

Application to Operate a Facility

Goff Recycling Facility

Project 112C06684

May 19, 2014

PRESENTED TO

Heckmann Water Resources (CVR), Inc.

300 Cherrington Parkway, Suite 200
Coraopolis, PA 15108

PRESENTED BY

Tetra Tech, Inc.

400 Penn Center Boulevard
Suite 200
Pittsburgh, PA 15235

P +1-412-829-3600

F +1-412-829-3620

tetrattech.com

Authorized by:



Jonathan D. Shimko 5/19/14
Environmental & Water Resources Manager

The enclosure contains Proprietary Information and is submitted in confidence, and its disclosure to you should not be considered a public disclosure. Information contained herein may not be communicated, disclosed, copied, distributed or used by individuals or the organization other than to which this proposal is addressed without the express consent of Tetra Tech, Inc.

TABLE OF CONTENTS

- Section 1. Application Form**
- Section 2. Aerial Drawing/Figure**
- Section 3. Process Flow Diagram**
- Section 4. General Arrangement Drawings**
- Section 5. Equipment List**
- Section 6. List of Chemicals and Purposes**
- Section 7. Water Quality Summary (Pre-Treated)**
- Section 8. Volume of Material to be Handled**
- Section 9. Method of Documentation**

SECTION 1. APPLICATION FORM

APPLICATION TO OPERATE A FACILITY
 OHIO DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF OIL AND GAS RESOURCES MANAGEMENT
 2045 MORSE ROAD, BUILDING F-2
 COLUMBUS, OHIO 43229-6693
 (614) 265-6922

1.	Name of Applicant: <u>Heckmann Water Resources (CVR), Inc.</u>	Phone #: <u>412-474-3819</u>
	Address: <u>300 Cherrington Parkway, Suite 200, Coraopolis, PA 15108</u>	
	Date: <u>5/7/2014</u> eMail Address: <u>russell.huffmyer@nuverra.com</u>	
	For an Order or a Permit to Operate: <input checked="" type="checkbox"/> Existing Facility <input type="checkbox"/> New Facility	
2. PURPOSE OF FACILITY:	<input type="checkbox"/> Storage <input checked="" type="checkbox"/> Recycling <input type="checkbox"/> Treatment	
(Check all that Apply)	<input type="checkbox"/> Processing <input checked="" type="checkbox"/> Disposal	
3. TYPE OF MATERIAL:	<input checked="" type="checkbox"/> Brine <input type="checkbox"/> Drill Cuttings	
	<input type="checkbox"/> Drilling Mud <input type="checkbox"/> Other Waste Substance (explain) _____	
4. If a Business Entity, list the statutory agent and include a certified copy of their appointment:	Name: <u>Russell Huffmyer</u>	
	Address: <u>300 Cherrington Parkway, Suite 200, Coraopolis, PA 15108</u>	
5. Engineer of Record:	Name: <u>Greg Hynes, P.E.</u>	
	Address: _____	
	Ohio Professional Engineering License Number: _____	
6. Address of Facility:	Address: <u>9350 East Pike, Norwich, OH</u>	
	County: <u>Muskingum</u>	
	Township: <u>Union</u>	
	Municipal Corporation: _____	
	Latitude: <u>39°58'38.80"</u>	
	Longitude: <u>81°48'24.33</u>	
7. Write a brief description of the facility and operations:	<u>Heckmann Water Resources (CVR), Inc. is proposing to modify a solids removal system for reuse or injection of water used in hydraulic fracturing. The water will be processed to separate the solids from water. The solids will be hauled offsite for further processing. The remaining water will be either sent back to hydraulic fracturing well sites for re-use, or will be injected into an existing deep well near the recycling facility.</u>	
8. Include all information as set forth in the "Guidelines for Application for Chief's Order". Attach Additional Documents		

I, the undersigned, being first duly sworn, depose and state under penalties of law, that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the facts stated herein are true, correct, and complete, to the best of my knowledge.

I certify that the facility will comply with or is currently in compliance with all provisions of Chapter 1509 ORC, Chapter 1501 OAC, and all terms and conditions of orders and permits issued by the Chief, Division of Oil and Gas Resources Management.

Signature of Authorized Agent _____

Name (Type or Print) _____ Title _____

Sworn to and subscribed before me this the _____ day of _____, 20_____.

 (Notary Public)

 (Date Commission Expires)

SECTION 2. AERIAL DRAWING/FIGURE



GENERAL NOTES:

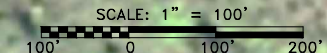
1. FIELD SURVEY PERFORMED JANUARY 12 AND 13, 2012, UPDATED 4/9/13 THRU 5/16/13.
2. NO CEMETERIES OR BURIAL GROUNDS WERE OBSERVED ON THE PREMISES DURING THE FIELD SURVEY.
3. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED BY GAI CONSULTANTS, INC. FROM A COMBINATION OF FIELD EVIDENCE, AVAILABLE PLANS AND FIELD MARKINGS. THEREFORE, THEIR LOCATIONS AND SIZES MUST BE CONSIDERED APPROXIMATE ONLY; THERE MAY BE OTHER UNDERGROUND FACILITIES WHOSE EXISTENCE IS PRESENTLY UNKNOWN. GAI CONSULTANTS, INC. OH ONE CALL SERIAL NUMBER A200900600.
4. BEARINGS SHOWN ARE GRID BEARINGS DERIVED FROM THE OHIO STATE PLANE COORDINATE SYSTEM SOUTH ZONE.
5. ELEVATIONS SHOWN ARE SURVEY GRADE GPS DERIVED NAVD '88.
6. PUBLIC WATER UTILITIES WERE OBSERVED ALONG NATIONAL ROAD. ACCESS TO THESE SERVICES IS BASED ON AVAILABILITY PER SERVICE PROVIDER.
7. THERE WERE NO STRUCTURES OVER THE PROPERTY LINES AT THE TIME OF THE FIELD SURVEY OTHER THAN NOTED ON THE FACE OF THE SURVEY.
8. THERE ARE NO ZONING ORDINANCES IN MUSKINGUM COUNTY APPLICABLE TO THIS PROPERTY.
9. THERE ARE NO SETBACK ORDINANCES IN MUSKINGUM COUNTY APPLICABLE TO THIS PROPERTY.

LEGEND:

PROPERTY LINE	---
OVERHEAD LINES	—OHE—
UNDERGROUND ELECTRIC	—UGE—
UNDERGROUND TELEPHONE	—UGT—
WATER LINE	—W—
FLOOD LINE - ZONE A	---
STREAM	---
WATER METER	⊙
WATER VALVE	⊕
FIRE HYDRANT	⊕
UTILITY POLE	⊕
TITLE EXCEPTION NUMBER	TE-8

