TETRA TECH

TECHNICAL MEMORANDUM

To:	**Steve Clough, Nevada Environmental Response Trust**
Cc:	Dan Pastor
From:	Kyle Hansen and Jennifer Abrahams
Date:	May 30, 2019
Subject:	Olin Chlorine Gas Pipeline Removal Observations and Sampling Summary

At the direction of the Nevada Environmental Response Trust (NERT or Trust), this Technical Memorandum summarizes Tetra Tech, Inc.'s (Tetra Tech's) observations and the analytical results for the Olin Chlorine Gas Pipeline Removal Project from Units 1 and 2 at the NERT site in Henderson, Nevada.

OBSERVATIONS AND SAMPLING SUMMARY

Tetra Tech observed the removal of Olin's former chlorine gas pipeline, which consisted of approximately 800 lineal feet of 12-inch diameter steel pipe. The pipeline was suspended on the south side of the unit buildings from the west end of Unit 1 to the east end of Unit 2. Selected photographs of the pipeline removal project are presented in Attachment 1. The remaining sections of the chlorine line are located within the leasehold.

Olin's contractor mobilized to the site on December 18, 2018 and built three separate staging locations on the north side of the Unit Buildings 1 and 2, each with double-lined plastic sheeting containment that included (and covered) a raised perimeter constructed of 4 x 4 planks. The lined containment areas included two 64 x 16 foot areas and one 32 x 16 foot area. The contractor cut the former chlorine gas pipeline into lengths that ranged from 10 to 60-feet, capped the ends of the cut pipe, transported the cut pipe over the Unit buildings with a high-lift crane, and placed the pipe in the staging locations. The portion of the pipeline attached to Unit Buildings 1 and 2 was removed from the Unit buildings by December 20, 2018 and staged within one of the three containment areas on the north side of the Unit buildings. The remaining 30 feet of pipeline between Unit Buildings 2 and 3 was removed on January 30, 2019 and placed in the staging area. The entire section of pipe removed was consistent with the pipeline specified in Olin's agreement with the Trust. The staged pipes were cut into lengths that ranged from 10- to 15-feet. The pipe interiors were noted to contain sediment-like solids that adhered to the pipe walls. Tetra Tech developed a sampling protocol to assess whether the sediment exceeded applicable hazardous waste criteria. Tetra Tech inspected each pipe length and identified pipes with the greatest amount of solids inside the pipes for initial sampling and testing (see Photographs 2 and 4 in Attachment 1). The ends of the cut pipe lengths were capped with a protective fabric and plastic sheeting to ensure containment of the material in the pipes.

The demolition contractor built a metal trough to contain sediment removed from the pipe lengths during mechanical decontamination processing. The most visually encrusted pipe sections were selected to evaluate the success of the mechanical processing to remove encrustation from within the pipes. To demonstrate that the

Tetra Tech, Inc.
150 S. 4th Street, Unit A, Henderson, NV 89015
Tel 702-854-2295 tetratech.com

mechanical processing would effectively decontaminate each pipe segment, an initial trial was completed and a subsequent sample was collected to document the condition of the interior of the pipe. The mechanical decontamination process involved crushing and hammering the pipe until only a fine dust was observed to remain on the interior of the 10-foot length trial pipe (see Photographs 1 and 3 in Attachment 1). A visual inspection of the mechanically processed pipe documented that the interior pipe walls no longer contained sediment. Tetra Tech attempted to collect a sample from the residual solid material within the pipe for laboratory analysis; however, there was an insufficient volume of solid material present (less than the amount that would fill a 4-ounce jar). The solid material that was removed from the pipe segments during the mechanical decontamination process was collected and placed in a 55-gallon drum labeled "Pending Analysis". The drum of solid material was stored within the secondary containment area; the accumulation of this material began on December 26, 2018.

Since a solid sample could not be obtained of residual material adhering to the inside of the pipe and given the success of the mechanical decontamination process on the trial pipe segment, Tetra Tech collected a rinsate sample from this trial pipe length by pouring approximately two-liters of distilled water through the pipe and collecting the water at the opposite end of the pipe. The rinsate sample was analyzed for TCLP metals and TCLP volatile organic compounds (VOCs). Table 1, included in Attachment 2, presents a summary of the analytical results for the rinsate sample CL-01-20181221. The analytical detections of the rinsate sample were well below the applicable hazardous waste criteria as specified in 40 CFR Part 261.24. As such, the Trust directed Tetra Tech to collect an additional seven rinsate samples randomly from seven additional pipe segments following mechanical decontamination process. NERT determined that a total of eight rinsate samples would be sufficient to demonstrate that the sediment was successfully removed and the pipe could be disposed as a non-hazardous waste or recycled.

Tetra Tech selected seven additional lengths of cut pipe with significant interior encrustations; these pipes were subjected to mechanical processing on January 25, 2019 to remove the interior encrustation. Tetra Tech collected rinsate samples from each of these pipes for TCLP analysis of metals and VOCs since the mechanical decontamination process had once again removed the majority of encrustation from within each pipe segment. The analytical results for the seven rinsate samples were well below the applicable hazardous waste criteria, as summarized in Table 1 in Attachment 2. The laboratory analytical reports for the rinsate samples are included in Attachment 3. The solid material removed from the pipes was collected, placed in the drum labeled "Pending Analysis", and stored within the secondary containment area. The Trust and Olin concurred that additional analyses were not required to support non-hazardous disposal or recycling of the pipes, as long as the mechanical processing of the remaining pipes was consistent with the established cleaning method.

The remaining pipes were mechanically processed during the week of February 11, 2019, inspected by Tetra Tech, transported to Olin's facility via a dump truck, and added to Olin's stockpile for metal recycling. The solid material removed from the pipes during the mechanical processing was collected and containerized in 55-gallon drums labeled "Pending Analysis". Tetra Tech collected an 8-point composite sample of the solids removed from the pipes (contained in three drums, two of which were full while the third drum was slightly more than one-half full) on February 13, 2019 following concurrence with the Trust. The solid material was granular and yellowish-brown, like a course to fine sand (see Photographs 2 and 4, Attachment 1). This solid sample was analyzed for:

- TCLP metals
- TCLP VOCs
- Cyanide
- Sulfide
- Ignitability
- pH

The analytical detections of the solid sample were below the applicable hazardous waste criteria, as summarized in Table 1, Attachment 2. The laboratory analytical report for the solid sample is included in Attachment 3.

The three drums of solid material removed from the cut pipe lengths and stored in the secondary containment areas were removed by Olin on March 26, 2019. Olin transported the drums to the secondary containment structure at its facility; the drummed materials were transported off-site for disposal by Olin. A copy of the manifest is provided in Attachment 4. Tetra Tech performed a site walk through the areas used during the pipeline removal, storage, and mechanical processing and confirmed there were no visual indications of impacts and all equipment and materials used during the removal, storage and processing, including but not limited to the lined storage areas, were properly removed from the Site.

CERTIFICATION

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared in a manner consistent with the current standards of the profession, and to the best of my knowledge, comply with all applicable federal, state, and local statutes, regulations, and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

Description of Services Provided: Prepared the Olin Chlorine Gas Pipeline Removal Observations and Sampling Summary Technical Memorandum.

May 30, 2019

Kyle Hansen, CEM
Field Operations Manager/Geologist
Tetra Tech, Inc.

Date

Nevada CEM Certificate Number: 2167
Nevada CEM Expiration Date: September 18, 2020

Attachment 1
Photographs

Photographic Documentation
Nevada Environmental Response Trust
Olin Chlorine Line Removal Observations
Project No. 117-7502018-A02H

Photo: 1 **Description:** Interior of cut section of chlorine pipeline after mechanical processing to remove sediment. **Date:** 1-25-2019 **Orientation:** Looking into cut section of pipeline after mechanical processing.	

Photo: 2 **Description:** Typical chlorine line sediments in cut pipe section prior to mechanical processing to remove sediment. **Date:** 1-25-2019 **Orientation:** Looking into a cut end of the former pipeline prior to capping.	

Photographic Documentation
Nevada Environmental Response Trust
Olin Chlorine Line Removal Observations
Project No. 117-7502018-A02H

Photo: 3 **Description:** Interior of cut section of chlorine pipeline after mechanical processing to remove sediment. **Date:** 1-25-2019 **Orientation:** Looking into cut section of pipeline after mechanical processing.	

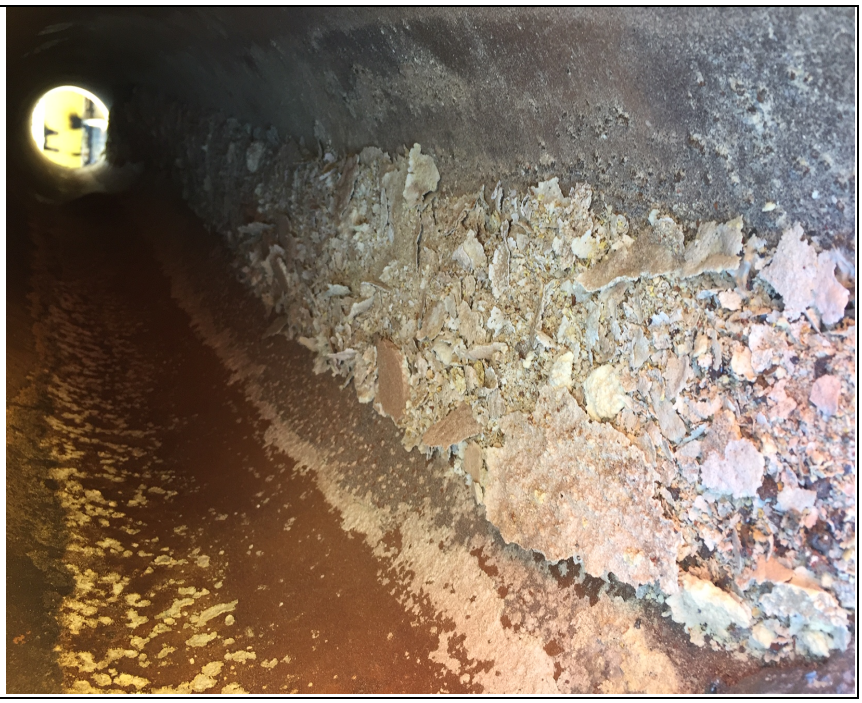
Photo: 4 **Description:** Typical chlorine line sediments in cut section of chlorine pipeline prior to mechanical processing to remove sediment. **Date:** 1-25-2019 **Orientation:** Looking into a cut end of the former pipeline prior to capping.	

Photo: 5 **Description:** Former chlorine line pipe, cut, capped and staged in a secondary containment area. **Date:** 12-20-2018 **Orientation:** Looking west, north of Unit 1.	

Photo: 6 **Description:** Mechanical shears crush and vibrate pipe to remove sediment. **Date:** 1-25-2019 **Orientation:** Looking east, north of Units 1 and 2.	

