Client Sample Results

Client: Cedar Rapids Water
Project/Site: Beneficial Use

TestAmerica Job ID: 310-132299-3

Client Sample ID: NW Plant

Date Collected: 06/11/18 09:45
Date Received: 06/12/18 15:20

Lab Sample ID: 310-132299-3

Matrix: Sludge

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0140		0.100	0.0140	mg/L			06/14/18 19:58	20
2-Butanone (MEK)	<1.50		5.00	1.50	mg/L			06/14/18 19:58	20
Carbon tetrachloride	<0.0130		0.100	0.0130	mg/L			06/14/18 19:58	20
Chlorobenzene	<0.0120		0.100	0.0120	mg/L			06/14/18 19:58	20
Chloroform	<0.0360		0.100	0.0360	mg/L			06/14/18 19:58	20
1,2-Dichloroethane	<0.0100		0.100	0.0100	mg/L			06/14/18 19:58	20
1,1-Dichloroethene	<0.0110		0.100	0.0110	mg/L			06/14/18 19:58	20
Tetrachloroethene	<0.0870		0.200	0.0870	mg/L			06/14/18 19:58	20
Trichloroethene	<0.0820		0.200	0.0820	mg/L			06/14/18 19:58	20
Vinyl chloride	<0.0190		0.100	0.0190	mg/L			06/14/18 19:58	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/14/18 19:58*	*20*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*06/14/18 19:58*	*20*
Toluene-d8 (Surr)	*101*		*80 - 120*		*06/14/18 19:58*	*20*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	<0.00490		0.0500	0.00490	mg/L		06/15/18 13:08	06/18/18 12:16	1
2,4-Dinitrotoluene	<0.00430		0.0500	0.00430	mg/L		06/15/18 13:08	06/18/18 12:16	1
2,4,5-Trichlorophenol	<0.00310		0.0500	0.00310	mg/L		06/15/18 13:08	06/18/18 12:16	1
2,4,6-Trichlorophenol	<0.00270		0.0500	0.00270	mg/L		06/15/18 13:08	06/18/18 12:16	1
2-Methylphenol	<0.00760		0.0500	0.00760	mg/L		06/15/18 13:08	06/18/18 12:16	1
4-Methylphenol (and/or 3-Methylphenol)	<0.00170		0.0500	0.00170	mg/L		06/15/18 13:08	06/18/18 12:16	1
Hexachlorobenzene	<0.00190		0.0500	0.00190	mg/L		06/15/18 13:08	06/18/18 12:16	1
Hexachlorobutadiene	<0.00250		0.0500	0.00250	mg/L		06/15/18 13:08	06/18/18 12:16	1
Hexachloroethane	<0.00360		0.0500	0.00360	mg/L		06/15/18 13:08	06/18/18 12:16	1
Nitrobenzene	<0.00240		0.0500	0.00240	mg/L		06/15/18 13:08	06/18/18 12:16	1
Pyridine	<0.00410	F2 *	0.0500	0.00410	mg/L		06/15/18 13:08	06/18/18 12:16	1
Pentachlorophenol	<0.0210		0.0500	0.0210	mg/L		06/15/18 13:08	06/18/18 12:16	1
Total Cresols	<0.00760		0.0500	0.00760	mg/L		06/15/18 13:08	06/18/18 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*49*		*14 - 110*	*06/15/18 13:08*	*06/18/18 12:16*	*1*
Phenol-d6 (Surr)	*42*		*10 - 110*	*06/15/18 13:08*	*06/18/18 12:16*	*1*
Nitrobenzene-d5 (Surr)	*63*		*30 - 110*	*06/15/18 13:08*	*06/18/18 12:16*	*1*
2-Fluorobiphenyl (Surr)	*55*		*28 - 110*	*06/15/18 13:08*	*06/18/18 12:16*	*1*
2,4,6-Tribromophenol (Surr)	*61*		*35 - 110*	*06/15/18 13:08*	*06/18/18 12:16*	*1*
Terphenyl-d14 (Surr)	*51*		*39 - 117*	*06/15/18 13:08*	*06/18/18 12:16*	*1*