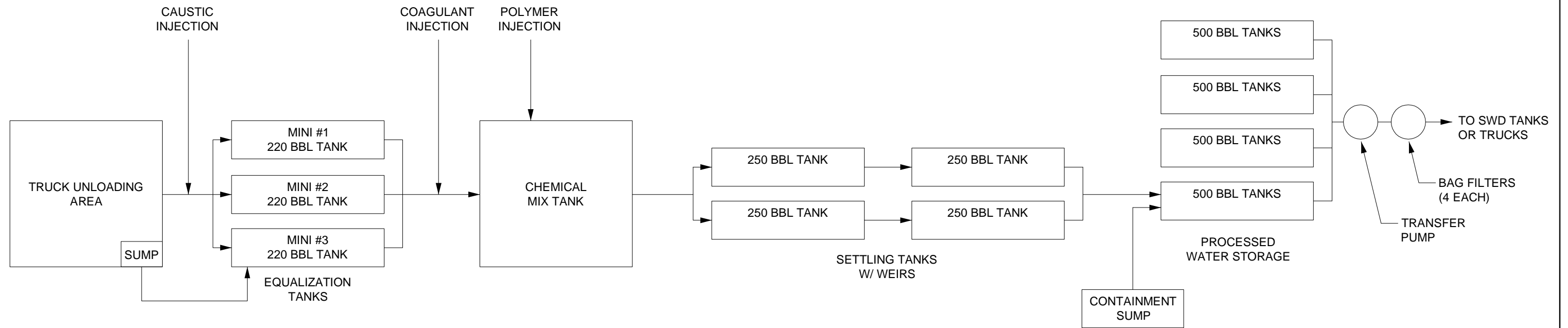
FLOOD ZONE:


SUBJECT PROPERTY IS LOCATED IN ZONE X, DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), SHOWN ON FLOOD INSURANCE RATE MAP NO. 39119C0350G, WITH AN EFFECTIVE DATE OF JULY 6, 2010, FOR MUSKINGUM COUNTY, STATE OF OHIO, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED.



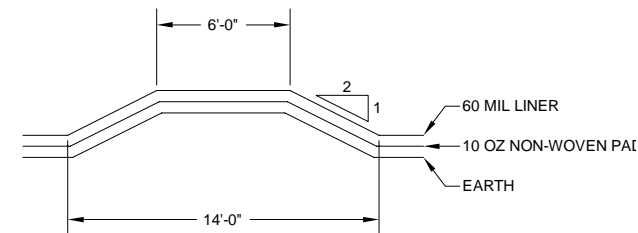
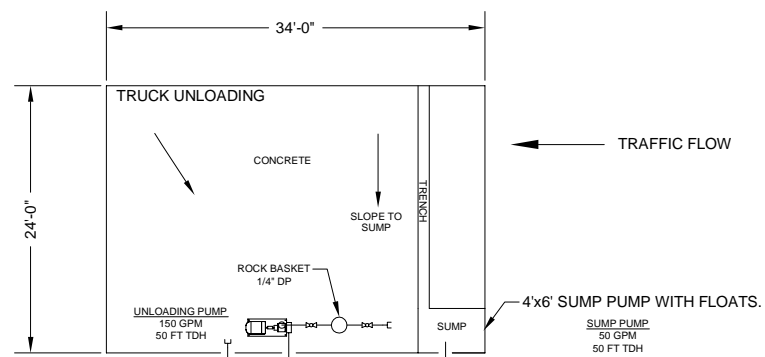
REFERENCE	DWG. NO.	REV.	DESCRIPTION	CHECKED	DATE	FILE NAME	6649-G002	DRAWN BY: KMH	DATE: 03/13/14	<p>TETRA TECH ENGINEERING SERVICES GROUP Pittsburgh, Pennsylvania 15220-2745 (412) 921-7090</p> <p><small>*THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF TETRA TECH NUS, INC. IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY TETRA TECH AND IS SUBJECT TO RETURN UPON DEMAND. ACCEPTANCE OF THIS DRAWING CONSTITUTES AGREEMENT TO THE TERMS AND CONDITIONS THEREON. COPYRIGHT © TETRA TECH NUS, INC. 2008*</small></p>	NUVERRA	CUSTOMER PROJECT NO.	112C06649		
								CHECKED BY: JDS	DATE: 04/09/14		GOFF PROPERTY	SCALE:	AS NOTED		
								APPROVED BY:	DATE:		WATER POLISHING SYSTEM				
										GENERAL ARRANGEMENT			6649-G002	REVISION	C

SECTION 3. PROCESS FLOW DIAGRAM

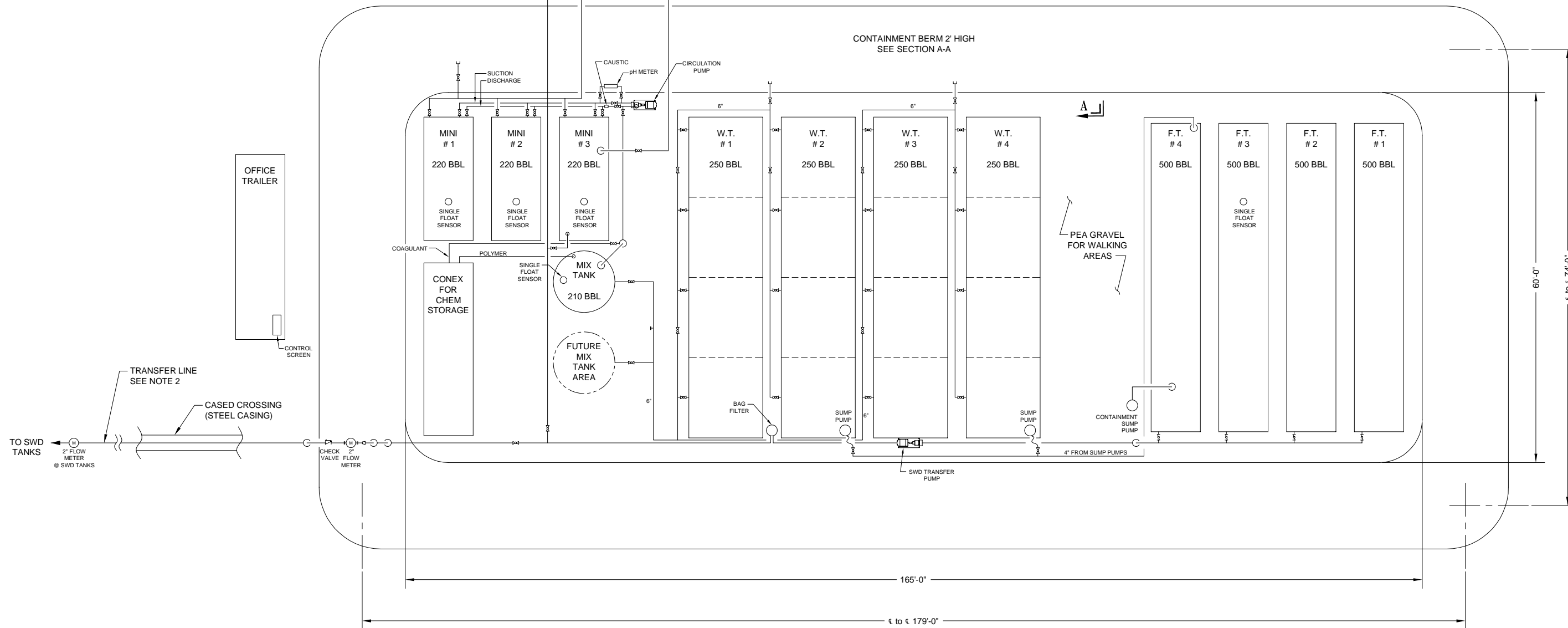


REFERENCE	DWG. NO.	REV.	DESCRIPTION	CHECKED	DATE	FILE NAME	6649-F001	DRAWN BY: KMH	DATE M/D/Y	 TETRA TECH ENGINEERING SERVICES GROUP Pittsburgh, Pennsylvania 15220-2745 (412) 921-7090	NUVERRA	CUSTOMER PROJECT NO.	112C06649
								CHECKED BY: JDS	DATE		GOFF PROPERTY	SCALE:	AS NOTED
								APPROVED BY:	DATE		WATER POLISHING SYSTEM	6649-F001	
<small>*THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF TETRA TECH NUS, INC. IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY TETRA TECH AND IS SUBJECT TO RETURN UPON DEMAND. ACCEPTANCE OF THIS DRAWING CONSTITUTES AGREEMENT TO THE TERMS AND CONDITIONS THEREON. COPYRIGHT © TETRA TECH NUS, INC. 2008*</small>											BLOCK FLOW DIAGRAM		