Attachment 2
Analytical Summary

Table 1. Olin Chlorine Line Analytical Summary

Sample Type			Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Rinsate	Solid Sample
TCLP VOCs	**Unit**	**Hazardous Waste Criteria**	**CL-01-20181221**	**CL-02-20190125**	**CL-03-20190125**	**CL-04-20190125**	**CL-05-20190125**	**CL-06-20190125**	**CL-07-20190125**	**CL-08-20190125**	**CL-DrumComp 20190213**
Benzene	mg/L	0.5	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Carbon tetrachloride	mg/L	0.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**0.0067 J**
Chloroform	mg/L	6	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	**0.010 J**
1,1-dichlorethene	mg/L	0.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-dichlorethane	mg/L	0.5	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
2-Butanone (MEK)	mg/L	200	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethene (PCE)	mg/L	0.7	**0.031**	<0.020	**0.0087 J**	<0.020	<0.020	<0.020	<0.020	<0.020	**0.17**
Trichloroethene (TCE)	mg/L	0.5	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Vinyl chloride	mg/L	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
chlorobenzene	mg/L	100	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,4-dichlorobenzene	mg/L	7.5	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Hexachlorobutadiene	mg/L	0.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
TCLP Metals	**Unit**	**Hazardous Waste Criteria**	**CL-01-20181221**	**CL-02-20190125**	**CL-03-20190125**	**CL-04-20190125**	**CL-05-20190125**	**CL-06-20190125**	**CL-07-20190125**	**CL-08-20190125**	**CL-DrumComp 20190213**
Arsenic	mg/L	5	<0.2	**0.070 J**	**0.23**	**0.13 J**	<0.2	**0.084 J**	<0.2	**0.61**	<0.20
Barium	mg/L	100	<0.2	<0.2	<0.2	**0.094 J**	**0.071 J**	**0.068 J**	**0.078 J**	**0.069 J**	**0.067 J**
Cadmium	mg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.076 J**
Chromium	mg/L	5	**0.66**	**0.79 B**	**0.63 B**	**0.64 B**	**0.70 B**	**0.32 B**	**0.49 B**	**1.1 B**	**3.2 B**
Lead	mg/L	5	<0.1	**0.062 J**	**0.085 J**	**0.093 J**	**0.093 J**	**0.091 J**	**0.045 J**	**0.12**	**0.57**
Selenium	mg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.11**
Silver	mg/L	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury	mg/L	0.2	**0.0058**	**0.0027**	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	**0.0046**
		liquid <2 or >12.5	B-Compound was found in the blank and sample			J-Results less than the RL but greater than the MDL			Red = Detection	pH	**<1**
										Ignitability	Not
	mg/kg	250								Cyanide	<0.61
	mg/kg	500								Sulfide	<49

Attachment 3
Data Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-228735-1
Client Project/Site: NERT A02H Chlorine Line Removal

For:
Tetra Tech, Inc.
1100 South McCaslin Boulevard
Suite 150
Superior, Colorado 80027

Attn: Bounkheana Chhun

Authorized for release by:
1/7/2019 4:05:47 PM
Dennis Tran, Project Manager I
dennis.tran@testamericainc.com

Designee for

Patty Mata, Senior Project Manager
(949)261-1022
patty.mata@testamericainc.com

Table of Contents

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal

TestAmerica Job ID: 440-228735-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-228735-1	CL-01-20181221	Water	12/21/18 14:40	12/27/18 10:00

Job ID: 440-228735-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-228735-1

Comments
No additional comments.

Receipt
The sample was received on 12/27/2018 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

GC/MS VOA
Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 440-520823 recovered above the upper control limit for 1,1-Dichloroethene, Vinyl chloride and Carbon tetrachloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: CL-01-20181221

Date Collected: 12/21/18 14:40
Date Received: 12/27/18 10:00

Lab Sample ID: 440-228735-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			01/04/19 20:58	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			01/04/19 20:58	1
Chloroform	ND		0.020	0.0033	mg/L			01/04/19 20:58	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			01/04/19 20:58	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			01/04/19 20:58	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			01/04/19 20:58	1
Tetrachloroethene	**0.031**		0.020	0.0032	mg/L			01/04/19 20:58	1
Trichloroethene	ND		0.020	0.0026	mg/L			01/04/19 20:58	1
Vinyl chloride	ND		0.050	0.0040	mg/L			01/04/19 20:58	1
Chlorobenzene	ND		0.020	0.0036	mg/L			01/04/19 20:58	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			01/04/19 20:58	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			01/04/19 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 128*		*01/04/19 20:58*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*01/04/19 20:58*	*1*
Dibromofluoromethane (Surr)	*113*		*76 - 132*		*01/04/19 20:58*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		01/07/19 00:15	01/07/19 10:27	1
Barium	ND		0.20	0.060	mg/L		01/07/19 00:15	01/07/19 10:27	1
Cadmium	ND		0.10	0.020	mg/L		01/07/19 00:15	01/07/19 10:27	1
Chromium	**0.66**		0.10	0.020	mg/L		01/07/19 00:15	01/07/19 10:27	1
Lead	ND		0.10	0.040	mg/L		01/07/19 00:15	01/07/19 10:27	1
Selenium	ND		0.10	0.080	mg/L		01/07/19 00:15	01/07/19 10:27	1
Silver	ND		0.20	0.060	mg/L		01/07/19 00:15	01/07/19 10:27	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0058**		0.0020	0.0010	mg/L		01/07/19 11:34	01/07/19 14:46	1

Method Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal

TestAmerica Job ID: 440-228735-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV
7470A	Mercury (CVAA)	SW846	TAL IRV
1311	TCLP Extraction	SW846	TAL IRV
3010A	Preparation, Total Metals	SW846	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
7470A	Preparation, Mercury	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal

TestAmerica Job ID: 440-228735-1

Client Sample ID: CL-01-20181221
Date Collected: 12/21/18 14:40
Date Received: 12/27/18 10:00

Lab Sample ID: 440-228735-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	520796	01/04/19 14:52	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	520823	01/04/19 20:58	WC	TAL IRV
TCLP	Leach	1311			100 g	100 mL	520872	01/05/19 15:28	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	520906	01/07/19 00:15	CDH	TAL IRV
TCLP	Analysis	6010B		1			520992	01/07/19 10:27	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	520872	01/05/19 15:28	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	520988	01/07/19 11:34	DB	TAL IRV
TCLP	Analysis	7470A		1			521035	01/07/19 14:46	DB	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-520823/4
Matrix: Water
Analysis Batch: 520823

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			01/04/19 19:32	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			01/04/19 19:32	1
Chloroform	ND		0.020	0.0033	mg/L			01/04/19 19:32	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			01/04/19 19:32	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			01/04/19 19:32	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			01/04/19 19:32	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			01/04/19 19:32	1
Trichloroethene	ND		0.020	0.0026	mg/L			01/04/19 19:32	1
Vinyl chloride	ND		0.050	0.0040	mg/L			01/04/19 19:32	1
Chlorobenzene	ND		0.020	0.0036	mg/L			01/04/19 19:32	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			01/04/19 19:32	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			01/04/19 19:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 128*		*01/04/19 19:32*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*01/04/19 19:32*	*1*
Dibromofluoromethane (Surr)	*112*		*76 - 132*		*01/04/19 19:32*	*1*

Lab Sample ID: LCS 440-520823/5
Matrix: Water
Analysis Batch: 520823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.250	0.275		mg/L		110	68 - 130
Carbon tetrachloride	0.250	0.336		mg/L		135	60 - 150
Chloroform	0.250	0.291		mg/L		116	70 - 130
1,1-Dichloroethene	0.250	0.281		mg/L		112	70 - 130
1,2-Dichloroethane	0.250	0.301		mg/L		120	57 - 138
2-Butanone (MEK)	0.250	0.303		mg/L		121	44 - 150
Tetrachloroethene	0.250	0.260		mg/L		104	70 - 130
Trichloroethene	0.250	0.298		mg/L		119	70 - 130
Vinyl chloride	0.250	0.259		mg/L		104	59 - 133
Chlorobenzene	0.250	0.259		mg/L		103	70 - 130
1,4-Dichlorobenzene	0.250	0.252		mg/L		101	70 - 130
Hexachlorobutadiene	0.250	0.238		mg/L		95	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*80 - 128*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*112*		*76 - 132*

Lab Sample ID: 440-228735-1 MS
Matrix: Water
Analysis Batch: 520823

Client Sample ID: CL-01-20181221
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.250	0.272		mg/L		109	66 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-228735-1 MS
Matrix: Water
Analysis Batch: 520823

Client Sample ID: CL-01-20181221
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	ND		0.250	0.341		mg/L		136	60 - 150
Chloroform	ND		0.250	0.281		mg/L		113	70 - 130
1,1-Dichloroethene	ND		0.250	0.284		mg/L		114	70 - 130
1,2-Dichloroethane	ND		0.250	0.308		mg/L		123	56 - 146
2-Butanone (MEK)	ND		0.250	0.283		mg/L		113	48 - 140
Tetrachloroethene	0.031		0.250	0.282		mg/L		101	70 - 137
Trichloroethene	ND		0.250	0.293		mg/L		117	70 - 130
Vinyl chloride	ND		0.250	0.259		mg/L		104	50 - 137
Chlorobenzene	ND		0.250	0.261		mg/L		105	70 - 130
1,4-Dichlorobenzene	ND		0.250	0.239		mg/L		95	70 - 130
Hexachlorobutadiene	ND		0.250	0.248		mg/L		99	10 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 128*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*112*		*76 - 132*

Lab Sample ID: 440-228735-1 MSD
Matrix: Water
Analysis Batch: 520823

Client Sample ID: CL-01-20181221
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.250	0.282		mg/L		113	66 - 130	4	20
Carbon tetrachloride	ND		0.250	0.358		mg/L		143	60 - 150	5	25
Chloroform	ND		0.250	0.290		mg/L		116	70 - 130	3	20
1,1-Dichloroethene	ND		0.250	0.308		mg/L		123	70 - 130	8	20
1,2-Dichloroethane	ND		0.250	0.298		mg/L		119	56 - 146	3	20
2-Butanone (MEK)	ND		0.250	0.317		mg/L		127	48 - 140	11	40
Tetrachloroethene	0.031		0.250	0.329		mg/L		119	70 - 137	15	20
Trichloroethene	ND		0.250	0.307		mg/L		123	70 - 130	5	20
Vinyl chloride	ND		0.250	0.280		mg/L		112	50 - 137	8	30
Chlorobenzene	ND		0.250	0.267		mg/L		107	70 - 130	2	20
1,4-Dichlorobenzene	ND		0.250	0.248		mg/L		99	70 - 130	4	20
Hexachlorobutadiene	ND		0.250	0.244		mg/L		97	10 - 150	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*80 - 128*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*117*		*76 - 132*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-520872/1-C
Matrix: Water
Analysis Batch: 520992

