ANALYTICAL REPORT

November 19, 2015

HRL Compliance Solutions- CO

Sample Delivery Group:	L800677
Samples Received:	11/12/2015
Project Number:	HRL 15-308
Description:	Koch Exp. - WRD 29-33-Spill Conf.
Site:	WRD 29-33 INJECTION WELL
Report To:	Kris Rowe 2385 F ½ Road Grand Junction, CO 81505

Entire Report Reviewed By:

Jarred Willis
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TANK CONTAMINATION-EAST END 0-6IN L800677-01 Solid

Collected by: Kris Rowe
Collected date/time: 11/10/15 13:00
Received date/time: 11/12/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG828733	1	11/13/15 12:07	11/15/15 09:01	WBD
Calculated Results	WG829272	1	11/18/15 22:48	11/19/15 10:03	LTB
Mercury by Method 7471A	WG828698	1	11/13/15 12:03	11/13/15 18:15	TRB
Metals (ICP) by Method 6010B	WG829272	1	11/18/15 22:48	11/19/15 09:09	LTB
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG828722	1	11/13/15 16:03	11/15/15 07:43	KMP
Semi-Volatile Organic Compounds (GC) by Method 3546/DRO	WG828782	10	11/12/15 21:15	11/13/15 12:05	DMG
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG829590	5	11/17/15 10:38	11/17/15 16:04	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG828833	5	11/13/15 10:42	11/14/15 14:03	BMB
Wet Chemistry by Method 2580 B-2011	WG828965	1	11/14/15 10:41	11/14/15 11:48	AS
Wet Chemistry by Method 3060A/7196A	WG828614	1	11/13/15 09:28	11/14/15 15:13	CM
Wet Chemistry by Method 9045D	WG828788	1	11/13/15 12:25	11/13/15 12:25	AMC
Wet Chemistry by Method 9050AMod	WG829097	1	11/16/15 12:31	11/16/15 12:31	JER

BKGD 1 0-6IN L800677-02 Solid

Collected by: Kris Rowe
Collected date/time: 11/10/15 13:10
Received date/time: 11/12/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG828733	1	11/13/15 12:07	11/15/15 09:01	WBD
Metals (ICP) by Method 6010B	WG829272	1	11/18/15 22:48	11/19/15 09:18	LTB
Wet Chemistry by Method 9045D	WG828788	1	11/13/15 12:25	11/13/15 12:25	AMC
Wet Chemistry by Method 9050AMod	WG829097	1	11/16/15 12:31	11/16/15 12:31	JER

BKGD 2 0-6IN L800677-03 Solid

Collected by: Kris Rowe
Collected date/time: 11/10/15 13:15
Received date/time: 11/12/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG829272	1	11/18/15 22:48	11/19/15 09:21	LTB

BKGD 3 0-6IN L800677-04 Solid

Collected by: Kris Rowe
Collected date/time: 11/10/15 13:20
Received date/time: 11/12/15 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG829272	1	11/18/15 22:48	11/19/15 09:24	LTB

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jarred Willis
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	53.6		1	11/15/2015 09:01	WG828733

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	21.1		2.00	1	11/19/2015 10:03	WG829272

Wet Chemistry by Method 2580 B-2011

Analyte	Result mV	Qualifier	Dilution	Analysis date / time	Batch
ORP	106		1	11/14/2015 11:48	WG828965

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	11/14/2015 15:13	WG828614

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.42		1	11/13/2015 12:25	WG828788

Sample Narrative:

9045D L800677-01 WG828788: 9.42 at 24.1c

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	Dilution	Analysis date / time	Batch
Specific Conductance	2420		1	11/16/2015 12:31	WG829097

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	11/13/2015 18:15	WG828698

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.78		2.00	1	11/19/2015 09:09	WG829272
Barium	508		0.500	1	11/19/2015 09:09	WG829272
Cadmium	ND		0.500	1	11/19/2015 09:09	WG829272
Chromium	21.1		1.00	1	11/19/2015 09:09	WG829272
Copper	12.4		2.00	1	11/19/2015 09:09	WG829272
Lead	7.60		0.500	1	11/19/2015 09:09	WG829272
Nickel	28.2		2.00	1	11/19/2015 09:09	WG829272
Selenium	ND		2.00	1	11/19/2015 09:09	WG829272
Silver	ND		1.00	1	11/19/2015 09:09	WG829272
Zinc	41.9		5.00	1	11/19/2015 09:09	WG829272