SECTION 4. GENERAL ARRANGEMENT DRAWINGS



SECTION A-A
CONTAINMENT BERM
SCALE: 1/4"=1'-0"



PLAN
SCALE: 1/8"=1'-0"

BAG FILTER 4 - BAGS 50 MICRON	SUMP PUMP W/FLOATS 100 GPM 50 FT TDH	SWD TRANSFER PUMP 100 GPM 150 FT TDH	CIRCULATION PUMP 100 GPM 50 FT TDH	CONTAINMENT SUMP PUMP (MANUAL) 100 GPM 50 FT TDH
-------------------------------------	---	--	--	---

NOTES:

- 1) FACILITY PIPING - HDPE, 3"/4"/6" VARIES
- 2) TRANSFER PIPELINE BETWEEN CONTAINMENT AND SWD TANKS IS DOUBLE CONTAINED HDPE, 3" CARRIER PIPE.
- 3) WORK THIS DRAWING WITH 6649-G003

REFERENCE	DWG. NO.
-----------	----------

REV.	GENERAL REVISIONS	CHECKED	DATE
1		JDS	05/12/14

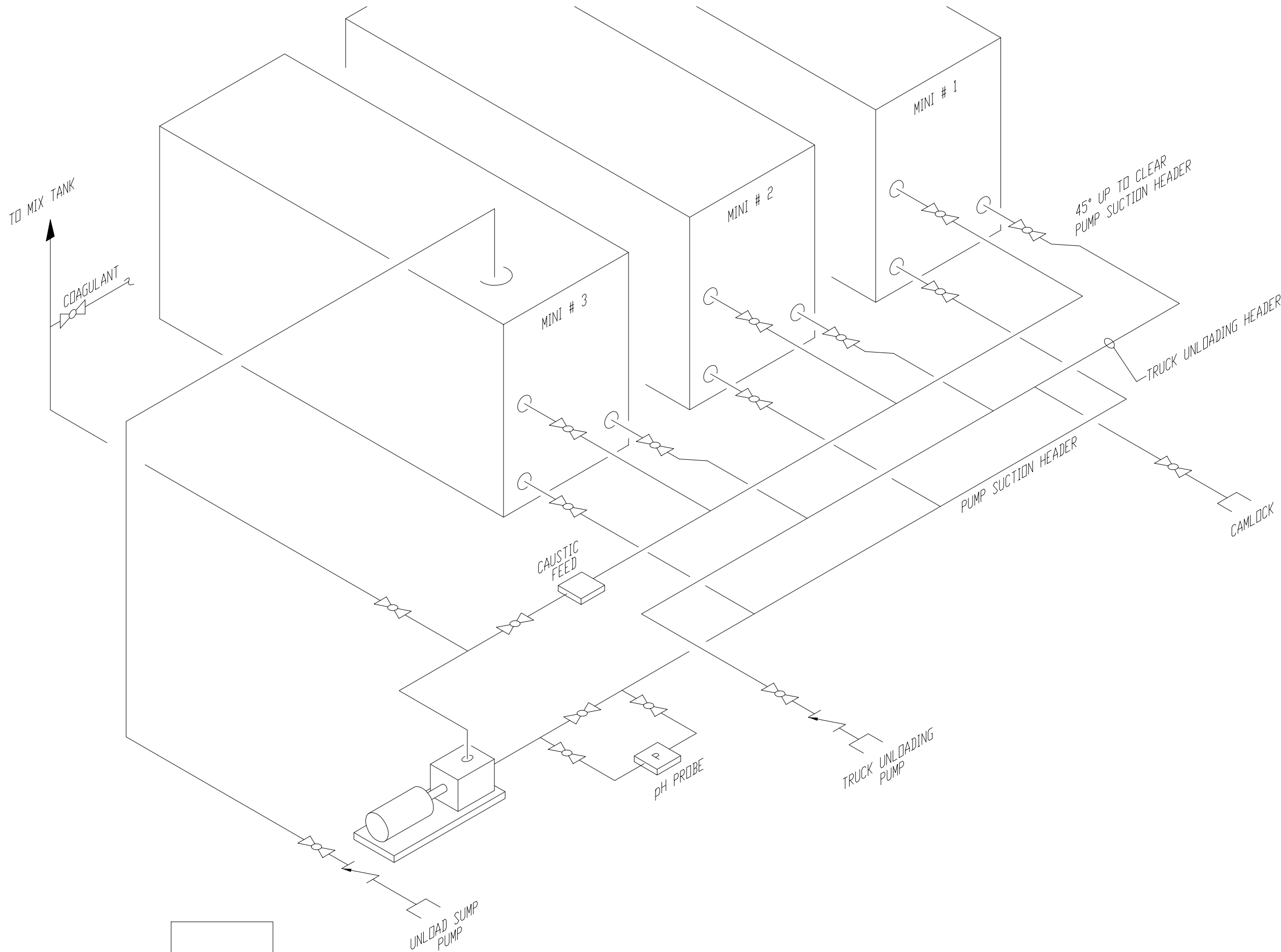
FILE NAME	6649-G001
DRAWN BY	KMH
DATE	M/D/Y
CHECKED BY	JDS
DATE	
APPROVED BY	
DATE	



TETRA TECH
ENGINEERING SERVICES GROUP
Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090

THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF TETRA TECH NUS, INC. IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY TETRA TECH AND IS SUBJECT TO RETURN UPON DEMAND. ACCEPTANCE OF THIS DRAWING CONSTITUTES AGREEMENT TO THE TERMS AND CONDITIONS THEREON. COPYRIGHT © TETRA TECH NUS, INC. 2008

NUVERRA	CUSTOMER PROJECT NO.	112C06649
GOFF PROPERTY	SCALE:	AS NOTED
WATER POLISHING SYSTEM	6649-G001	
GENERAL ARRANGEMENT	F	



REFERENCE	DWG. NO.