Method: 9056A - Anions, Ion Chromatography - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.100		0.100		mg/L			06/29/18 13:52	1

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.900		0.900		mg/L		06/18/18 07:39	06/19/18 16:04	3
Barium	<1.50		1.50		mg/L		06/18/18 07:39	06/19/18 16:04	3
Cadmium	<0.0600		0.0600		mg/L		06/18/18 07:39	06/19/18 16:04	3
Chromium	<0.0600		0.0600		mg/L		06/18/18 07:39	06/19/18 16:04	3

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Lab Sample ID: 310-132299-3

Matrix: Sludge

Method: 6010C - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.300		0.300		mg/L		06/18/18 07:39	06/19/18 16:04	3
Selenium	<0.300		0.300		mg/L		06/18/18 07:39	06/19/18 16:04	3
Silver	<0.0600		0.0600		mg/L		06/18/18 07:39	06/20/18 16:28	3

Method: 6010C - Metals (ICP) - SPLP West

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.100		0.100		mg/L		06/18/18 07:42	06/18/18 17:09	1
Beryllium	<0.0100		0.0100		mg/L		06/18/18 07:42	06/18/18 17:09	1
Cadmium	<0.0200		0.0200		mg/L		06/18/18 07:42	06/18/18 17:09	1
Chromium	<0.0200		0.0200		mg/L		06/18/18 07:42	06/18/18 17:09	1
Copper	<0.100		0.100		mg/L		06/18/18 07:42	06/18/18 17:09	1
Lead	<0.100		0.100		mg/L		06/18/18 07:42	06/18/18 17:09	1
Selenium	<0.100		0.100		mg/L		06/18/18 07:42	06/18/18 17:09	1

Method: 7010 - Metals (GFAA) - SPLP West

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00600		0.00600		mg/L		06/18/18 07:44	06/21/18 13:41	1
Arsenic	<0.00100		0.00100		mg/L		06/18/18 07:44	06/20/18 15:55	1
Thallium	<0.00200		0.00200		mg/L		06/18/18 07:44	06/21/18 11:34	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00200		0.00200		mg/L		06/19/18 09:24	06/20/18 11:15	1

Method: 7470A - Mercury (CVAA) - SPLP West

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00200		0.00200		mg/L		06/19/18 09:27	06/20/18 10:51	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**30.8**		0.1	0.1	%			06/13/18 08:39	1
Percent Solids	**69.2**		0.1	0.1	%			06/13/18 08:39	1

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Client Sample ID: NW Plant

Date Collected: 06/11/18 09:45
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Lab Sample ID: 310-132299-3

Matrix: Sludge
Percent Solids: 69.2

Method: 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<13.2		13.2		mg/Kg	☼		07/02/18 12:33	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<7.33		43.7	7.33	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Barium	**187**		8.73	4.19	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Boron	<21.0		87.3	21.0	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Cadmium	<2.79		8.73	2.79	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Chromium	<3.93		8.73	3.93	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Cobalt	<2.01		8.73	2.01	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Copper	<6.29		8.73	6.29	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Lead	<27.1		43.7	27.1	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Lithium	<4.45		21.8	4.45	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Manganese	**163**		21.8	10.5	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Molybdenum	<5.06		21.8	5.06	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Nickel	<6.72		21.8	6.72	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Selenium	<22.7		65.5	22.7	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Silver	<2.27		8.73	2.27	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Vanadium	**2.69**	**J**	21.8	2.44	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10
Zinc	<21.8		43.7	21.8	mg/Kg	☼	06/15/18 14:59	06/18/18 15:08	10

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.790**		0.634	0.381	mg/Kg	☼	06/19/18 10:00	06/20/18 11:58	12
Beryllium	<0.0296		0.264	0.0296	mg/Kg	☼	06/19/18 10:00	06/25/18 10:18	4
Thallium	<0.0973		1.06	0.0973	mg/Kg	☼	06/19/18 10:00	06/21/18 10:41	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0107		0.0240	0.0107	mg/Kg	☼	06/18/18 10:00	06/18/18 16:16	1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)