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.500	5	11/17/2015 16:04	WG829590
(S) a,a,a-Trifluorotoluene(FID)	*98.9*		*59.0-128*		*11/17/2015 16:04*	WG829590

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00500	5	11/14/2015 14:03	WG828833
Toluene	ND		0.0250	5	11/14/2015 14:03	WG828833
Ethylbenzene	ND		0.00500	5	11/14/2015 14:03	WG828833
Total Xylenes	ND		0.0150	5	11/14/2015 14:03	WG828833
(S) Toluene-d8	*102*		*88.7-115*		*11/14/2015 14:03*	WG828833
(S) Dibromofluoromethane	*96.5*		*76.3-123*		*11/14/2015 14:03*	WG828833
(S) a,a,a-Trifluorotoluene	*105*		*87.2-117*		*11/14/2015 14:03*	WG828833
(S) 4-Bromofluorobenzene	*97.4*		*69.7-129*		*11/14/2015 14:03*	WG828833

Semi-Volatile Organic Compounds (GC) by Method 3546/DRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	327		40.0	10	11/13/2015 12:05	WG828782
(S) o-Terphenyl	*159*	J1	*50.0-150*		*11/13/2015 12:05*	WG828782

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	11/15/2015 07:43	WG828722
Acenaphthene	0.00839		0.00600	1	11/15/2015 07:43	WG828722
Acenaphthylene	ND		0.00600	1	11/15/2015 07:43	WG828722
Benzo(a)anthracene	ND		0.00600	1	11/15/2015 07:43	WG828722
Benzo(a)pyrene	ND		0.00600	1	11/15/2015 07:43	WG828722
Benzo(b)fluoranthene	ND		0.00600	1	11/15/2015 07:43	WG828722
Benzo(g,h,i)perylene	0.00715		0.00600	1	11/15/2015 07:43	WG828722
Benzo(k)fluoranthene	ND		0.00600	1	11/15/2015 07:43	WG828722
Chrysene	ND		0.00600	1	11/15/2015 07:43	WG828722
Dibenz(a,h)anthracene	ND		0.00600	1	11/15/2015 07:43	WG828722
Fluoranthene	ND		0.00600	1	11/15/2015 07:43	WG828722
Fluorene	0.00997		0.00600	1	11/15/2015 07:43	WG828722
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/15/2015 07:43	WG828722
Naphthalene	ND		0.0200	1	11/15/2015 07:43	WG828722
Phenanthrene	0.0116		0.00600	1	11/15/2015 07:43	WG828722
Pyrene	0.00600		0.00600	1	11/15/2015 07:43	WG828722
1-Methylnaphthalene	0.381		0.0200	1	11/15/2015 07:43	WG828722
2-Methylnaphthalene	0.324		0.0200	1	11/15/2015 07:43	WG828722
2-Chloronaphthalene	ND		0.0200	1	11/15/2015 07:43	WG828722
(S) p-Terphenyl-d14	*70.8*		*32.2-131*		*11/15/2015 07:43*	WG828722
(S) Nitrobenzene-d5	*88.1*		*22.1-146*		*11/15/2015 07:43*	WG828722
(S) 2-Fluorobiphenyl	*81.6*		*40.6-122*		*11/15/2015 07:43*	WG828722

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.147		1	11/15/2015 09:01	WG828733

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.13		1	11/13/2015 12:25	WG828788

Sample Narrative:

9045D L800677-02 WG828788: 8.13 at 23.9c

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	umhos/cm				
Specific Conductance	345		1	11/16/2015 12:31	WG829097

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	6.36		2.00	1	11/19/2015 09:18	WG829272

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	4.37		2.00	1	11/19/2015 09:21	WG829272