REV.	GENERAL REVISIONS	CHECKED	DATE

FILE NAME	6649-G003
DRAWN BY	KMH
DATE	M/D/Y
CHECKED BY	JDS
DATE	
APPROVED BY	
DATE	


TETRA TECH
 ENGINEERING SERVICES GROUP
 Pittsburgh, Pennsylvania 15220-2745
 (412) 921-7090

THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF TETRA TECH NUS, INC. IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY TETRA TECH AND IS SUBJECT TO RETURN UPON DEMAND. ACCEPTANCE OF THIS DRAWING CONSTITUTES AGREEMENT TO THE TERMS AND CONDITIONS THEREON. COPYRIGHT © TETRA TECH NUS, INC. 2008

NUVERRA	CUSTOMER PROJECT NO.	112C06649
GOFF PROPERTY	SCALE:	AS NOTED
WATER POLISHING SYSTEM	6649-G003	REVISION D
ISOMETRIC		

SECTION 5. EQUIPMENT LIST

SECTION 5
EQUIPMENT LIST

Pumps		
Equipment	Capacity	Size
Unloading Pump	250 GPM	7.5 hp
Unloading Pad Sump Pump	50 GPM	3 hp
Circulation Pump	100 GPM	5 hp
Sump Pumps (Weir Rank #2 and #4)	100 GPM	3 hp
Transfer Pump	100 GPM	15 hp
Containment Sump Pump	50 GPM	1 hp
Tanks		
Quantity	Equipment	Size
3 EA	220bbl Mini Frac Tanks	20ft L x 8ft W x 8ft H
1 EA	210bbl Mix Tank	10ft D x 15ft H
4 EA	250bbl Weir Tanks	52ft L x 12ft W x 4ft 8in H
4 EA	500bbl Frac Tanks	48ft L x 8ft W x 8ft H
Other Equipment		
Mixer: Located in Mix Tank (210bbl Vertical Tank)		
pH meters		
Flow meters (2 EA)		
Office Trailer		
Con-X Box for Chemical Storage		
Float Sensors for Tank Level Control		

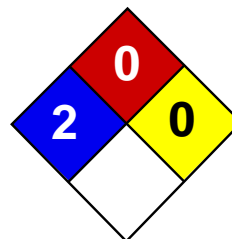
SECTION 6. LIST OF CHEMICALS AND PURPOSES

SECTION 6**LIST OF CHEMICALS AND PURPOSES**

Chemical	Purpose
Caustic Soda (winter use)	pH adjustment in low temperature seasons.
Caustic Soda (non-winter use)	pH adjustment in seasons with temperatures above freezing.
WT-8115 Polyaluminum chloride	Flocculation aid to facilitate agglomeration of particles to provide higher settling rates in the weir tanks
WT-8306 Anionic polyacrylamide	A polymer that will create particles that can be more readily settled

*Refer to MSDS sheets attached in following pages.

25% CAUSTIC SODA MSDS



Health	2
Fire	0
Reactivity	0
Personal Protection	

Material Safety Data Sheet

Sodium Hydroxide, 25% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium Hydroxide, 25%

Catalog Codes: SLS4210

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Sodium hydroxide; Water

CI#: Not applicable.

Synonym:

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium hydroxide	1310-73-2	25
Water	7732-18-5	75

Toxicological Data on Ingredients: Sodium hydroxide LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion. Hazardous in case of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe

skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Finish by rinsing thoroughly with running water to avoid a possible infection. Cold water may be used.

Skin Contact:

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:

Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep container dry. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes Keep away from incompatibles such as acids.

Storage:

Alkalis may be stored in heavy duty gauge steel containers. Corrosive materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Sodium hydroxide CEIL: 2 (mg/m3) from ACGIH [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Odorless.

Taste: Alkaline. Bitter. (Strong.)

Molecular Weight: Not applicable.

Color: Clear Colorless.

pH (1% soln/water): Basic.

Boiling Point: The lowest known value is 100°C (212°F) (Water).

Melting Point: Not available.

Critical Temperature: Not available.

Specific Gravity: Weighted average: 1.15 (Water = 1)

Vapor Pressure: The highest known value is 17.535 mm of Hg (@ 20°C) (Water).

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Extremely reactive or incompatible with acids.

Corrosivity:

Highly corrosive in presence of aluminum. Slightly corrosive to corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (corrosive, irritant), of ingestion. Hazardous in case of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 8: Corrosive liquid.

Identification: : Sodium hydroxide, solution (Sodium hydroxide) : UN1824 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: Sodium hydroxide Massachusetts RTK: Sodium hydroxide TSCA 8(b) inventory: Sodium hydroxide; Water

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC): R35- Causes severe burns.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 12:05 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume

no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

LOW FREEZE CAUSTIC SODA MSDS

LOW FREEZE CAUSTIC

Material Safety Data Sheet

1. Material Identification

Manufacturer's Name One AquaSource, Inc.

Manufacturer's Address P.O. Box 207
Waterville, OH 43566

Manufacturer's Phone 888.777.9555

Product Name Low Freeze Caustic

Current Issue Date September 14, 2012

24HR EMERGENCY NUMBER

800-255-3924

2. Hazards Identification

Emergency Overview - Danger

MAJOR HEALTH HAZARDS: CORROSIVE CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN, EYES AND GASTROINTESTINAL TRACT. CAUSE PERMANENT EYE DAMAGE
PHYSICAL HAZARDS: Keep out of sewer supplies and sewers. This material is alkaline and may cause the pH of surface waters. This material has exhibited moderate toxicity to aquatic organisms.
PRECAUTIONARY STATEMENTS: Avoid breathing vapors or mist. Avoid contact with skin, eyes and clothing. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.

Inhalation May cause irritation (possibly severe) chemical burns and pulmonary edema.

Ingestion Immediate esophageal burns will be produced upon ingestion.

Skin May cause irritation (possibly severe) and chemical burns.

Eyes May cause irritation (possibly severe) chemical burns, eye damage, and blindness.

Target Organs Affected: Respiratory System, Skin, Eye – Medical conditions such as Asthma & Respiratory disorders aggravated by exposure.

3. Hazardous Ingredients

<i>Chemical Name</i>	<i>CAS #</i>	<i>%WT</i>
Sodium hydroxide	1310-73-2	~46-50%
Potassium hydroxide	1310-58-3	~46-50%

MSDS
Low Freeze Caustic

4. First Aid Measures

Eyes & Face	Immediately flush eyes with a directed stream of water for at least 15 minutes forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.
Skin	Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry & shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.
Inhalation	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation/Automatic external Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.
Ingestion	Never give anything by mouth to an unconscious or convulsive person. If swallowed, DO NOT INDUCE VOMITING. Give large amounts of water. IF vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

5. Fire & Explosion Hazard

Flash Point	Not flammable
Unusual Fire Hazard	Negligible
Fire Fighting	Move container from fire area if possible without risk. Cool container with water. Avoid contact with skin.

6. Accidental Release

Wear appropriate personal protective equipment recommended in Section 8 of the MSDS. Completely contain spilled material with dikes, sandbags, etc. Shovel dry material into suitable container. Liquid material may be removed with a vacuum truck. Remaining material may be diluted with water and neutralized with dilute acid, then absorbed and collected. Flush spill area with water, if appropriate. Keep product and flush water out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported if required to appropriate agencies.

MSDS
Low Freeze Caustic

7. Precautions & Procedures

Fire Extinguishing Agents	Not combustible
Fire Extinguishing Agents to Avoid	n/a
Special Fire Fighting	Avoid breathing fumes.
Ventilation	Keep open drums in well-ventilated area.
Storage	Store and handle in accordance with all current regulations and standards. Keep container tightly closed. PREVENT FREEZING

8. Personal Protective Clothing

Protective Material Types	Natural rubber, Neoprene, Nitrile
Eyes & Face	Wear chemical safety goggles with a full face shield to protect against eye & skin contact. Provide emergency eye wash fountain.
Hands, Arms & Body	Wear chemical resistant gloves, clothing and boots.