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 520906

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		01/07/19 00:15	01/07/19 10:22	1
Barium	ND		0.20	0.060	mg/L		01/07/19 00:15	01/07/19 10:22	1
Cadmium	ND		0.10	0.020	mg/L		01/07/19 00:15	01/07/19 10:22	1
Chromium	ND		0.10	0.020	mg/L		01/07/19 00:15	01/07/19 10:22	1
Lead	ND		0.10	0.040	mg/L		01/07/19 00:15	01/07/19 10:22	1
Selenium	ND		0.10	0.080	mg/L		01/07/19 00:15	01/07/19 10:22	1
Silver	ND		0.20	0.060	mg/L		01/07/19 00:15	01/07/19 10:22	1

Lab Sample ID: LCS 440-520872/2-C
Matrix: Water
Analysis Batch: 520992

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 520906

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.09		mg/L		104	80 - 120
Barium	2.00	2.20		mg/L		110	80 - 120
Cadmium	2.00	2.17		mg/L		108	80 - 120
Chromium	2.00	2.20		mg/L		110	80 - 120
Lead	2.00	2.17		mg/L		108	80 - 120
Selenium	2.00	1.86		mg/L		93	80 - 120
Silver	1.00	1.06		mg/L		106	80 - 120

Lab Sample ID: 440-228735-1 MS
Matrix: Water
Analysis Batch: 520992

Client Sample ID: CL-01-20181221
Prep Type: TCLP
Prep Batch: 520906

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		2.00	2.14		mg/L		107	75 - 125
Barium	ND		2.00	2.24		mg/L		112	75 - 125
Cadmium	ND		2.00	2.22		mg/L		111	75 - 125
Chromium	0.66		2.00	3.04		mg/L		119	75 - 125
Lead	ND		2.00	2.26		mg/L		113	75 - 125
Selenium	ND		2.00	1.88		mg/L		94	75 - 125
Silver	ND		1.00	1.06		mg/L		106	75 - 125

Lab Sample ID: 440-228735-1 MSD
Matrix: Water
Analysis Batch: 520992

Client Sample ID: CL-01-20181221
Prep Type: TCLP
Prep Batch: 520906

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		2.00	2.20		mg/L		110	75 - 125	3	20
Barium	ND		2.00	2.26		mg/L		113	75 - 125	1	20
Cadmium	ND		2.00	2.25		mg/L		112	75 - 125	1	20
Chromium	0.66		2.00	2.97		mg/L		116	75 - 125	2	20
Lead	ND		2.00	2.24		mg/L		112	75 - 125	1	20
Selenium	ND		2.00	1.91		mg/L		95	75 - 125	2	20
Silver	ND		1.00	1.08		mg/L		108	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 440-520872/1-D
Matrix: Water
Analysis Batch: 521035

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 520988

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		01/07/19 11:34	01/07/19 14:42	1

Lab Sample ID: LCS 440-520872/2-D
Matrix: Water
Analysis Batch: 521035

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 520988

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0800	0.0759		mg/L		95	80 - 120

Lab Sample ID: 440-228735-1 MS
Matrix: Water
Analysis Batch: 521035

Client Sample ID: CL-01-20181221
Prep Type: TCLP
Prep Batch: 520988

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0058		0.0800	0.0793		mg/L		92	70 - 130

Lab Sample ID: 440-228735-1 MSD
Matrix: Water
Analysis Batch: 521035

Client Sample ID: CL-01-20181221
Prep Type: TCLP
Prep Batch: 520988

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0058		0.0800	0.0752		mg/L		87	70 - 130	5	20

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal

TestAmerica Job ID: 440-228735-1

GC/MS VOA

Leach Batch: 520796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	1311	
440-228735-1 MS	CL-01-20181221	TCLP	Water	1311	
440-228735-1 MSD	CL-01-20181221	TCLP	Water	1311	

Analysis Batch: 520823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	8260B	520796
MB 440-520823/4	Method Blank	Total/NA	Water	8260B	
LCS 440-520823/5	Lab Control Sample	Total/NA	Water	8260B	
440-228735-1 MS	CL-01-20181221	TCLP	Water	8260B	520796
440-228735-1 MSD	CL-01-20181221	TCLP	Water	8260B	520796

Metals

Leach Batch: 520872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	1311	
MB 440-520872/1-C	Method Blank	TCLP	Water	1311	
MB 440-520872/1-D	Method Blank	TCLP	Water	1311	
LCS 440-520872/2-C	Lab Control Sample	TCLP	Water	1311	
LCS 440-520872/2-D	Lab Control Sample	TCLP	Water	1311	
440-228735-1 MS	CL-01-20181221	TCLP	Water	1311	
440-228735-1 MSD	CL-01-20181221	TCLP	Water	1311	

Prep Batch: 520906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	3010A	520872
MB 440-520872/1-C	Method Blank	TCLP	Water	3010A	520872
LCS 440-520872/2-C	Lab Control Sample	TCLP	Water	3010A	520872
440-228735-1 MS	CL-01-20181221	TCLP	Water	3010A	520872
440-228735-1 MSD	CL-01-20181221	TCLP	Water	3010A	520872

Prep Batch: 520988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	7470A	520872
MB 440-520872/1-D	Method Blank	TCLP	Water	7470A	520872
LCS 440-520872/2-D	Lab Control Sample	TCLP	Water	7470A	520872
440-228735-1 MS	CL-01-20181221	TCLP	Water	7470A	520872
440-228735-1 MSD	CL-01-20181221	TCLP	Water	7470A	520872

Analysis Batch: 520992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	6010B	520906
MB 440-520872/1-C	Method Blank	TCLP	Water	6010B	520906
LCS 440-520872/2-C	Lab Control Sample	TCLP	Water	6010B	520906
440-228735-1 MS	CL-01-20181221	TCLP	Water	6010B	520906
440-228735-1 MSD	CL-01-20181221	TCLP	Water	6010B	520906

Metals (Continued)

Analysis Batch: 521035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-228735-1	CL-01-20181221	TCLP	Water	7470A	520988
MB 440-520872/1-D	Method Blank	TCLP	Water	7470A	520988
LCS 440-520872/2-D	Lab Control Sample	TCLP	Water	7470A	520988
440-228735-1 MS	CL-01-20181221	TCLP	Water	7470A	520988
440-228735-1 MSD	CL-01-20181221	TCLP	Water	7470A	520988

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)

Accreditation/Certification Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 440-228735-1
Project/Site: NERT A02H Chlorine Line Removal

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-19
Arizona	State Program	9	AZ0671	10-14-19
California	LA Cty Sanitation Districts	9	10256	06-30-19
California	State Program	9	CA ELAP 2706	06-30-19
Guam	State Program	9	Cert. No. 17-003R	01-23-19 *
Hawaii	State Program	9	N/A	01-29-19 *
Kansas	NELAP	7	E-10420	07-31-19
Nevada	State Program	9	CA015312018-1	07-31-19
New Mexico	State Program	6	N/A	01-29-19 *
Oregon	NELAP	10	4028	01-29-19 *
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-18-00214	07-09-21
Washington	State Program	10	C900	09-03-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Kyle Hansen	K. Hansen	Mata, Patty	4766 5636 4806	440-152828-28243 1
Company: Tetra Tech, Inc	Phone: 801-944-6663	E-Mail: patty.mata@testamericainc.com		Page: Page 1 of 2
Address: 150 South Fourth St Unit A	Due Date Requested: 1/3/2019			Job #: 117-7502019 A02H
City: Henderson	TAT Requested (days): Rush as needed for			
State, Zip: NV, 89015	PO #: K19-CWP-19-WA1			
Phone: 303-~~448-7406~~(Tel) 801.944.6663	WO #:			
Email: Kyle.Hansen@tetratech.com	Project #: 44021189			
Project Name: NERT A02H Chlorine Line Removal	SSOW#:			
Site: NERT				

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1020A - Ignitability, Setaflash Closed-Cup Method	9040B - pH	6010B - TCLP RCRA 8 (12/27/18)	9034_Calc -	9014 -	8260B - TCLP VOC's (12/27/18)	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	N	N	N	CB	B	N	X	
CL-01-20181221	12/21/18	1440	G	W					X			X		

440-228735 Chain of Custody

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by.	Date	Time	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Kyle D. Hansen	12/26/18	TT		12/26/18	TALUS
2		12/26/18	TALUS	Fed Ex	12/27/18 10:00	TAIRV
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 14/C.9 IR.93

Ver. 08/04/2016

AS 12/27/18

1/7/2019

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 440-228735-1

Login Number: 228735
List Number: 1
Creator: Skinner, Alma D

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-231633-1
Client Project/Site: NERT A02H Chlorine Line Removal, K19

For:
Tetra Tech, Inc.
1100 South McCaslin Boulevard
Suite 150
Superior, Colorado 80027

Attn: Bounkheana Chhun

Authorized for release by:
2/7/2019 10:37:04 AM

Patty Mata, Senior Project Manager
(949)261-1022
patty.mata@testamericainc.com

Table of Contents

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-231633-1	CL-02-20190125	Water	01/25/19 09:30	01/26/19 10:45
440-231633-2	CL-03-20190125	Water	01/25/19 09:40	01/26/19 10:45
440-231633-3	CL-04-20190125	Water	01/25/19 10:00	01/26/19 10:45
440-231633-4	CL-05-20190125	Water	01/25/19 10:15	01/26/19 10:45
440-231633-5	CL-06-20190125	Water	01/25/19 10:40	01/26/19 10:45
440-231633-6	CL-07-20190125	Water	01/25/19 11:10	01/26/19 10:45
440-231633-7	CL-08-20190125	Water	01/25/19 11:45	01/26/19 10:45

Case Narrative

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Job ID: 440-231633-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-231633-1

Comments
No additional comments.