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	5.39		2.00	1	11/19/2015 09:24	WG829272

L800677-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/14/15 11:48 • (DUP) 11/14/15 11:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mV	mV		%		%
ORP	106	106	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/14/15 11:48 • (LCSD) 11/14/15 11:48

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mV	mV	mV	%	%	%			%	%
ORP	100	94	95	94.0	95.0	90.0-110			1.06	20

Method Blank (MB)

(MB) 11/14/15 15:05

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Chromium,Hexavalent	ND		2.00

L800481-05 Original Sample (OS) • Duplicate (DUP)

(OS) 11/14/15 15:12 • (DUP) 11/14/15 15:12

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/14/15 15:05 • (LCSD) 11/14/15 15:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	59.8	64.2	65.0	107	10800	80.0-120			1.24	20

L800481-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/14/15 15:12 • (MS) 11/14/15 15:12 • (MSD) 11/14/15 15:12

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	20.0	ND	7.24	7.24	36.2	1450	1	75.0-125	J6	J6	0.000	20

L800481-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/13/15 12:25 • (DUP) 11/13/15 12:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.51	7.51	1	0.000		1

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/13/15 12:25 • (LCSD) 11/13/15 12:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	6.72	6.72	6.72	100	100	98.5-102			0.000	1

Method Blank (MB)

(MB) 11/16/15 12:31

Analyte	MB Result	MB Qualifier	MB RDL
	umhos/cm		umhos/cm
Specific Conductance	1.18		

L800481-01 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 12:31 • (DUP) 11/16/15 12:31

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	932	930	1	0.215		20

L801058-03 Original Sample (OS) • Duplicate (DUP)

(OS) 11/16/15 12:31 • (DUP) 11/16/15 12:31

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	167	169	1	1.19		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/16/15 12:31 • (LCSD) 11/16/15 12:31

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	915	947	948	103	104	90.0-110			0.106	20

Method Blank (MB)

(MB) 11/13/15 17:06

Analyte	MB Result	MB Qualifier	MB RDL
	mg/kg		mg/kg
Mercury	ND		0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/13/15 20:16 • (LCSD) 11/13/15 20:19

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Mercury	0.300	0.269	0.256	90	85	80-120			5	20

L800538-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/13/15 17:13 • (MS) 11/13/15 17:16 • (MSD) 11/13/15 17:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Mercury	0.300	0.291	0.569	0.569	93	93	1	75-125			0	20

Method Blank (MB)

(MB) 11/19/15 08:11

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Arsenic	ND		2.00
Barium	ND		0.500
Cadmium	ND		0.500
Chromium	ND		1.00
Copper	ND		2.00
Lead	ND		0.500
Nickel	ND		2.00
Selenium	ND		2.00
Silver	ND		1.00
Zinc	ND		5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/19/15 08:22 • (LCSD) 11/19/15 08:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	99.2	102	99	102	80-120			3	20
Barium	100	101	103	101	103	80-120			3	20
Cadmium	100	98.2	101	98	101	80-120			3	20
Chromium	100	93.8	96.6	94	97	80-120			3	20
Copper	100	99.0	102	99	102	80-120			3	20
Lead	100	99.1	102	99	102	80-120			3	20
Nickel	100	98.6	101	99	101	80-120			3	20
Selenium	100	103	107	103	107	80-120			3	20
Silver	100	96.0	99.4	96	99	80-120			3	20
Zinc	100	97.9	100	98	100	80-120			3	20

L800673-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/19/15 08:28 • (MS) 11/19/15 08:43 • (MSD) 11/19/15 08:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.04	97.6	93.9	96	92	1	75-125			4	20
Barium	100	44.1	139	135	95	91	1	75-125			3	20
Cadmium	100	0.0499	96.9	93.0	97	93	1	75-125			4	20