9. Physical Data

Physical State	Liquid
Appearance	Clear
Odor	Odorless
Color	Colorless to slightly colored
Freezing point	10F
Specific Gravity	1.487
Vapor Density	ND
Vapor Pressure	ND
Solubility in Water	100%
pH	>13.5
Evaporation Rate	< 1 (water = 1)

10. Reactivity Data

Stability or shelf life	Stable at room temperatures and pressures
-------------------------	---

WT-8115 MSDS (FLOCCULANT)

MATERIAL SAFETY DATA SHEET

WT-8115

SECTION 1. MATERIAL IDENTIFICATION

Manufacturer's Name One AquaSource, Inc.
Manufacturer's Address P.O.Box 207
Waterville, OH 43566
Manufacturer's Phone 888-777-9555
Product Name WT-8115
Chemical Name Polyaluminum Chloride CAS# 1327-41-9
Emergency Contact **CHEM TEL, Inc. 800-255-3924**

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME

Poly Aluminum chloride 20-45% CAS # 1327-41-9

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: clear to slightly hazy liquid with no odor.

EFFECTS OF OVEREXPOSURE - ACUTE

EYES: Contact with eyes causes severe irritation.
SKIN: Contact may cause mild skin irritation.
INGESTION: May cause mild irritation of intestinal tract.
INHALATION: Not a likely route of entry.

EFFECTS OF OVEREXPOSURE - CHRONIC
not available

PRIMARY ROUTE OF ENTRY: SKIN

SECTION 4 - FIRST AID MEASURES

EYES: flush with plenty of water for at least 15 minutes. Call a physician if irritation persists.

SKIN: Wash thoroughly with soap and water. Remove and wash contaminated clothing before reuse.

INGESTION: DO NOT INDUCE VOMITING. Drink promptly a large quantity of milk, egg whites, gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol. Call a physician immediately.

INHALATION: Move immediately to fresh air. If not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Call a physician.

PHYSICIANS NOTE: Aluminum soluble salts may cause gastroenteritis if ingested. Treatment includes the use of demulcents.

SECTION 5 - FIRE-FIGHTING MEASURES

FLASHPOINT: not flammable
FLAMMABILITY: n/a
AUTOFLAMMABILITY: n/a
EXPLOSIVE LIMITS: N/A
EXPLOSION HAZARD: none

EXTINGUISHING MEDIA: Use media appropriate to base cause of fire.
EXTINGUISHING MEDIA WHICH MUST NOT BE USED: none
SPECIAL EXPOSURE HAZARDS IN FIRE: Keep containers cool by spraying with water if exposed to fire.
SPECIAL PROTECTIVE EQUIPMENT FOR A FIRE: Self-contained breathing apparatus should be worn.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL PRECAUTIONS: Avoid runoff into storm sewers and ditches which lead to Waterways.
METHODS FOR CLEANUP: Absorb spill with inert material, then place in a chemical waste container. Do not flush to waste treatment facility or water courses.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Avoid contact with skin, eyes and clothing.
STORAGE: Keep from freezing. Store in a cool, well-ventilated area.

SECTION 8 - EXPOSURE CONTROL / PERSONAL PROTECTION

ENGINEERING CONTROLS: General ventilation is recommended. Eyewash and safety shower stations must be located in the immediate area.
EXPOSURE GUIDELINES: not established

PERSONAL PROTECTION EQUIPMENT:

RESPIRATORY: NIOSH-approved self-contained breathing apparatus for exposure to levels above limits.
HAND: Rubber gloves and boots.
EYE: Chemical goggles which are splash and dust proof or face shield.
SKIN: If clothing is contaminated, wash skin and launder clothing.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE, COLOR AND ODOR: clear to slightly hazy liquid.
pH as is: 2 - 3
BOILING POINT: 212°F
FLASH POINT: none
VAPOR PRESSURE: not determined
SPECIFIC GRAVITY: 1.29 – 1.34
SOLUBILITY IN WATER: complete
VISCOSITY: not determined
FREEZING POINT: 15°F

SECTION 10 - STABILITY AND REACTIVITY

HAZARDOUS POLYMERIZATION: will not occur
CHEMICAL STABILITY: stable
CONDITIONS TO AVOID: temperature extremes
MATERIALS TO AVOID: alkali and strong oxidizers. Caustic materials will precipitate aluminum hydroxide.

HAZARDOUS DECOMPOSITION PRODUCTS: none under normal storage conditions

SECTION 11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: LD50: Oral LD50 Rat: >2000 mg/kg
IRRITANCY: mild skin irritant
SENSITIZATION: not determined
SUB-ACUTE, SUB-CHRONIC AND PROLONGED TOXICITY: no information available
EMPIRICAL DATA ON EFFECTS ON HUMANS: no information available

SECTION 12 - ECOLOGICAL INFORMATION

PERSISTENCE IN THE ENVIRONMENT: Not determined
BIOLOGICAL OXYGEN DEMAND: Not determined
CHEMICAL OXYGEN DEMAND: Not determined
AQUATIC TOXICITY: Not determined
OTHER INFORMATION: Discharge of this product must be in accordance with all federal, state, local or other applicable laws and regulations.

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose in accordance with local, state, provincial and federal authorities.

SECTION 14 - TRANSPORTATION INFORMATION

DOT SHIPPING NAME: Corrosive liquid, acidic, inorganic, n.o.s.
UN Number: UN3264
DOT HAZARD CLASS: 8
PACKING GROUP: III

SECTION 15 - REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA): All components of this product are listed in the Toxic Substances Control Act inventory.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA): Reportable Quantity - NA

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA Title III) - Section 311 Hazard

Categories:

Acute Health:	No
Chronic Health:	No
Fire:	No
Sudden Release of Pressure:	No
Reactive:	No

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA Title III) - Section 311:

Components of this product subject to reporting: none

SECTION 16 - OTHER INFORMATION

HMIS RATINGS

HEALTH:	1
FLAMMABILITY:	0
REACTIVITY:	0
PPE:	B

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the best opinion on the subject as of the date on this sheet. However, no warranty, guarantee or representation, expressed or implied, is made by One AquaSource, Inc., as to the correctness or sufficiency of this information or to the results to be obtained from the use thereof.

Date Issued: May 10, 2012

WT-8306 MSDS (POLYMER)

WT-8306

MATERIAL SAFETY DATA SHEET

24 HR. EMERGENCY CONTACT (CHEM TEL) US Tel: 1- 800 - 255-3924

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SUPPLIER: One AquaSource, Inc.
P.O. Box 207
Waterville, OH 43566
Phone: 888-777-9555

PRODUCT NAME: WT-8306

PRODUCT USE/CLASS: Water treatment chemical

MSDS REVISION DATE: 02/11/2014

2. HAZARD IDENTIFICATION

Emergency Overview: Solutions extremely slippery when spilled.

Skin: Causes skin irritation.

Eyes: May cause eye irritation.

Inhalation: Avoid breathing vapors or mist.

Ingestion: May cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Characterization

Anionic polyacrylamide in water-in-oil emulsion.

Hazardous or Regulated Components

CAS-number	Chemical name of the substance	Concentration
64742-47-8	Distillates (petroleum), hydrotreated light	20 – 23%
68551-12-2	Alcohols, C12-16, ethoxylated	0 – 3%
68002-97-1	Alcohols, C10-16, ethoxylated	0 – 3%
68439-50-9	Alkyl-(C12-C14) alcohol, ethoxylated >2-10 EO	0 – 3%

Components listed above that have a zero minimum and a common maximum range are interchangeably used components based on availability. Only one of these components is contained in the product up to the maximum amount noted.

4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.

SKIN CONTACT: Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water. Wash contaminated clothing before reuse. Call a physician if irritation persists.

EYES CONTACT: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

INGESTION: If swallowed, call a poison control center or doctor immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.

INFORMATION TO DOCTOR OR OTHER TRAINED PERSONS GIVING FIRST AID:

Symptoms	No information available.
Treatment	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: Water spray. Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical.