Receipt
The samples were received on 1/26/2019 10:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method(s) 6010B: The method blank for TCLP leach batch 440-526515, preparation batch 440-526532 and analytical batch 440-526757 contained Chromium above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: CL-02-20190125

Lab Sample ID: 440-231633-1

Date Collected: 01/25/19 09:30

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 12:48	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 12:48	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 12:48	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 12:48	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 12:48	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 12:48	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 12:48	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 12:48	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 12:48	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 12:48	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 12:48	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 12:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 128*		*02/04/19 12:48*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/04/19 12:48*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 132*		*02/04/19 12:48*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.070**	**J**	0.20	0.070	mg/L		02/04/19 06:46	02/04/19 19:37	1
Barium	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:37	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:37	1
Chromium	**0.79**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:37	1
Lead	**0.062**	**J**	0.10	0.040	mg/L		02/04/19 06:46	02/04/19 19:37	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 19:37	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:37	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0027**		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:02	1

Client Sample ID: CL-03-20190125

Lab Sample ID: 440-231633-2

Date Collected: 01/25/19 09:40

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 14:05	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 14:05	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 14:05	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 14:05	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 14:05	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 14:05	1
Tetrachloroethene	**0.0087**	**J**	0.020	0.0032	mg/L			02/04/19 14:05	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 14:05	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 14:05	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 14:05	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 14:05	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 14:05	1

Client Sample ID: CL-03-20190125

Lab Sample ID: 440-231633-2

Date Collected: 01/25/19 09:40

Matrix: Water

Date Received: 01/26/19 10:45

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 128*		*02/04/19 14:05*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/04/19 14:05*	*1*
Dibromofluoromethane (Surr)	*101*		*76 - 132*		*02/04/19 14:05*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.23**		0.20	0.070	mg/L		02/04/19 06:46	02/04/19 19:57	1
Barium	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:57	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:57	1
Chromium	**0.63**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:57	1
Lead	**0.085**	**J**	0.10	0.040	mg/L		02/04/19 06:46	02/04/19 19:57	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 19:57	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:57	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:08	1

Client Sample ID: CL-04-20190125

Lab Sample ID: 440-231633-3

Date Collected: 01/25/19 10:00

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 14:56	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 14:56	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 14:56	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 14:56	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 14:56	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 14:56	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 14:56	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 14:56	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 14:56	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 14:56	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 14:56	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 128*		*02/04/19 14:56*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/04/19 14:56*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 132*		*02/04/19 14:56*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.13**	**J**	0.20	0.070	mg/L		02/04/19 06:46	02/04/19 19:59	1
Barium	**0.094**	**J**	0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:59	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:59	1
Chromium	**0.64**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:59	1
Lead	**0.093**	**J**	0.10	0.040	mg/L		02/04/19 06:46	02/04/19 19:59	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 19:59	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:59	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:10	1

Client Sample ID: CL-05-20190125

Lab Sample ID: 440-231633-4

Date Collected: 01/25/19 10:15

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 15:21	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 15:21	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 15:21	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 15:21	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 15:21	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 15:21	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 15:21	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 15:21	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 15:21	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 15:21	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 15:21	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 128*		*02/04/19 15:21*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*02/04/19 15:21*	*1*
Dibromofluoromethane (Surr)	*105*		*76 - 132*		*02/04/19 15:21*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		02/04/19 06:46	02/04/19 20:02	1
Barium	**0.071**	**J**	0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:02	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:02	1
Chromium	**0.70**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:02	1
Lead	**0.093**	**J**	0.10	0.040	mg/L		02/04/19 06:46	02/04/19 20:02	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 20:02	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:02	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:12	1

Client Sample ID: CL-06-20190125

Lab Sample ID: 440-231633-5

Date Collected: 01/25/19 10:40

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 15:46	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 15:46	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 15:46	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 15:46	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 15:46	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 15:46	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 15:46	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 15:46	1

Client Sample ID: CL-06-20190125

Lab Sample ID: 440-231633-5

Date Collected: 01/25/19 10:40

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 15:46	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 15:46	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 15:46	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 128*		*02/04/19 15:46*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*02/04/19 15:46*	*1*
Dibromofluoromethane (Surr)	*103*		*76 - 132*		*02/04/19 15:46*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.084**	**J**	0.20	0.070	mg/L		02/04/19 06:46	02/04/19 20:04	1
Barium	**0.068**	**J**	0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:04	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:04	1
Chromium	**0.32**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:04	1
Lead	**0.091**	**J**	0.10	0.040	mg/L		02/04/19 06:46	02/04/19 20:04	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 20:04	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:04	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:14	1

Client Sample ID: CL-07-20190125

Lab Sample ID: 440-231633-6

Date Collected: 01/25/19 11:10

Matrix: Water

Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 16:12	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 16:12	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 16:12	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 16:12	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 16:12	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 16:12	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 16:12	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 16:12	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 16:12	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 16:12	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 16:12	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 128*		*02/04/19 16:12*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/04/19 16:12*	*1*
Dibromofluoromethane (Surr)	*101*		*76 - 132*		*02/04/19 16:12*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		02/04/19 06:46	02/04/19 20:07	1

Client Sample ID: CL-07-20190125
Lab Sample ID: 440-231633-6
Date Collected: 01/25/19 11:10
Matrix: Water
Date Received: 01/26/19 10:45

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**0.078**	**J**	0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:07	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:07	1
Chromium	**0.49**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:07	1
Lead	**0.045**	**J**	0.10	0.040	mg/L		02/04/19 06:46	02/04/19 20:07	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 20:07	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:07	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:16	1

Client Sample ID: CL-08-20190125
Lab Sample ID: 440-231633-7
Date Collected: 01/25/19 11:45
Matrix: Water
Date Received: 01/26/19 10:45

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 16:37	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 16:37	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 16:37	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 16:37	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 16:37	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 16:37	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 16:37	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 16:37	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 16:37	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 16:37	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 16:37	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 128*		*02/04/19 16:37*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/04/19 16:37*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 132*		*02/04/19 16:37*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.61**		0.20	0.070	mg/L		02/04/19 06:46	02/04/19 20:10	1
Barium	**0.069**	**J**	0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:10	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:10	1
Chromium	**1.1**	**B**	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 20:10	1
Lead	**0.12**		0.10	0.040	mg/L		02/04/19 06:46	02/04/19 20:10	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 20:10	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 20:10	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 10:01	02/05/19 13:22	1

Method Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV
7470A	Mercury (CVAA)	SW846	TAL IRV
1311	TCLP Extraction	SW846	TAL IRV
3010A	Preparation, Total Metals	SW846	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
7470A	Preparation, Mercury	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client Sample ID: CL-02-20190125

Lab Sample ID: 440-231633-1

Date Collected: 01/25/19 09:30

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 12:48	HR	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 19:37	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:02	EMS	TAL IRV

Client Sample ID: CL-03-20190125

Lab Sample ID: 440-231633-2

Date Collected: 01/25/19 09:40

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 14:05	HR	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 19:57	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:08	EMS	TAL IRV

Client Sample ID: CL-04-20190125

Lab Sample ID: 440-231633-3

Date Collected: 01/25/19 10:00

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 14:56	HR	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 19:59	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:10	EMS	TAL IRV

Client Sample ID: CL-05-20190125

Lab Sample ID: 440-231633-4

Date Collected: 01/25/19 10:15

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 15:21	HR	TAL IRV

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 20:02	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:12	EMS	TAL IRV

Client Sample ID: CL-06-20190125

Lab Sample ID: 440-231633-5

Date Collected: 01/25/19 10:40

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 15:46	HR	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 20:04	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:14	EMS	TAL IRV

Client Sample ID: CL-07-20190125

Lab Sample ID: 440-231633-6

Date Collected: 01/25/19 11:10

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 16:12	HR	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 20:07	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:16	EMS	TAL IRV

Client Sample ID: CL-08-20190125

Lab Sample ID: 440-231633-7

Date Collected: 01/25/19 11:45

Matrix: Water

Date Received: 01/26/19 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			100 g	100 mL	526516	02/04/19 01:15	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	526539	02/04/19 16:37	HR	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	526532	02/04/19 06:46	CDH	TAL IRV
TCLP	Analysis	6010B		1			526757	02/04/19 20:10	TQN	TAL IRV
TCLP	Leach	1311			100 g	100 mL	526515	02/04/19 01:12	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	526802	02/05/19 10:01	EMS	TAL IRV
TCLP	Analysis	7470A		1			526915	02/05/19 13:22	EMS	TAL IRV

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-526516/1-A
Matrix: Water
Analysis Batch: 526539

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/04/19 11:57	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/04/19 11:57	1
Chloroform	ND		0.020	0.0033	mg/L			02/04/19 11:57	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/04/19 11:57	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/04/19 11:57	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/04/19 11:57	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/04/19 11:57	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/04/19 11:57	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/04/19 11:57	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/04/19 11:57	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/04/19 11:57	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/04/19 11:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 128*		*02/04/19 11:57*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*02/04/19 11:57*	*1*
Dibromofluoromethane (Surr)	*101*		*76 - 132*		*02/04/19 11:57*	*1*

Lab Sample ID: LCS 440-526516/2-A
Matrix: Water
Analysis Batch: 526539

Client Sample ID: Lab Control Sample
Prep Type: TCLP

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.105		mg/L		105	68 - 130
Carbon tetrachloride	0.100	0.0985		mg/L		99	60 - 150
Chloroform	0.100	0.104		mg/L		104	70 - 130
1,1-Dichloroethene	0.100	0.110		mg/L		110	70 - 130
1,2-Dichloroethane	0.100	0.0954		mg/L		95	57 - 138
2-Butanone (MEK)	0.100	0.0918	J	mg/L		92	44 - 150
Tetrachloroethene	0.100	0.110		mg/L		110	70 - 130
Trichloroethene	0.100	0.111		mg/L		111	70 - 130
Vinyl chloride	0.100	0.104		mg/L		104	59 - 133
Chlorobenzene	0.100	0.107		mg/L		107	70 - 130
1,4-Dichlorobenzene	0.100	0.105		mg/L		105	70 - 130
Hexachlorobutadiene	0.100	0.109		mg/L		109	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*80 - 128*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*76 - 132*

Lab Sample ID: 440-231633-1 MS
Matrix: Water
Analysis Batch: 526539

Client Sample ID: CL-02-20190125
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.100	0.108		mg/L		108	66 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-231633-1 MS
Matrix: Water
Analysis Batch: 526539

Client Sample ID: CL-02-20190125
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	ND		0.100	0.103		mg/L		103	60 - 150
Chloroform	ND		0.100	0.105		mg/L		105	70 - 130
1,1-Dichloroethene	ND		0.100	0.110		mg/L		110	70 - 130
1,2-Dichloroethane	ND		0.100	0.0960		mg/L		96	56 - 146
2-Butanone (MEK)	ND		0.100	0.128		mg/L		128	48 - 140
Tetrachloroethene	ND		0.100	0.110		mg/L		110	70 - 137
Trichloroethene	ND		0.100	0.114		mg/L		114	70 - 130
Vinyl chloride	ND		0.100	0.108		mg/L		108	50 - 137
Chlorobenzene	ND		0.100	0.105		mg/L		105	70 - 130
1,4-Dichlorobenzene	ND		0.100	0.103		mg/L		103	70 - 130
Hexachlorobutadiene	ND		0.100	0.108		mg/L		108	10 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 128*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*76 - 132*