L800673-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/19/15 08:28 • (MS) 11/19/15 08:43 • (MSD) 11/19/15 08:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium	100	13.4	103	98.2	89	85	1	75-125			4	20
Copper	100	7.44	103	99.9	96	92	1	75-125			4	20
Lead	100	14.7	115	112	101	97	1	75-125			3	20
Nickel	100	14.1	116	111	102	97	1	75-125			4	20
Selenium	100	0.763	100	96.3	99	96	1	75-125			4	20
Silver	100	ND	95.0	91.7	95	92	1	75-125			4	20
Zinc	100	26.2	116	115	89	88	1	75-125			1	20

Method Blank (MB)

(MB) 11/17/15 12:46

Analyte	MB Result	MB Qualifier	MB RDL
	mg/kg		mg/kg
TPH (GC/FID) Low Fraction	ND		0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.9*		*59.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/17/15 11:41 • (LCSD) 11/17/15 12:02

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) Low Fraction	5.50	5.35	5.60	97.3	102	63.5-137			4.57	20
(S) a,a,a-Trifluorotoluene(FID)				*104*	*103*	*59.0-128*				

L800481-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/17/15 14:00 • (MS) 11/17/15 16:25 • (MSD) 11/17/15 16:47

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
TPH (GC/FID) Low Fraction	5.50	0.0949	21.5	20.5	77.8	74.1	5	28.5-138			4.87	23.6
(S) a,a,a-Trifluorotoluene(FID)					*99.9*	*102*		*59.0-128*				

Method Blank (MB)

(MB) 11/14/15 05:41

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Benzene	ND		0.00100
Ethylbenzene	ND		0.00100
Toluene	ND		0.00500
Xylenes, Total	ND		0.00300
(S) Toluene-d8	*107*		*88.7-115*
(S) Dibromofluoromethane	*105*		*76.3-123*
(S) a,a,a-Trifluorotoluene	*103*		*87.2-117*
(S) 4-Bromofluorobenzene	*103*		*69.7-129*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/14/15 03:57 • (LCSD) 11/14/15 04:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0263	0.0267	105	107	72.6-120			1.58	20
Ethylbenzene	0.0250	0.0264	0.0273	106	109	78.6-124			3.06	20
Toluene	0.0250	0.0257	0.0257	103	103	76.7-116			0.250	20
Xylenes, Total	0.0750	0.0759	0.0808	101	108	78.1-123			6.27	20
(S) Toluene-d8				*104*	*102*	*88.7-115*				
(S) Dibromofluoromethane				*104*	*106*	*76.3-123*				
(S) a,a,a-Trifluorotoluene				*101*	*98.2*	*87.2-117*				
(S) 4-Bromofluorobenzene				*99.6*	*103*	*69.7-129*				

L800655-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) 11/14/15 06:50 • (MS) 11/14/15 05:58 • (MSD) 11/14/15 06:15

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	ND	0.137	0.0994	110	79.5	5	47.8-131		J3	32.1	22.8
Ethylbenzene	0.0250	ND	0.126	0.0897	101	71.8	5	44.8-135		J3	33.9	26.9
Toluene	0.0250	ND	0.127	0.0914	101	73.1	5	47.8-127		J3	32.3	24.3
Xylenes, Total	0.0750	ND	0.364	0.256	97.0	68.3	5	42.7-135		J3	34.8	26.6
(S) Toluene-d8					*104*	*104*		*88.7-115*				
(S) Dibromofluoromethane					*105*	*106*		*76.3-123*				
(S) a,a,a-Trifluorotoluene					*99.8*	*101*		*87.2-117*				
(S) 4-Bromofluorobenzene					*98.5*	*102*		*69.7-129*				

Method Blank (MB)

(MB) 11/13/15 09:58

Analyte	MB Result	MB Qualifier	MB RDL
	mg/kg		mg/kg
TPH (GC/FID) High Fraction	ND		4.00
(S) o-Terphenyl	*82.6*		*50.0-150*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/13/15 10:13 • (LCSD) 11/13/15 10:24

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPH (GC/FID) High Fraction	60.0	46.0	46.5	76.7	77.4	50.0-150			0.960	20
(S) o-Terphenyl				*84.8*	*84.7*	*50.0-150*				

Method Blank (MB)