EXTINGUISHING MEDIA WHICH SHALL NOT BE USED FOR SAFETY REASONS: Solid water stream. Water may be ineffective.

WT-8306

MATERIAL SAFETY DATA SHEET

SPECIFIC HAZARDS DURING FIREFIGHTING: No information available.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear self-contained breathing apparatus and protective suit.

Use NIOSH/MSHA approved respiratory protection.

SPECIFIC METHODS: Cool containers / tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONARY MEASURES: Where the exposure level is not known, wear approved, positive pressure, self-contained respirator. Where the exposure level is known, wear approved respirator suitable for the level of exposure. For personal protection see section 8. Chemical resistant boots.

ENVIRONMENTAL PRECAUTIONARY MEASURES: Discharge into the environment must be avoided. Prevent product from entering drains.

METHODS FOR CLEANING UP: Sweep up to prevent slipping hazard. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Shovel into suitable container for disposal. After cleaning, flush away traces with water. Use detergent if needed.

7. HANDLING AND STORAGE

HANDLING: Handle in accordance with good industrial hygiene and safety practice. Handle product only in closed system or provide appropriate exhaust ventilation at machinery.

STORAGE: Store at room temperature. To avoid product degradation and equipment corrosion, do not use iron, copper or aluminum containers or equipment. Flashpoint determination was performed using a Pensky Martens type closed cup method. This method indicates a flash point greater than 200° F. Although there was no flashpoint detected below 200°F, some flammable vapors were evolved during the test as evidenced by the enlargement of the flame. Therefore caution should be exercised during storage and handling.

Materials to avoid:
Strong oxidizing agents
Storage stability:

Other date Store at room temperature
Reason: Integrity

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMIT VALUES: **Distillates (petroleum), hydrotreated light**
TWA = 200 mg/m³, As total hydrocarbon vapor, Skin: Contributes significantly to the overall exposure by the skin route., Jet fuels
TWA = 197 ppm = 1,200 mg/m³,: recommendations of the manufacturer

LIMIT VALUES IN OTHER COUNTRIES: **North America:**
Distillates (petroleum), hydrotreated light
TWA = 200 mg/m³, As total hydrocarbon vapor, Skin: Contributes significantly to the overall exposure by the skin route., Jet fuels

EXPOSURE CONTROLS:

Occupational exposure controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes and clothing. Do not breathe vapor. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation.

WT-8306

MATERIAL SAFETY DATA SHEET

RESPIRATORY PROTECTION: When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

HAND PROTECTION: Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Impervious gloves.

EYE PROTECTION: Tightly fitting safety goggles or face-shield.

SKIN PROTECTION: Protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid, emulsion
COLOR:	Grey, to, white
ODOR:	Ammoniacal
pH:	6 – 8 (as aqueous solution)
BOILING POINT/BOILING RANGE:	177 - 260°F
FLASH POINT:	200°F (closed cup)
EXPLOSIVE PROPERTIES:	
LOWER EXPLOSION LIMIT:	No data available.
UPPER EXPLOSION LIMIT:	No data available.
OXIDIZING PROPERTIES:	The substance or mixture is not classified as oxidizing.
VAPOR PRESSURE:	No data available
DENSITY:	ca. 1.0 g/cm ³
WATER SOLUBILITY:	Limited by viscosity.
PARTITION COEFFICIENT: N-OCTANOL/ WATER:	Not applicable.
VISCOSITY: Viscosity, kinematic:	>22.5 mm ² /s (104°F)
RELATIVE VAPOR DENSITY:	No data available.
EVAPORATION RATE:	No data available.
OTHER DATA	
Thermal decomposition:	No data available

10. STABILITY AND REACTIVITY DATA

CONDITIONS TO AVOID: Stable under normal conditions.

MATERIALS TO AVOID: Strong oxidizing agents. Hazardous reactions. Hazardous polymerization does not occur.

HAZARD DECOMPOSITION PRODUCTS: Carbon oxides, Ammonia, nitrogen oxides (NO_x)

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

LD50/Oral/rat: > 5,000 mg/kg
Remarks: estimated

LC50/Inhalation/4 h/rat: >20.0 mg/l
Remarks: estimated

WT-8306

MATERIAL SAFETY DATA SHEET

LD50/Dermal/rabbit: >2,000 mg/kg
Remarks: estimated

IRRITATION AND CORROSION

Skin:

Remarks: The toxicological data has been taken from products of similar composition. Irritating to skin.

Eyes:

Remarks: The toxicological data has been taken from products of similar composition. No eye irritation.

SENSITIZATION

Based on available data, the classification criteria are not met.

LONG TERM TOXICITY

Carcinogenicity

Based on available data, the classification criteria are not met.

Mutagenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

ECOTOXICITY EFFECTS:

Aquatic toxicity

This material is not classified as dangerous for the environment. Acute toxicity tests conducted using environmentally representative water.

LC50/96 h/Pimephales promelas (fahead minnow)/US EPA TSCA Test Guidelines: 21 mg/l

Remarks: Information given is based on data obtained from similar substances.

LC50/96 h/Oncorhynchus mykiss (rainbow trout)/US EPA TSCA Test Guidelines: 70.7 mg/l

Remarks: Information given is based on data obtained from similar substances.

LC50/96 h/Danio rerio (zebra fish)/OECD Test Guideline 203: >100 mg/l

Remarks: Information given is based on data obtained from similar substances.

EC50/10 d/Corophium volutator (amphipoda)/PARCOM: 857 mg/l

EC50/48 h/Acartia tonsa (copepod)/PARCOM: 7.4 mg/l

EC50/48 h/Daphnia magna (Water flea)/Immobilization/OECD Test Guideline 202: > 100 mg/l

Remarks: Information given is based on data obtained from similar substances.

LC50/48 h/Daphnia magna (Water flea)/US EPA TSCA Test Guidelines: 1.96 mg/l

Remarks: Information given is based on data obtained from similar substances.

IC50/72 h/Skeletonema costatum (diatom)/ISO 10253: ca. 27 mg/l

IC50/72 h/Green algae (Selenastrum capricornutum)/Growth inhibition/OECD Test Guideline 201: >100 mg/l

Remarks: Information given is based on data obtained from similar substances.

Toxicity to other organisms

No data available.

Mobility

Water solubility: Limited by viscosity.

Surface tension: No data available.

Persistence and degradability

Biological degradability:

Modified Sturm Test/OECD Test Guideline 301B:

The polymeric ingredient is not readily biodegradable.

Seawater Shake Flask Method/OECD Test Guideline 306/28 d: 13%

WT-8306

MATERIAL SAFETY DATA SHEET

Bioaccumulative potential

Because of the high molecular weight of the polymer diffusion through biological membranes is very small. Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water: not applicable

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Product

Dispose of as special waste in compliance with local and national regulations.
EPA Hazardous Waste – NO

Contaminated packaging

Packages that cannot be cleaned must be disposed of the same way as the unused product.

14. TRANSPORTATION INFORMATION

LAND TRANSPORT: Not classified as dangerous in the meaning of transport regulations.

SEA TRANSPORT: Not classified as dangerous in the meaning of transport regulations.

AIR TRANSPORT: Not classified as dangerous in the meaning of transport regulations.

SPECIAL PRECAUTIONS FOR USER: No data available.

15. REGULATORY INFORMATION

SARA Title III Section 311 Categories

Immediate (Acute) Health Effects: Yes.