Lab Sample ID: 440-231633-1 MSD
Matrix: Water
Analysis Batch: 526539

Client Sample ID: CL-02-20190125
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.100	0.100		mg/L		100	66 - 130	8	20
Carbon tetrachloride	ND		0.100	0.0944		mg/L		94	60 - 150	9	25
Chloroform	ND		0.100	0.0995		mg/L		100	70 - 130	6	20
1,1-Dichloroethene	ND		0.100	0.102		mg/L		102	70 - 130	8	20
1,2-Dichloroethane	ND		0.100	0.0919		mg/L		92	56 - 146	4	20
2-Butanone (MEK)	ND		0.100	0.124		mg/L		124	48 - 140	4	40
Tetrachloroethene	ND		0.100	0.102		mg/L		102	70 - 137	8	20
Trichloroethene	ND		0.100	0.101		mg/L		101	70 - 130	12	20
Vinyl chloride	ND		0.100	0.0973		mg/L		97	50 - 137	11	30
Chlorobenzene	ND		0.100	0.0990		mg/L		99	70 - 130	6	20
1,4-Dichlorobenzene	ND		0.100	0.0997		mg/L		100	70 - 130	3	20
Hexachlorobutadiene	ND		0.100	0.102		mg/L		102	10 - 150	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 128*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*76 - 132*

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-526515/1-B
Matrix: Water
Analysis Batch: 526757

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 526532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		02/04/19 06:46	02/04/19 19:31	1
Barium	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:31	1
Cadmium	ND		0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:31	1
Chromium	0.0210	J	0.10	0.020	mg/L		02/04/19 06:46	02/04/19 19:31	1
Lead	ND		0.10	0.040	mg/L		02/04/19 06:46	02/04/19 19:31	1
Selenium	ND		0.10	0.080	mg/L		02/04/19 06:46	02/04/19 19:31	1
Silver	ND		0.20	0.060	mg/L		02/04/19 06:46	02/04/19 19:31	1

Lab Sample ID: LCS 440-526515/2-B
Matrix: Water
Analysis Batch: 526757

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 526532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	1.88		mg/L		94	80 - 120
Barium	2.00	2.02		mg/L		101	80 - 120
Cadmium	2.00	1.88		mg/L		94	80 - 120
Chromium	2.00	1.99		mg/L		99	80 - 120
Lead	2.00	1.96		mg/L		98	80 - 120
Selenium	2.00	1.59		mg/L		80	80 - 120
Silver	1.00	0.961		mg/L		96	80 - 120

Lab Sample ID: 440-231633-1 MS
Matrix: Water
Analysis Batch: 526757

Client Sample ID: CL-02-20190125
Prep Type: TCLP
Prep Batch: 526532

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.070	J	2.00	1.98		mg/L		95	75 - 125
Barium	ND		2.00	2.02		mg/L		101	75 - 125
Cadmium	ND		2.00	1.94		mg/L		97	75 - 125
Chromium	0.79	B	2.00	2.74		mg/L		98	75 - 125
Lead	0.062	J	2.00	2.02		mg/L		98	75 - 125
Selenium	ND		2.00	1.71		mg/L		86	75 - 125
Silver	ND		1.00	0.982		mg/L		98	75 - 125

Lab Sample ID: 440-231633-1 MSD
Matrix: Water
Analysis Batch: 526757

Client Sample ID: CL-02-20190125
Prep Type: TCLP
Prep Batch: 526532

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.070	J	2.00	1.98		mg/L		96	75 - 125	0	20
Barium	ND		2.00	2.04		mg/L		102	75 - 125	1	20
Cadmium	ND		2.00	1.95		mg/L		97	75 - 125	1	20
Chromium	0.79	B	2.00	2.88		mg/L		104	75 - 125	5	20
Lead	0.062	J	2.00	2.02		mg/L		98	75 - 125	0	20
Selenium	ND		2.00	1.71		mg/L		86	75 - 125	0	20
Silver	ND		1.00	0.997		mg/L		100	75 - 125	2	20

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-231633-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 440-526515/1-D
Matrix: Water
Analysis Batch: 526915

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 526802

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/05/19 09:58	02/05/19 12:58	1

Lab Sample ID: LCS 440-526515/2-D
Matrix: Water
Analysis Batch: 526915

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 526802

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0800	0.0780		mg/L		97	80 - 120

Lab Sample ID: 440-231633-1 MS
Matrix: Water
Analysis Batch: 526915

Client Sample ID: CL-02-20190125
Prep Type: TCLP
Prep Batch: 526802

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0027		0.0800	0.0798		mg/L		96	70 - 130

Lab Sample ID: 440-231633-1 MSD
Matrix: Water
Analysis Batch: 526915

Client Sample ID: CL-02-20190125
Prep Type: TCLP
Prep Batch: 526802

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0027		0.0800	0.0781		mg/L		94	70 - 130	2	20

GC/MS VOA

Leach Batch: 526516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	1311	
440-231633-2	CL-03-20190125	TCLP	Water	1311	
440-231633-3	CL-04-20190125	TCLP	Water	1311	
440-231633-4	CL-05-20190125	TCLP	Water	1311	
440-231633-5	CL-06-20190125	TCLP	Water	1311	
440-231633-6	CL-07-20190125	TCLP	Water	1311	
440-231633-7	CL-08-20190125	TCLP	Water	1311	
MB 440-526516/1-A	Method Blank	TCLP	Water	1311	
LCS 440-526516/2-A	Lab Control Sample	TCLP	Water	1311	
440-231633-1 MS	CL-02-20190125	TCLP	Water	1311	
440-231633-1 MSD	CL-02-20190125	TCLP	Water	1311	

Analysis Batch: 526539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	8260B	526516
440-231633-2	CL-03-20190125	TCLP	Water	8260B	526516
440-231633-3	CL-04-20190125	TCLP	Water	8260B	526516
440-231633-4	CL-05-20190125	TCLP	Water	8260B	526516
440-231633-5	CL-06-20190125	TCLP	Water	8260B	526516
440-231633-6	CL-07-20190125	TCLP	Water	8260B	526516
440-231633-7	CL-08-20190125	TCLP	Water	8260B	526516
MB 440-526516/1-A	Method Blank	TCLP	Water	8260B	526516
LCS 440-526516/2-A	Lab Control Sample	TCLP	Water	8260B	526516
440-231633-1 MS	CL-02-20190125	TCLP	Water	8260B	526516
440-231633-1 MSD	CL-02-20190125	TCLP	Water	8260B	526516

Metals

Leach Batch: 526515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	1311	
440-231633-2	CL-03-20190125	TCLP	Water	1311	
440-231633-3	CL-04-20190125	TCLP	Water	1311	
440-231633-4	CL-05-20190125	TCLP	Water	1311	
440-231633-5	CL-06-20190125	TCLP	Water	1311	
440-231633-6	CL-07-20190125	TCLP	Water	1311	
440-231633-7	CL-08-20190125	TCLP	Water	1311	
MB 440-526515/1-B	Method Blank	TCLP	Water	1311	
MB 440-526515/1-D	Method Blank	TCLP	Water	1311	
LCS 440-526515/2-B	Lab Control Sample	TCLP	Water	1311	
LCS 440-526515/2-D	Lab Control Sample	TCLP	Water	1311	
440-231633-1 MS	CL-02-20190125	TCLP	Water	1311	
440-231633-1 MSD	CL-02-20190125	TCLP	Water	1311	

Prep Batch: 526532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	3010A	526515
440-231633-2	CL-03-20190125	TCLP	Water	3010A	526515
440-231633-3	CL-04-20190125	TCLP	Water	3010A	526515
440-231633-4	CL-05-20190125	TCLP	Water	3010A	526515

Metals (Continued)

Prep Batch: 526532 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-5	CL-06-20190125	TCLP	Water	3010A	526515
440-231633-6	CL-07-20190125	TCLP	Water	3010A	526515
440-231633-7	CL-08-20190125	TCLP	Water	3010A	526515
MB 440-526515/1-B	Method Blank	TCLP	Water	3010A	526515
LCS 440-526515/2-B	Lab Control Sample	TCLP	Water	3010A	526515
440-231633-1 MS	CL-02-20190125	TCLP	Water	3010A	526515
440-231633-1 MSD	CL-02-20190125	TCLP	Water	3010A	526515

Analysis Batch: 526757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	6010B	526532
440-231633-2	CL-03-20190125	TCLP	Water	6010B	526532
440-231633-3	CL-04-20190125	TCLP	Water	6010B	526532
440-231633-4	CL-05-20190125	TCLP	Water	6010B	526532
440-231633-5	CL-06-20190125	TCLP	Water	6010B	526532
440-231633-6	CL-07-20190125	TCLP	Water	6010B	526532
440-231633-7	CL-08-20190125	TCLP	Water	6010B	526532
MB 440-526515/1-B	Method Blank	TCLP	Water	6010B	526532
LCS 440-526515/2-B	Lab Control Sample	TCLP	Water	6010B	526532
440-231633-1 MS	CL-02-20190125	TCLP	Water	6010B	526532
440-231633-1 MSD	CL-02-20190125	TCLP	Water	6010B	526532

Prep Batch: 526802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	7470A	526515
440-231633-2	CL-03-20190125	TCLP	Water	7470A	526515
440-231633-3	CL-04-20190125	TCLP	Water	7470A	526515
440-231633-4	CL-05-20190125	TCLP	Water	7470A	526515
440-231633-5	CL-06-20190125	TCLP	Water	7470A	526515
440-231633-6	CL-07-20190125	TCLP	Water	7470A	526515
440-231633-7	CL-08-20190125	TCLP	Water	7470A	526515
MB 440-526515/1-D	Method Blank	TCLP	Water	7470A	526515
LCS 440-526515/2-D	Lab Control Sample	TCLP	Water	7470A	526515
440-231633-1 MS	CL-02-20190125	TCLP	Water	7470A	526515
440-231633-1 MSD	CL-02-20190125	TCLP	Water	7470A	526515

Analysis Batch: 526915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-231633-1	CL-02-20190125	TCLP	Water	7470A	526802
440-231633-2	CL-03-20190125	TCLP	Water	7470A	526802
440-231633-3	CL-04-20190125	TCLP	Water	7470A	526802
440-231633-4	CL-05-20190125	TCLP	Water	7470A	526802
440-231633-5	CL-06-20190125	TCLP	Water	7470A	526802
440-231633-6	CL-07-20190125	TCLP	Water	7470A	526802
440-231633-7	CL-08-20190125	TCLP	Water	7470A	526802
MB 440-526515/1-D	Method Blank	TCLP	Water	7470A	526802
LCS 440-526515/2-D	Lab Control Sample	TCLP	Water	7470A	526802
440-231633-1 MS	CL-02-20190125	TCLP	Water	7470A	526802
440-231633-1 MSD	CL-02-20190125	TCLP	Water	7470A	526802

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.

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.
B	Compound was found in the blank and sample.