(MB) 11/15/15 01:25

Analyte	MB Result mg/kg	MB Qualifier	MB RDL mg/kg
Anthracene	ND		0.00600
Acenaphthene	ND		0.00600
Acenaphthylene	ND		0.00600
Benzo(a)anthracene	ND		0.00600
Benzo(a)pyrene	ND		0.00600
Benzo(b)fluoranthene	ND		0.00600
Benzo(g,h,i)perylene	ND		0.00600
Benzo(k)fluoranthene	ND		0.00600
Chrysene	ND		0.00600
Dibenz(a,h)anthracene	ND		0.00600
Fluoranthene	ND		0.00600
Fluorene	ND		0.00600
Indeno(1,2,3-cd)pyrene	ND		0.00600
Naphthalene	ND		0.0200
Phenanthrene	ND		0.00600
Pyrene	ND		0.00600
1-Methylnaphthalene	ND		0.0200
2-Methylnaphthalene	ND		0.0200
2-Chloronaphthalene	ND		0.0200
(S) p-Terphenyl-d14	*67.4*		*32.2-131*
(S) Nitrobenzene-d5	*76.4*		*22.1-146*
(S) 2-Fluorobiphenyl	*74.7*		*40.6-122*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/15/15 00:43 • (LCSD) 11/15/15 01:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0525	0.0575	65.7	71.9	50.3-130			9.04	20
Acenaphthene	0.0800	0.0608	0.0677	76.0	84.6	52.4-120			10.7	20
Acenaphthylene	0.0800	0.0611	0.0680	76.4	85.0	49.6-120			10.7	20
Benzo(a)anthracene	0.0800	0.0597	0.0670	74.6	83.7	46.7-125			11.5	20
Benzo(a)pyrene	0.0800	0.0528	0.0583	66.0	72.9	42.3-119			9.85	20
Benzo(b)fluoranthene	0.0800	0.0585	0.0653	73.1	81.7	43.6-124			11.1	20
Benzo(g,h,i)perylene	0.0800	0.0530	0.0584	66.2	72.9	45.1-132			9.64	20
Benzo(k)fluoranthene	0.0800	0.0605	0.0666	75.7	83.3	46.1-131			9.58	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) 11/15/15 00:43 • (LCSD) 11/15/15 01:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chrysene	0.0800	0.0587	0.0655	73.3	81.9	49.5-131			11.0	20
Dibenz(a,h)anthracene	0.0800	0.0534	0.0585	66.8	73.1	44.8-133			9.02	20
Fluoranthene	0.0800	0.0578	0.0639	72.2	79.8	49.3-128			9.99	20
Fluorene	0.0800	0.0605	0.0660	75.6	82.5	50.6-121			8.81	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0531	0.0589	66.4	73.6	46.1-135			10.2	20
Naphthalene	0.0800	0.0537	0.0579	67.1	72.4	49.6-115			7.66	20
Phenanthrene	0.0800	0.0529	0.0571	66.1	71.3	48.8-121			7.59	20
Pyrene	0.0800	0.0586	0.0648	73.2	81.0	44.7-130			10.1	20
1-Methylnaphthalene	0.0800	0.0578	0.0638	72.2	79.8	50.6-122			9.96	20
2-Methylnaphthalene	0.0800	0.0578	0.0635	72.2	79.4	50.4-120			9.50	20
2-Chloronaphthalene	0.0800	0.0575	0.0641	71.9	80.1	53.9-121			10.9	20
(S) p-Terphenyl-d14				*63.7*	*68.7*	*32.2-131*				
(S) Nitrobenzene-d5				*81.1*	*86.2*	*22.1-146*				
(S) 2-Fluorobiphenyl				*74.9*	*81.5*	*40.6-122*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND,U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.
SDL	Sample Detection Limit.
MQL	Method Quantitation Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

