

Wet Chemistry

LDC Report# 6463A6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW01	9
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Collection Date: April 30, 2001

LDC Report Date: May 31, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Sume's

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3296

Sample Identification

MW-5 MW-10 MW-16 MW-6-D MW-10-D MW-16-D MW-5MS MW-5MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

-

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-3296	Perchiorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-6 and MW-6-D, samples MW-10 and MW-10-D, and samples MW-16 and MW-16-D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

	Concentration (ug/L)		
Analyte	MW-10	MW-10-D	RPD
Perchiorate	36	39	8

	Concent		
Analyte	MW-16	MW-16-D	RPD
Perchlorate	1300	1300	0

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-3296

SDG	Sample	Analyte	Flag	A or P	Reason
01-3296	MW-5 MW-6 MW-10 MW-16 MW-6-D MW-10-D MW-16-D	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

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Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3296

No Sample Data Qualified in this SDG

JPL, 00HW019

Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3296

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 12, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3000

Sample Identification

ER-19 MW-19-1 MW-19-2 MW-19-3 MW-19-4 ER-19MS ER-19MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-3000	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-19 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

-

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-3000

SDG	Sample	Analyte	Flag	A or P	Reason
01-3000	ER-19 MW-19-1 MW-19-2 MW-19-3 MW-19-4	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3000

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3000

No Sample Data Qualified in this SDG

LDC Report# 6334B6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 13, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3025

Sample Identification

ER-18 MW-18-2 MW-18-3 MW-18-4 MW-18-5 ER-18MS ER-18MSD
This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-18 MW-18-2 MW-18-3 MW-18-4 MW-18-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-18 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-3025

SDG	Sample	Analyte	Flag	A or P	Reason
01-3025	ER-18 MW-18-2 MW-18-3 MW-18-4 MW-18-5	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

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Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3025

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3025

No Sample Data Qualified in this SDG

LDC Report# 6345A6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 4, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-2877

Sample Identification

ER-4 MW-4-1 MW-4-2 MW-4-3 MW-4-3 MW-4-5 MW-4-5MS MW-4-5MSD

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

2

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-4 MW-4-1 MW-4-2 MW-4-3	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-4 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-2877

SDG	Sample	Anaiyte	Flag	A or P	Reason
01-2877	ER-4 MW-4-1 MW-4-2 MW-4-3	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019 Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-2877

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-2877

No Sample Data Qualified in this SDG

LDC Report# 6345B6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site	Name:	JPL,	00HW019
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Collection Date: April 5, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-2883

Sample Identification

ER-17 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D MW-17-3MS MW-17-3MSD

1

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-17 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-17 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-17-2 and MW-17-2D were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-2883

SDG	Sample	Analyte	Flag	A or P	Reason
01-2883	ER-17 MW-17-2 MW-17-3 MW-17-4 MW-17-5 MW-17-2D	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-2883

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-2883

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 6, 2001

LDC Report Date: May 2, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-2898

Sample Identification

ER-3 MW-3-2 MW-3-3 MW-3-4 MW-3-5 ER-3MS ER-3MS ER-3MSD MW-3-4MS MW-3-4MSD

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

2

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-3 MW-3-2 MW-3-3 MW-3-4 MW-3-5 ER-3MS ER-3MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-3 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-2898

SDG	Sample	Analyte	Flag	A or P	Reason
01-2898	ER-3 MW-3-2 MW-3-3 MW-3-4 MW-3-5	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-2898

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-2898

No Sample Data Qualified in this SDG

LDC Report# 6379A6

Laboratory Data Consultants, Inc. Data Validation Report

Collection Date: April 18, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3059

Sample Identification

ER-14 MW-14-1 MW-14-2 MW-14-3 MW-14-3 MW-14-4 MW-14-5 MW-14-1D MW-14-2MS MW-14-2MSD

1

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

2

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-3059	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	₽

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-14 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-14-1 and MW-14-1D were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-3059