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)

Accreditation/Certification Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 440-231633-1
Project/Site: NERT A02H Chlorine Line Removal, K19

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-19
Arizona	State Program	9	AZ0671	10-14-19
California	LA Cty Sanitation Districts	9	10256	06-30-19
California	State Program	9	CA ELAP 2706	06-30-19
Guam	State Program	9	Cert. No. 17-003R	01-23-20
Hawaii	State Program	9	N/A	01-29-19 *
Kansas	NELAP	7	E-10420	07-31-19
Nevada	State Program	9	CA015312018-1	07-31-19
New Mexico	State Program	6	N/A	01-29-19 *
Oregon	NELAP	10	4028	01-29-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-18-00214	07-09-21
Washington	State Program	10	C900	09-03-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

18.3°C

TestAmerica

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Kyle Hansen	Phone: K. Hansen 801.949.6663	Mata, Patty E-Mail: patty mata@testamericainc com		440-152828-28243 1 Page: Page 1 of 2
Company: Tetra Tech, Inc				Job #: 117-7502018-A02H
Address: 150 South Fourth St Unit A	Due Date Requested: 2/1/19			
City: Henderson	TAT Requested (days): STD.			
State, Zip: NV, 89015				
Phone: 303-448-7406(Tel)	PO #: K19-CWP-19-WA1			
Email: Kyle Hansen@tetratech.com	WO #			
Project Name: NERT A02H Chlorine Line Removal	Project #: 44021189			
Site: NERT	SSOW#			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1020A - Ignitability, Setaflash Closed-Cup Method	9040B - pH	6010B - TCLP RCRA8	9034_Calc -	9014 -	8260B - TCLP VOCs	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	CB	B	N		
CL-02-20190125	1/25/19	0930	G	W					X			X		
CL-03-20190125		0940	G	W					X			X		
CL-04-20190125		1000	G	W					X			X		
CL-05-20190125		1015	G	W					X			X		
CL-06-20190125		1040	G	W					X			X		
CL-07-20190125		1110	G	W					X			X		
CL-08-20190125	↓	1145	G	W					X			X		

440-231633 Chain of Custody

LB 1/26/19

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☑ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by	Date	Time:	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Kyle Hansen	1/25/19 1:25pm	TT	CH	1-25-19 1:28	
2		1/26/19 1604				
3					1/26/19 1045	TAIRX

Custody Seals Intact: △ Yes △ No	Custody Seal No.: Fed # 476656366143	Cooler Temperature(s) °C and Other Remarks	
	6143 LB 1/26/19	4.5/4.0 IR94	CH

Ver 08/04/2016

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 440-231633-1

Login Number: 231633

List Source: TestAmerica Irvine

List Number: 1

Creator: Bonta, Lucia F

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-233880-1

Client Project/Site: NERT A02H Chlorine Line Removal, K19

For:

Tetra Tech, Inc.
1100 South McCaslin Boulevard
Suite 150
Superior, Colorado 80027

Attn: Bounkheana Chhun

Authorized for release by:
2/28/2019 2:49:22 PM

Patty Mata, Senior Project Manager
(949)261-1022
patty.mata@testamericainc.com

Table of Contents

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-233880-1	CL-DrumComp-20190213	Solid	02/13/19 16:04	02/15/19 10:15

Case Narrative

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

Job ID: 440-233880-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-233880-1

Comments
No additional comments.

Receipt
The sample was received on 2/15/2019 10:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

GC/MS VOA
Method(s) 8260B: The continuing calibration verification (CCV) associated with batch 440-529753 recovered above the upper control limit for Carbon tetrachloride (%D = 40.2), Vinyl chloride (%D = 48.4), Chloroform (%D = 20.9) and 1,1-Dichloroethene (%D = 30.0). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: CL-DrumComp-20190213 (440-233880-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 6010B: The method blank for preparation batch 440-529214 and 440-529354 and analytical batch 440-529766 contained Chromium above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 7470A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-529124 and 440-530204 and analytical batch 440-530531 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) 9034: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-529833 and analytical batch 440-529866 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 9045C: The pH for the following sample was outside the instrument calibration range of 1.00 to to 4.00. The sample result was pH <1.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: CL-DrumComp-20190213

Date Collected: 02/13/19 16:04
Date Received: 02/15/19 10:15

Lab Sample ID: 440-233880-1

Matrix: Solid

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/20/19 10:23	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/20/19 10:23	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/20/19 10:23	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/20/19 10:23	1
Tetrachloroethene	**0.17**		0.020	0.0032	mg/L			02/20/19 10:23	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/20/19 10:23	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/20/19 10:23	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/20/19 10:23	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/20/19 10:23	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/20/19 10:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 128*		*02/20/19 10:23*	*1*
4-Bromofluorobenzene (Surr)	*88*		*80 - 120*		*02/20/19 10:23*	*1*
Dibromofluoromethane (Surr)	*117*		*76 - 132*		*02/20/19 10:23*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	**0.0067**	**J**	0.050	0.0028	mg/L			02/25/19 10:00	1
Chloroform	**0.010**	**J**	0.020	0.0033	mg/L			02/25/19 10:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*80 - 128*		*02/25/19 10:00*	*1*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*02/25/19 10:00*	*1*
Dibromofluoromethane (Surr)	*114*		*76 - 132*		*02/25/19 10:00*	*1*

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		02/18/19 14:53	02/19/19 22:33	1
Barium	**0.067**	**J**	0.20	0.060	mg/L		02/18/19 14:53	02/19/19 22:33	1
Cadmium	**0.076**	**J**	0.10	0.020	mg/L		02/18/19 14:53	02/19/19 22:33	1
Chromium	**3.2**	**B**	0.10	0.020	mg/L		02/18/19 14:53	02/19/19 22:33	1
Lead	**0.57**		0.10	0.040	mg/L		02/18/19 14:53	02/19/19 22:33	1
Selenium	**0.11**		0.10	0.080	mg/L		02/18/19 14:53	02/19/19 22:33	1
Silver	ND		0.20	0.060	mg/L		02/18/19 14:53	02/19/19 22:33	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0046**		0.0020	0.0010	mg/L		02/21/19 22:05	02/23/19 07:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability	**not ignitable**		1.0	1.0	NONE			02/18/19 16:10	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	<1.0	HF	1.0	1.0	SU			02/24/19 17:21	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

Client Sample ID: CL-DrumComp-20190213
Date Collected: 02/13/19 16:04
Date Received: 02/15/19 10:15

Lab Sample ID: 440-233880-1
Matrix: Solid
Percent Solids: 81.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.61	0.52	mg/Kg	☼	02/26/19 19:07	02/26/19 23:39	1
Sulfide	ND	F1	49	24	mg/Kg	☼	02/20/19 11:01	02/20/19 13:52	1

Method Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV
7470A	Mercury (CVAA)	SW846	TAL IRV
7.1.2	Ignitablity,Solids	SW846	TAL IRV
9014	Cyanide	SW846	TAL IRV
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL IRV
9045C	pH	SW846	TAL IRV
Moisture	Percent Moisture	EPA	TAL IRV
1311	TCLP Extraction	SW846	TAL IRV
3010A	Preparation, Total Metals	SW846	TAL IRV
5030B	Purge and Trap	SW846	TAL IRV
7470A	Preparation, Mercury	SW846	TAL IRV
9010B	Cyanide, Distillation	SW846	TAL IRV
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL IRV
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL IRV

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

Client Sample ID: CL-DrumComp-20190213

Lab Sample ID: 440-233880-1

Date Collected: 02/13/19 16:04

Matrix: Solid

Date Received: 02/15/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311	RA		25.04 g	500 mL	529215	02/17/19 15:00	CDH	TAL IRV
TCLP	Analysis	8260B	RA	1	1 mL	10 mL	530564	02/25/19 10:00	WC	TAL IRV
TCLP	Leach	1311			25.04 g	500 mL	529215	02/17/19 15:00	CDH	TAL IRV
TCLP	Analysis	8260B		1	1 mL	10 mL	529753	02/20/19 10:23	RM	TAL IRV
TCLP	Leach	1311			99.94 g	2000 mL	529214	02/17/19 16:00	CDH	TAL IRV
TCLP	Prep	3010A			5 mL	50 mL	529354	02/18/19 14:53	EMS	TAL IRV
TCLP	Analysis	6010B		1			529766	02/19/19 22:33	VS	TAL IRV
TCLP	Leach	1311			99.94 g	2000 mL	529214	02/17/19 16:00	CDH	TAL IRV
TCLP	Prep	7470A			2 mL	20 mL	530204	02/21/19 22:05	DB	TAL IRV
TCLP	Analysis	7470A		1			530531	02/23/19 07:24	DB	TAL IRV
Total/NA	Analysis	7.1.2		1			529371	02/18/19 16:10	IK	TAL IRV
Soluble	Leach	DI Leach			20.01 g	20 mL	530510	02/24/19 11:52	CMM	TAL IRV
Soluble	Analysis	9045C		1			530548	02/24/19 17:21	CMM	TAL IRV
Total/NA	Analysis	Moisture		1			529982	02/20/19 22:42	QTN	TAL IRV

Client Sample ID: CL-DrumComp-20190213

Lab Sample ID: 440-233880-1

Date Collected: 02/13/19 16:04

Matrix: Solid

Date Received: 02/15/19 10:15

Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9010B			2.04 g	50 mL	531077	02/26/19 19:07	QTN	TAL IRV
Total/NA	Analysis	9014		1			531108	02/26/19 23:39	QTN	TAL IRV
Total/NA	Prep	9030B			5.09 g	50 mL	529833	02/20/19 11:01	KMY	TAL IRV
Total/NA	Analysis	9034		1			529866	02/20/19 13:52	KMY	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-529215/1-A
Matrix: Solid
Analysis Batch: 529753

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.0028	mg/L			02/20/19 09:32	1
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/20/19 09:32	1
Chloroform	ND		0.020	0.0033	mg/L			02/20/19 09:32	1
1,1-Dichloroethene	ND		0.050	0.0042	mg/L			02/20/19 09:32	1
1,2-Dichloroethane	ND		0.020	0.0028	mg/L			02/20/19 09:32	1
2-Butanone (MEK)	ND		0.10	0.047	mg/L			02/20/19 09:32	1
Tetrachloroethene	ND		0.020	0.0032	mg/L			02/20/19 09:32	1
Trichloroethene	ND		0.020	0.0026	mg/L			02/20/19 09:32	1
Vinyl chloride	ND		0.050	0.0040	mg/L			02/20/19 09:32	1
Chlorobenzene	ND		0.020	0.0036	mg/L			02/20/19 09:32	1
1,4-Dichlorobenzene	ND		0.020	0.0037	mg/L			02/20/19 09:32	1
Hexachlorobutadiene	ND		0.050	0.0038	mg/L			02/20/19 09:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 128*		*02/20/19 09:32*	*1*
4-Bromofluorobenzene (Surr)	*87*		*80 - 120*		*02/20/19 09:32*	*1*
Dibromofluoromethane (Surr)	*120*		*76 - 132*		*02/20/19 09:32*	*1*