Delayed (Chronic) Health Effects: No;

Fire Hazard: No;

Sudden Release of Pressure Hazard: No;

Reactivity Hazard: No;

SARA 302 Extremely Hazardous Substances

None Present ()

SARA 313 – Specific Toxic Chemical Listings

None Present ()

Notification status

All components of this product are included in the United States TSCA Chemical Inventory or are not required to be listed on the United States TSCA Chemical Inventory.

16. OTHER INFORMATION

HMIS Rating

Health: 2

Flammability: 1

Reactivity: 0

NFPA Rating

Health: 2

Fire: 1

Reactivity: 0

WT-8306

MATERIAL SAFETY DATA SHEET

THIS PRODUCT'S HEALTH AND SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOMERS IN ASSESSING COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL REGULATIONS. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US, AND IS BELIEVED TO BE ACCURATE, ALTHOUGH NO GUARANTEE OR WARRANTY IS PROVIDED OR IMPLIED BY THE COMPANY IN THIS RESPECT. SINCE THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE CONTROL OF THE USER, IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE CONDITIONS OF SAFE USE. SUCH CONDITIONS MUST COMPLY WITH ALL GOVERNMENTAL REGULATIONS.

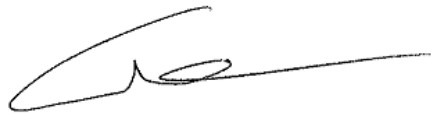
SECTION 7. WATER QUALITY SUMMARY (PRE-TREATED)

ANALYTICAL REPORT

Job Number: 180-30531-1

Job Description: Goff Property Recycle Facility

For:
Tetra Tech, Inc.
400 Penn Center Boulevard
Suite 700
Pittsburgh, PA 15235
Attention: Jonathan Shimko



Approved for release.
Craig Addison
Project Management Assistant I
3/27/2014 3:12 PM

Craig Addison, Project Management Assistant I
301 Alpha Drive, Pittsburgh, PA, 15238
(412)963-7058
craig.addison@testamericainc.com
03/27/2014

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager or designee who has signed this report.

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

Table of Contents

Cover Title Page	1
Data Summaries	6
Definitions	6
Case Narrative	7
Detection Summary	8
Client Sample Results	9
Default Detection Limits	12
Surrogate Summary	15
QC Sample Results	16
QC Association	25
Chronicle	28
Certification Summary	29
Method Summary	31
Sample Summary	32
Manual Integration Summary	33
Reagent Traceability	43
COAs	69
Organic Sample Data	256
GC/MS VOA	256
Method 8260B Low Level	256
Method 8260B Low Level QC Summary	257
Method 8260B Low Level Sample Data	266
Standards Data	277
Method 8260B Low Level ICAL Data	277
Method 8260B Low Level CCAL Data	365
Raw QC Data	375

Table of Contents

Method 8260B Low Level Tune Data	375
Method 8260B Low Level Blank Data	387
Method 8260B Low Level LCS/LCSD Data	392
Method 8260B Low Level Run Logs	398
GC VOA	401
Method 8015B DAI Glycols	401
Method 8015B DAI Glycols QC Summary	402
Method 8015B DAI Glycols Sample Data	409
Standards Data	416
Method 8015B DAI Glycols ICAL Data	416
Method 8015B DAI Glycols CCAL Data	452
Raw QC Data	481
Method 8015B DAI Glycols Blank Data	481
Method 8015B DAI Glycols LCS/LCSD Data	504
Method 8015B DAI Glycols Run Logs	511
Method 8015C DAI	514
Method 8015C DAI QC Summary	515
Method 8015C DAI Sample Data	519
Standards Data	522
Method 8015C DAI ICAL Data	522
Method 8015C DAI CCAL Data	556
Raw QC Data	576
Method 8015C DAI Blank Data	576
Method 8015C DAI LCS/LCSD Data	585
Method 8015C DAI Run Logs	588
Inorganic Sample Data	591

Table of Contents

Metals Data	591
Met Cover Page	592
Met Sample Data	593
Met QC Data	594
Met ICV/CCV	594
Met CRQL	598
Met Blanks	601
Met ICSA/ICSAB	606
Met LCS/LCSD	610
Met MDL	612
Met Linear Ranges	614
Met Preparation Log	615
Met Analysis Run Log	616
Met ICP/MS Int Stds	622
Met Raw Data	626
Met Prep Data	824
General Chemistry Data	825
Gen Chem Cover Page	826
Gen Chem Sample Data	827
Gen Chem QC Data	829
Gen Chem ICV/CCV	829
Gen Chem Blanks	834
Gen Chem MS/MSD/PDS	835
Gen Chem Duplicates	836
Gen Chem LCS/LCSD	837
Gen Chem MDL	839

Table of Contents

Gen Chem Preparation Log	855
Gen Chem Analysis Run Log	857
Gen Chem Raw Data	866
Gen Chem Prep Data	881
Radiochemistry Raw Data	896
Gamma Spectroscopy	896
Method 901.1 Ra-226	897
Daily Checks	952
Initial Calibrations	959
Initial Calibration Verifications	984
Annual Calibration Verifications	1008
Monthly Backgrounds	1027
Run Logs	1043
Subcontracted Data	1046
Shipping and Receiving Documents	1047
Client Chain of Custody	1048
Sample Receipt Checklist	1049

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
HF	Field parameter with a holding time of 15 minutes
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Job Narrative
180-30531-1

Receipt

The sample was received on 3/11/2014 2:35 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

GC/MS VOA

Method 8260B: The following sample was diluted to bring the concentration of target analytes within the calibration range: GOFF PROPERTY REC FAC (180-30531-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

GC Semi VOA

Method 8015B: The following sample was diluted due to the nature of the sample matrix: GOFF PROPERTY REC FAC (180-30531-1). Elevated reporting limits (RLs) are provided: Ethylene glycol.

Method 8015C: The following sample was diluted due to the nature of the sample matrix: GOFF PROPERTY REC FAC (180-30531-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

RAD

Method 901.1: Radium-226 by gamma spectroscopy is typically determined by inference from daughters (e.g. bismuth-214) after sealing the sample in an appropriate counting geometry/container and waiting 21 days to allow the radium-226 decay chain through radon-222 to reach secular equilibrium. Such an approach is considered to be the most reliable and representative means for establishing the true radium-226 concentration in the sample. The method requested by the client to report radium-226, using its own 186 keV gamma-ray emission, is subject to interference and potential bias due to the 185.7 keV uranium-235 gamma ray. Experience also indicates gamma spectroscopy software does not consistently assign accurate peak areas to radium-226 (186 keV), with the problem compounded by slight drift of the instrumentation. The laboratory considers radium-226 reported based upon the 186 keV gamma-ray emission to be best used by the client in a qualitative fashion.

The MDC was greater than the requested limit of 50 pCi/L for radium-226. Radium-226 was requested to be reported with no ingrowth for this batch; therefore, samples were reported from the only usable gamma energy line, 185.99 KeV. This energy line has a low efficiency which causes an elevated MDC. Using the 185.99 keV line to report radium-226 can cause a potential high bias in the results due to potential interference from the uranium -235 energy line of 185.72 keV. (180-30531-1 DU), (MB 160-112646/1-A), GOFF PROPERTY REC FAC (180-30531-1)

No other analytical or quality issues were noted.

Metals

Method 6020A: The following sample was diluted to bring the concentration of target analytes within the calibration range: GOFF PROPERTY REC FAC (180-30531-1). Elevated reporting limits (RLs) are provided.