SDG	Sample	Analyte	Flag	A or P	Reason
01-3059 .	ER-14 MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5 MW-14-1D	Perchlorate	None	P	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3059

No Sample Data Qualified in this SDG

JPL, 00HW019

Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3059

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 18, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3086

Sample Identification

ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-1D MW-22-2MS MW-22-2MSD

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-3086	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-22 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-22-1 and MW-22-1D were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-3086

SDG	Sample	Analyte	Flag	A or P	Reason
01-3086	ER-22 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-1D	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3086

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3086

No Sample Data Qualified in this SDG

LDC Report# 6403A6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site	Name:	JPL,	00HW019
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Collection Date: April 24, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3176

Sample Identification

ER-23 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-4MS MW-23-4MSD

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-23 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-23 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019 Wet Chemistry - Data Qualification Summary - SDG 01-3176

SDG	Sample	Analyte	Flag	A or P	Reason
01-3176	ER-23 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5	Perchlorate	None	P	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3176

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3176

No Sample Data Qualified in this SDG

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5

LDC Report# 6403B6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
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Collection Date: April 20, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3129

Sample Identification

ER-21 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

1

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.
All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
Ali samples in SDG 01-3129	Perchiorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Р

b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-21 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

SDG	Sample	Analyte	Flag	A or P	Reason
01-3129	ER-21 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Perchlorate	None	Ρ	initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3129

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3129

No Sample Data Qualified in this SDG

LDC Report# 6403C6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 23, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3150

Sample Identification

ER-24 MW-24-1 MW-24-2 MW-24-3 MW-24-4 ER-24MS ER-24MSD MW-24-4MS MW-24-4MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

2

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-24 MW-24-1 MW-24-2 MW-24-3 MW-24-4 ER-24MS ER-24MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-24 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

SDG	Sample	Analyte	Flag	A or P	Reason
01-3150	ER-24 MW-24-1 MW-24-2 MW-24-3 MW-24-4	Perchiorate	None	Ρ	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3150

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3150

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, 00HW019
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Collection Date: April 19, 2001

LDC Report Date: May 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3111

Sample Identification

ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-5MS MW-20-5MSD

1

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-20 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

SDG	Sample	Analyte	Flag	A or P	Reason
01-3111	ER-20 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5	Perchiorate	None	P	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3111

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3111

No Sample Data Qualified in this SDG

5

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 25, 2001

LDC Report Date: May 25, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

4

Sample Delivery Group (SDG): 01-3206

Sample Identification

ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-3MS MW-11-3MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate; and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4	Perchiorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-11 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

2

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

SDG	Sample	Analyte	Fiag	A or P	Reason
01-3206	ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019 Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3206

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3206

No Sample Data Qualified in this SDG

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Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	JPL, OOHWO19
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Collection Date: April 26, 2001

LDC Report Date: May 25, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-3252

Sample Identification

ER-12 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-3MS MW-12-3MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-12 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-12 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

SDG	Sample	Analyte	Flag	A or P	Reason
01-3252	ER-12 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5	Perchlorate	None	Ρ	Initial calibration

JPL, 00HW019

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3252

No Sample Data Qualified in this SDG

JPL, 00HW019 Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3252

No Sample Data Qualified in this SDG

LDC Report# 6442C6

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: April 27, 2001

LDC Report Date: May 25, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory:

Applied P & Ch Laboratory

4

Sample Delivery Group (SDG): 01-3268

Sample Identification

MW-8 MW-13 MW-13MS MW-13MSD

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method E314 for Perchlorate, and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 3824) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore gualification was not required.

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

User

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Fiag	A or P
MW-8 MW-13	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	Ρ

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

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VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

SDG	Sample	Analyte	Flag	A or P	Reason
01-3268	MW-8 MW-13	Perchiorate	None	Ρ	Initial calibration

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Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-3268

No Sample Data Qualified in this SDG

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Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-3268

No Sample Data Qualified in this SDG