ACCREDITATIONS & LOCATIONS

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

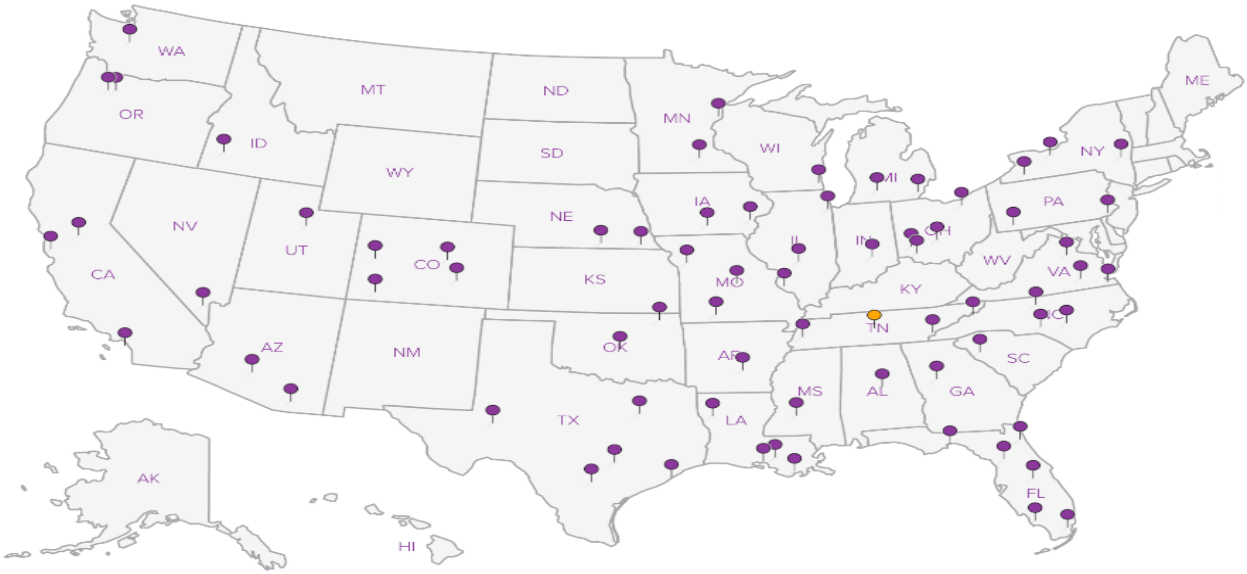
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address:
HRL Compliance Solutions
2385 F ½ Road
Grand Junction, CO 81505

Billing Information:
HRL Compliance Solutions
2385 F ½ Road
Grand Junction, CO 81505
Quote #: HRLCSCO- 042015S

Report to: Kris Rowe
Email To: krowe@HRLcomp.com

Project Description: Koch Exp. - WRD 29-33 - Spill Conf.
City/State Collected: Rio Blanco County

Phone: 970-243-3271
Fax:
Client Project # HRL 15-308
Lab Project #
Collected by (print): Kris Rowed
Site/Facility ID # WRD 29-33 Injection well
P.O. #
Collected by (signature):
Immediately Packed on Ice N ___ Y ✓
Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%
Date Results Needed 11/18/15
Email? ___No ✓Yes
FAX? ✓No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	GRO / DRO	PAH	910-1 Metals	910-1 Metals Cont	EC / SAR	Arsenic	Rem./Contaminant	Sample # (lab only)
Tank Containment - East End	Grab	S	0-6"	11/10/15	1300	2	X	X	X	X	X	X			-01
BKGD 1					1310	1						X	X		-02
BKGD 2					1315	1							X		-03
BKGD 3					1320	1							X		-04

Analysis / Container / Preservative
V8260BTEX
GRO / DRO
SV8270PAHSIM
MRCRA8 + Cu, Ni, Zn
CR6SS (includes pH) / CR3
SPCON / SAR
EC / SAR / pH

Chain of Custody Page ___ of ___
ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L800677
J210
Acctnum: HRLCSCO
Template: T97067
Prelogin:
TSR: Jarred Willis
Cooler:
Shipped Via:

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

6436 7436 0311

Hold #
Condition: (lab use only) OK
COC Seal Intact: ___Y ___N ___NA
pH Checked: NCF:

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11/11/15	1515	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11.11.15	1730	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 3.2 °C Bottles Received: 5
Date: 11-12-15 Time: 9w