Lab Sample ID: LCS 440-529215/2-A
Matrix: Solid
Analysis Batch: 529753

Client Sample ID: Lab Control Sample
Prep Type: TCLP

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.0887		mg/L		89	68 - 130
Carbon tetrachloride	0.100	0.118		mg/L		118	60 - 150
Chloroform	0.100	0.108		mg/L		108	70 - 130
1,1-Dichloroethene	0.100	0.127		mg/L		127	70 - 130
1,2-Dichloroethane	0.100	0.112		mg/L		112	57 - 138
2-Butanone (MEK)	0.100	0.0770	J	mg/L		77	44 - 150
Tetrachloroethene	0.100	0.106		mg/L		106	70 - 130
Trichloroethene	0.100	0.107		mg/L		107	70 - 130
Vinyl chloride	0.100	0.108		mg/L		108	59 - 133
Chlorobenzene	0.100	0.0982		mg/L		98	70 - 130
1,4-Dichlorobenzene	0.100	0.0962		mg/L		96	70 - 130
Hexachlorobutadiene	0.100	0.114		mg/L		114	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*80 - 128*
4-Bromofluorobenzene (Surr)	*87*		*80 - 120*
Dibromofluoromethane (Surr)	*120*		*76 - 132*

Lab Sample ID: 440-233880-1 MS
Matrix: Solid
Analysis Batch: 529753

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.100	0.0902		mg/L		90	66 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-233880-1 MS
Matrix: Solid
Analysis Batch: 529753

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon tetrachloride	0.0056	J	0.100	0.127		mg/L		121	60 - 150
Chloroform	0.010	J	0.100	0.117		mg/L		106	70 - 130
1,1-Dichloroethene	ND		0.100	0.130		mg/L		130	70 - 130
1,2-Dichloroethane	ND		0.100	0.118		mg/L		118	56 - 146
2-Butanone (MEK)	ND		0.100	0.0802	J	mg/L		80	48 - 140
Tetrachloroethene	0.17		0.100	0.274		mg/L		101	70 - 137
Trichloroethene	ND		0.100	0.108		mg/L		108	70 - 130
Vinyl chloride	ND		0.100	0.114		mg/L		114	50 - 137
Chlorobenzene	ND		0.100	0.0979		mg/L		98	70 - 130
1,4-Dichlorobenzene	ND		0.100	0.0941		mg/L		94	70 - 130
Hexachlorobutadiene	ND		0.100	0.110		mg/L		110	10 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*80 - 128*
4-Bromofluorobenzene (Surr)	*87*		*80 - 120*
Dibromofluoromethane (Surr)	*118*		*76 - 132*

Lab Sample ID: 440-233880-1 MSD
Matrix: Solid
Analysis Batch: 529753

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.100	0.0892		mg/L		89	66 - 130	1	20
Carbon tetrachloride	0.0056	J	0.100	0.129		mg/L		123	60 - 150	2	25
Chloroform	0.010	J	0.100	0.119		mg/L		108	70 - 130	2	20
1,1-Dichloroethene	ND		0.100	0.121		mg/L		121	70 - 130	7	20
1,2-Dichloroethane	ND		0.100	0.119		mg/L		119	56 - 146	1	20
2-Butanone (MEK)	ND		0.100	0.0685	J	mg/L		69	48 - 140	16	40
Tetrachloroethene	0.17		0.100	0.279		mg/L		106	70 - 137	2	20
Trichloroethene	ND		0.100	0.113		mg/L		113	70 - 130	5	20
Vinyl chloride	ND		0.100	0.116		mg/L		116	50 - 137	1	30
Chlorobenzene	ND		0.100	0.0990		mg/L		99	70 - 130	1	20
1,4-Dichlorobenzene	ND		0.100	0.0962		mg/L		96	70 - 130	2	20
Hexachlorobutadiene	ND		0.100	0.111		mg/L		111	10 - 150	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*80 - 128*
4-Bromofluorobenzene (Surr)	*88*		*80 - 120*
Dibromofluoromethane (Surr)	*117*		*76 - 132*

Lab Sample ID: MB 440-529215/1-A
Matrix: Solid
Analysis Batch: 530564

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		0.050	0.0028	mg/L			02/25/19 09:34	1
Chloroform	ND		0.020	0.0033	mg/L			02/25/19 09:34	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-529215/1-A
Matrix: Solid
Analysis Batch: 530564

Client Sample ID: Method Blank
Prep Type: TCLP

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		80 - 128		02/25/19 09:34	1
4-Bromofluorobenzene (Surr)	106		80 - 120		02/25/19 09:34	1
Dibromofluoromethane (Surr)	111		76 - 132		02/25/19 09:34	1

Lab Sample ID: LCS 440-529215/2-A
Matrix: Solid
Analysis Batch: 530564

Client Sample ID: Lab Control Sample
Prep Type: TCLP

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon tetrachloride			0.250	0.323		mg/L		129	60 - 150		
Chloroform			0.250	0.309		mg/L		124	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	104		80 - 128
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	112		76 - 132

Lab Sample ID: 440-233880-1 MS
Matrix: Solid
Analysis Batch: 530564

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon tetrachloride	0.0067	J	0.250	0.295		mg/L		115	60 - 150		
Chloroform	0.010	J	0.250	0.297		mg/L		115	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	100		80 - 128
4-Bromofluorobenzene (Surr)	108		80 - 120
Dibromofluoromethane (Surr)	109		76 - 132

Lab Sample ID: 440-233880-1 MSD
Matrix: Solid
Analysis Batch: 530564

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride	0.0067	J	0.250	0.317		mg/L		124	60 - 150	7	25
Chloroform	0.010	J	0.250	0.314		mg/L		122	70 - 130	6	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	100		80 - 128
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	109		76 - 132

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-529214/1-B
Matrix: Solid
Analysis Batch: 529766

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 529354

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.070	mg/L		02/18/19 14:53	02/19/19 22:25	1
Barium	ND		0.20	0.060	mg/L		02/18/19 14:53	02/19/19 22:25	1
Cadmium	ND		0.10	0.020	mg/L		02/18/19 14:53	02/19/19 22:25	1
Chromium	0.0640	J	0.10	0.020	mg/L		02/18/19 14:53	02/19/19 22:25	1
Lead	ND		0.10	0.040	mg/L		02/18/19 14:53	02/19/19 22:25	1
Selenium	ND		0.10	0.080	mg/L		02/18/19 14:53	02/19/19 22:25	1
Silver	ND		0.20	0.060	mg/L		02/18/19 14:53	02/19/19 22:25	1

Lab Sample ID: LCS 440-529214/2-B
Matrix: Solid
Analysis Batch: 529766

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 529354

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	1.87		mg/L		93	80 - 120
Barium	2.00	1.97		mg/L		98	80 - 120
Cadmium	2.00	1.86		mg/L		93	80 - 120
Chromium	2.00	1.96		mg/L		98	80 - 120
Lead	2.00	1.87		mg/L		94	80 - 120
Selenium	2.00	1.74		mg/L		87	80 - 120
Silver	1.00	0.965		mg/L		97	80 - 120

Lab Sample ID: 440-233880-1 MS
Matrix: Solid
Analysis Batch: 529766

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP
Prep Batch: 529354

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		2.00	1.94		mg/L		97	75 - 125
Barium	0.067	J	2.00	2.03		mg/L		98	75 - 125
Cadmium	0.076	J	2.00	1.94		mg/L		93	75 - 125
Chromium	3.2	B	2.00	5.10		mg/L		96	75 - 125
Lead	0.57		2.00	2.41		mg/L		92	75 - 125
Selenium	0.11		2.00	1.77		mg/L		83	75 - 125
Silver	ND		1.00	0.953		mg/L		95	75 - 125

Lab Sample ID: 440-233880-1 MSD
Matrix: Solid
Analysis Batch: 529766

Client Sample ID: CL-DrumComp-20190213
Prep Type: TCLP
Prep Batch: 529354

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		2.00	1.88		mg/L		94	75 - 125	3	20
Barium	0.067	J	2.00	1.99		mg/L		96	75 - 125	2	20
Cadmium	0.076	J	2.00	1.89		mg/L		91	75 - 125	3	20
Chromium	3.2	B	2.00	5.36		mg/L		109	75 - 125	5	20
Lead	0.57		2.00	2.44		mg/L		93	75 - 125	1	20
Selenium	0.11		2.00	1.73		mg/L		81	75 - 125	2	20
Silver	ND		1.00	0.923		mg/L		92	75 - 125	3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 440-529124/1-D
Matrix: Solid
Analysis Batch: 530531

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 530204

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.0010	mg/L		02/21/19 22:05	02/23/19 07:02	1

Lab Sample ID: LCS 440-529124/2-D
Matrix: Solid
Analysis Batch: 530531

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 530204

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0800	0.0833		mg/L		104	80 - 120

Lab Sample ID: 440-233334-C-1-G MS
Matrix: Solid
Analysis Batch: 530531

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 530204

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND	F1	0.0800	0.0304	F1	mg/L		38	70 - 130

Lab Sample ID: 440-233334-C-1-H MSD
Matrix: Solid
Analysis Batch: 530531

Client Sample ID: Matrix Spike Duplicate
Prep Type: TCLP
Prep Batch: 530204

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND	F1	0.0800	0.0333	F1	mg/L		42	70 - 130	9	20

Method: 9014 - Cyanide

Lab Sample ID: MB 440-531077/1-A
Matrix: Solid
Analysis Batch: 531108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 531077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.49	0.42	mg/Kg		02/26/19 19:07	02/26/19 23:38	1

Lab Sample ID: LCS 440-531077/2-A
Matrix: Solid
Analysis Batch: 531108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 531077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	4.98	4.74		mg/Kg		95	90 - 110

Lab Sample ID: LCSD 440-531077/3-A
Matrix: Solid
Analysis Batch: 531108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 531077

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	5.08	4.84		mg/Kg		95	90 - 110	2	10

Method: 9014 - Cyanide (Continued)

Lab Sample ID: 320-47723-K-4-B MS
Matrix: Solid
Analysis Batch: 531108

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 531077

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		5.10	4.40		mg/Kg		86	70 - 115

Lab Sample ID: 320-47723-K-4-C MSD
Matrix: Solid
Analysis Batch: 531108

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 531077

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		4.98	4.47		mg/Kg		90	70 - 115	1	15

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 440-529833/1-A
Matrix: Solid
Analysis Batch: 529866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 529833

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		40	20	mg/Kg		02/20/19 11:01	02/20/19 13:52	1

Lab Sample ID: LCS 440-529833/2-A
Matrix: Solid
Analysis Batch: 529866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 529833

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	95.8	95.8		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 440-529833/3-A
Matrix: Solid
Analysis Batch: 529866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 529833

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	95.4	87.5		mg/Kg		92	80 - 120	9	20

Lab Sample ID: 440-233880-1 MS
Matrix: Solid
Analysis Batch: 529866

Client Sample ID: CL-DrumComp-20190213
Prep Type: Total/NA
Prep Batch: 529833

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	118	29.6	J F1	mg/Kg	☼	25	70 - 130

Lab Sample ID: 440-233880-1 MSD
Matrix: Solid
Analysis Batch: 529866

Client Sample ID: CL-DrumComp-20190213
Prep Type: Total/NA
Prep Batch: 529833

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	117	ND	F1	mg/Kg	☼	0	70 - 130	NC	30

Method: 9045C - pH

Lab Sample ID: 440-233285-E-1-E DU
Matrix: Solid
Analysis Batch: 530548

Client Sample ID: Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	8.1			8.1		SU				0.1	2

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

GC/MS VOA

Leach Batch: 529215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1 - RA	CL-DrumComp-20190213	TCLP	Solid	1311	
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	1311	
MB 440-529215/1-A	Method Blank	TCLP	Solid	1311	
LCS 440-529215/2-A	Lab Control Sample	TCLP	Solid	1311	
440-233880-1 MS	CL-DrumComp-20190213	TCLP	Solid	1311	
440-233880-1 MSD	CL-DrumComp-20190213	TCLP	Solid	1311	

Analysis Batch: 529753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	8260B	529215
MB 440-529215/1-A	Method Blank	TCLP	Solid	8260B	529215
LCS 440-529215/2-A	Lab Control Sample	TCLP	Solid	8260B	529215
440-233880-1 MS	CL-DrumComp-20190213	TCLP	Solid	8260B	529215
440-233880-1 MSD	CL-DrumComp-20190213	TCLP	Solid	8260B	529215

Analysis Batch: 530564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1 - RA	CL-DrumComp-20190213	TCLP	Solid	8260B	529215
MB 440-529215/1-A	Method Blank	TCLP	Solid	8260B	529215
LCS 440-529215/2-A	Lab Control Sample	TCLP	Solid	8260B	529215
440-233880-1 MS	CL-DrumComp-20190213	TCLP	Solid	8260B	529215
440-233880-1 MSD	CL-DrumComp-20190213	TCLP	Solid	8260B	529215

Metals

Leach Batch: 529124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-529124/1-D	Method Blank	TCLP	Solid	1311	
LCS 440-529124/2-D	Lab Control Sample	TCLP	Solid	1311	
440-233334-C-1-G MS	Matrix Spike	TCLP	Solid	1311	
440-233334-C-1-H MSD	Matrix Spike Duplicate	TCLP	Solid	1311	

Leach Batch: 529214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	1311	
MB 440-529214/1-B	Method Blank	TCLP	Solid	1311	
LCS 440-529214/2-B	Lab Control Sample	TCLP	Solid	1311	
440-233880-1 MS	CL-DrumComp-20190213	TCLP	Solid	1311	
440-233880-1 MSD	CL-DrumComp-20190213	TCLP	Solid	1311	

Prep Batch: 529354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	3010A	529214
MB 440-529214/1-B	Method Blank	TCLP	Solid	3010A	529214
LCS 440-529214/2-B	Lab Control Sample	TCLP	Solid	3010A	529214
440-233880-1 MS	CL-DrumComp-20190213	TCLP	Solid	3010A	529214
440-233880-1 MSD	CL-DrumComp-20190213	TCLP	Solid	3010A	529214

Metals (Continued)

Analysis Batch: 529766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	6010B	529354
MB 440-529214/1-B	Method Blank	TCLP	Solid	6010B	529354
LCS 440-529214/2-B	Lab Control Sample	TCLP	Solid	6010B	529354
440-233880-1 MS	CL-DrumComp-20190213	TCLP	Solid	6010B	529354
440-233880-1 MSD	CL-DrumComp-20190213	TCLP	Solid	6010B	529354

Prep Batch: 530204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	7470A	529214
MB 440-529124/1-D	Method Blank	TCLP	Solid	7470A	529124
LCS 440-529124/2-D	Lab Control Sample	TCLP	Solid	7470A	529124
440-233334-C-1-G MS	Matrix Spike	TCLP	Solid	7470A	529124
440-233334-C-1-H MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	529124

Analysis Batch: 530531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	TCLP	Solid	7470A	530204
MB 440-529124/1-D	Method Blank	TCLP	Solid	7470A	530204
LCS 440-529124/2-D	Lab Control Sample	TCLP	Solid	7470A	530204
440-233334-C-1-G MS	Matrix Spike	TCLP	Solid	7470A	530204
440-233334-C-1-H MSD	Matrix Spike Duplicate	TCLP	Solid	7470A	530204

General Chemistry

Analysis Batch: 529371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Total/NA	Solid	7.1.2	

Prep Batch: 529833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Total/NA	Solid	9030B	
MB 440-529833/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 440-529833/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 440-529833/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
440-233880-1 MS	CL-DrumComp-20190213	Total/NA	Solid	9030B	
440-233880-1 MSD	CL-DrumComp-20190213	Total/NA	Solid	9030B	

Analysis Batch: 529866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Total/NA	Solid	9034	529833
MB 440-529833/1-A	Method Blank	Total/NA	Solid	9034	529833
LCS 440-529833/2-A	Lab Control Sample	Total/NA	Solid	9034	529833
LCSD 440-529833/3-A	Lab Control Sample Dup	Total/NA	Solid	9034	529833
440-233880-1 MS	CL-DrumComp-20190213	Total/NA	Solid	9034	529833
440-233880-1 MSD	CL-DrumComp-20190213	Total/NA	Solid	9034	529833

Analysis Batch: 529982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Total/NA	Solid	Moisture	
440-232705-A-1 DU	Duplicate	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Leach Batch: 530510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Soluble	Solid	DI Leach	
440-233285-E-1-E DU	Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 530548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Soluble	Solid	9045C	530510
440-233285-E-1-E DU	Duplicate	Soluble	Solid	9045C	530510

Prep Batch: 531077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Total/NA	Solid	9010B	
MB 440-531077/1-A	Method Blank	Total/NA	Solid	9010B	
LCS 440-531077/2-A	Lab Control Sample	Total/NA	Solid	9010B	
LCSD 440-531077/3-A	Lab Control Sample Dup	Total/NA	Solid	9010B	
320-47723-K-4-B MS	Matrix Spike	Total/NA	Solid	9010B	
320-47723-K-4-C MSD	Matrix Spike Duplicate	Total/NA	Solid	9010B	

Analysis Batch: 531108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-233880-1	CL-DrumComp-20190213	Total/NA	Solid	9014	531077
MB 440-531077/1-A	Method Blank	Total/NA	Solid	9014	531077
LCS 440-531077/2-A	Lab Control Sample	Total/NA	Solid	9014	531077
LCSD 440-531077/3-A	Lab Control Sample Dup	Total/NA	Solid	9014	531077
320-47723-K-4-B MS	Matrix Spike	Total/NA	Solid	9014	531077
320-47723-K-4-C MSD	Matrix Spike Duplicate	Total/NA	Solid	9014	531077

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: NERT A02H Chlorine Line Removal, K19

TestAmerica Job ID: 440-233880-1

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.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
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)

Accreditation/Certification Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 440-233880-1
Project/Site: NERT A02H Chlorine Line Removal, K19

Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-19
Arizona	State Program	9	AZ0671	10-14-19
California	LA Cty Sanitation Districts	9	10256	06-30-19
California	State Program	9	CA ELAP 2706	06-30-19
Guam	State Program	9	Cert. No. 19-005R	01-23-20
Hawaii	State Program	9	N/A	01-29-20
Kansas	NELAP	7	E-10420	07-31-19
Nevada	State Program	9	CA015312018-1	07-31-19
New Mexico	State Program	6	N/A	01-29-20
Oregon	NELAP	10	4028	01-29-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-18-00214	07-09-21
Washington	State Program	10	C900	09-03-19

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

TestAmerica Las Vegas
219

Chain of Custody Record

TestAmerica

Client Information	Sampler: K. Hansen	Lab PM: Mata, Patty	Carrier Tracking No(s):
Client Contact: Kyle Hansen	Phone: 801-949-6663	E-Mail: patty.mata@testamericainc.com	COC No: 440-152828-28243.2
			Page: Page 2 of 2
Company: Tetra Tech, Inc.			Job #: 117750-018-A02H
Address: 150 South Fourth St Unit A	Due Date Requested:		
City: Henderson	TAT Requested (days): STD - 10 Day Turn		
State, Zip: NV, 89015			
Phone: ~~303-448-7406~~(Tel) 801-949-6663	PO #: K19-CWP-19-WA1		
Email: Kyle.Hansen@tetratech.com	WO #:		
Project Name: NERT A02H Chlorine Line Removal	Project #: 44021189		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	7.1.2 - Ignitability of Solid	9045C - pH	6010B - TCLP RCRA 8 metals	9034_Sulfide	9014 - Cyanide	8260B - TCLP VOCs	Total Number of containers	Special Instructions/Note:
				Preservation Code:			N	N	N	N	N	N		
CL-DrumComp-20190213	2/3/19	1604	Comp	S			X	X	X	X	X	X	1	4 pt. composite

LB 2/16/19

440-233880 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Kyle S. Hansen	2/14/19 1100	TT	[signature]	2/14/19 1100	TALUS
[signature]	2/14/19 1600	TALUS	Fedex / [signature]	2/15/19 @ 1015	[illegible]

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: 471010 51030 00901 | Cooler Temperature(s) °C and Other Remarks: 2.9/3.3 IR-3 TALUS 7.2 [initials]

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 440-233880-1

Login Number: 233880
List Number: 1
Creator: Bonta, Lucia F

List Source: TestAmerica Irvine

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment 4
Non-Hazardous Waste Manifest

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter) 091901910045-002

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NVD062081560

Manifest Document No. Olin041215

2. Page 1 of 1

3. Generator's Name and Mailing Address
Olin Chemical
350 4th Street
Henderson NV 89015

4. Generator's Phone (702) 564-0247

Site Address:
350 4th Street PO Box 96
Henderson, NV 89015

5. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.

6. US EPA ID Number: MAD039322260

A. State Transporter's ID

B. Transporter 1 Phone (781) 792-5000

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
Clean Harbors Deer Park, LLC
3027 Independence Parkway South
La Porte, TX 77571

10. US EPA ID Number: TXD055141378

E. State Facility's ID: 50089

F. Facility's Phone: (281) 930-2300

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-REGULATED LIQUID, (ALCOHOLS, WATER)	1			
b. NON-RCRA HAZARDOUS WASTE, SOLIDS, (PPE, DEBRIS)	1	Dm		
c. NON-RCRA HAZARDOUS WASTE, SOLIDS, (DEBRIS, PPE)	1	Dm		P
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above
11.a.CH1821777
11.b.CH1819086
11.c.CH1816023

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EMERGENCY PHONE #: (800) 483-3716
GENERATOR: Olin Chemical

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
		7	12	15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
		7	12	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

NON-HAZARDOUS WASTE