Method 6020A: The sodium concentration found in continuing calibration blank four (CCB4) was greater than the reporting limit. All associated samples bracketed by this CCB had sodium concentrations at least 10X greater than the CCB concentration. Results are reported as is with the addition of this narrative.

No other analytical or quality issues were noted.

General Chemistry

Method SM 2540C: Due to the matrix, the initial volume used for the following sample deviated from the standard procedure: GOFF PROPERTY REC FAC (180-30531-1). The reporting limits (RLs) have been adjusted proportionately.

Method SM 2540D: Due to the matrix, the initial volume used for the following sample deviated from the standard procedure: GOFF PROPERTY REC FAC (180-30531-1). The reporting limits (RLs) have been adjusted proportionately.

Method 410.4: The following sample was diluted due to the nature of the sample matrix: GOFF PROPERTY REC FAC (180-30531-1). Elevated reporting limits (RLs) are provided.

Method SM 5540C: The following sample was diluted to bring the concentration of target analytes within the calibration range: (180-30531-1 DU), (180-30531-1 MS), GOFF PROPERTY REC FAC (180-30531-1).

No other analytical or quality issues were noted.

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Client Sample ID: GOFF PROPERTY REC FAC

Lab Sample ID: 180-30531-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	890		500	53	ug/L	500		8260B	Total/NA
Cyclohexane	1900		500	130	ug/L	500		8260B	Total/NA
Methylcyclohexane	5100		500	130	ug/L	500		8260B	Total/NA
Toluene	2100		500	75	ug/L	500		8260B	Total/NA
1,2,4-Trimethylbenzene	390	J	500	62	ug/L	500		8260B	Total/NA
Xylenes, Total	1900		1500	240	ug/L	500		8260B	Total/NA
2-Butoxyethanol	13		10	1.0	mg/L	1		8015B	Total/NA
Methanol	220		50	10	mg/L	5		8015C	Total/NA
Aluminum	2700	J	3000	260	ug/L	100		6020A	Total Recoverable
Boron	40000	B	500	28	ug/L	100		6020A	Total Recoverable
Barium	620000		1000	9.8	ug/L	100		6020A	Total Recoverable
Copper	160	J	200	24	ug/L	100		6020A	Total Recoverable
Iron	130000	B	5000	610	ug/L	100		6020A	Total Recoverable
Magnesium	1400000		10000	120	ug/L	100		6020A	Total Recoverable
Manganese	5400	B	500	3.9	ug/L	100		6020A	Total Recoverable
Sodium	38000000	B	100000	3800	ug/L	1000		6020A	Total Recoverable
Lead	5.5	J	100	1.9	ug/L	100		6020A	Total Recoverable
Selenium	160	J	500	42	ug/L	100		6020A	Total Recoverable
Strontium	4700000		5000	18	ug/L	1000		6020A	Total Recoverable
Zinc	640		500	96	ug/L	100		6020A	Total Recoverable
HEM (Oil and Grease)	91	B	6.1	1.8	mg/L	1		1664A	Total/NA
Chloride	140000		2500	490	mg/L	2500		300.0	Total/NA
Sulfate	97	J B	250	54	mg/L	250		300.0	Total/NA
Bromide	710		130	48	mg/L	250		300.0	Total/NA
Nitrate Nitrite as N	1.6		0.10	0.014	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	1900		250	92	mg/L	1		410.4	Total/NA
Total Dissolved Solids	180000		1000	1000	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	590		3.3	3.3	mg/L	1		SM 2540D	Total/NA
Methylene Blue Active Substances	56		2.5	0.65	mg/L	50		SM 5540C	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	5.74	HF	0.100	0.100	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Tetra Tech, Inc.
 Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Client Sample ID: GOFF PROPERTY REC FAC

Lab Sample ID: 180-30531-1

Date Collected: 03/11/14 11:50

Matrix: Water

Date Received: 03/11/14 14:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	1300	U	2500	1300	ug/L			03/21/14 13:46	500
Acrolein	1300	U	10000	1300	ug/L			03/21/14 13:46	500
Acrylonitrile	270	U	10000	270	ug/L			03/21/14 13:46	500
Benzene	890		500	53	ug/L			03/21/14 13:46	500
Bromochloromethane	90	U	500	90	ug/L			03/21/14 13:46	500
Bromodichloromethane	65	U	500	65	ug/L			03/21/14 13:46	500
Bromoform	96	U	500	96	ug/L			03/21/14 13:46	500
Bromomethane	160	U	500	160	ug/L			03/21/14 13:46	500
2-Butanone (MEK)	270	U	2500	270	ug/L			03/21/14 13:46	500
Carbon disulfide	110	U	500	110	ug/L			03/21/14 13:46	500
Carbon tetrachloride	68	U	500	68	ug/L			03/21/14 13:46	500
Chlorobenzene	68	U	500	68	ug/L			03/21/14 13:46	500
Chloroethane	110	U	500	110	ug/L			03/21/14 13:46	500
Chloroform	85	U	500	85	ug/L			03/21/14 13:46	500
Chloromethane	140	U	500	140	ug/L			03/21/14 13:46	500
cis-1,2-Dichloroethene	120	U	500	120	ug/L			03/21/14 13:46	500
cis-1,3-Dichloropropene	93	U	500	93	ug/L			03/21/14 13:46	500
Cyclohexane	1900		500	130	ug/L			03/21/14 13:46	500
Dibromochloromethane	68	U	500	68	ug/L			03/21/14 13:46	500
1,2-Dibromo-3-Chloropropane	70	U	500	70	ug/L			03/21/14 13:46	500
1,2-Dibromoethane (EDB)	90	U	500	90	ug/L			03/21/14 13:46	500
1,2-Dichlorobenzene	76	U	500	76	ug/L			03/21/14 13:46	500
1,3-Dichlorobenzene	53	U	500	53	ug/L			03/21/14 13:46	500
1,4-Dichlorobenzene	100	U	500	100	ug/L			03/21/14 13:46	500
Dichlorodifluoromethane	96	U	500	96	ug/L			03/21/14 13:46	500
1,1-Dichloroethane	58	U	500	58	ug/L			03/21/14 13:46	500
1,2-Dichloroethane	110	U	500	110	ug/L			03/21/14 13:46	500
1,1-Dichloroethene	150	U	500	150	ug/L			03/21/14 13:46	500
1,2-Dichloropropane	47	U	500	47	ug/L			03/21/14 13:46	500
1,4-Dioxane	17000	U	100000	17000	ug/L			03/21/14 13:46	500
Ethylbenzene	110	U	500	110	ug/L			03/21/14 13:46	500
2-Hexanone	80	U	2500	80	ug/L			03/21/14 13:46	500
Isopropylbenzene	82	U	500	82	ug/L			03/21/14 13:46	500
Methyl acetate	69	U	500	69	ug/L			03/21/14 13:46	500
Methylcyclohexane	5100		500	130	ug/L			03/21/14 13:46	500
Methylene Chloride	63	U	500	63	ug/L			03/21/14 13:46	500
4-Methyl-2-pentanone (MIBK)	260	U	2500	260	ug/L			03/21/14 13:46	500
Methyl tert-butyl ether	92	U	500	92	ug/L			03/21/14 13:46	500
Naphthalene	39	U	500	39	ug/L			03/21/14 13:46	500
n-Butylbenzene	110	U	500	110	ug/L			03/21/14 13:46	500
N-Propylbenzene	100	U	500	100	ug/L			03/21/14 13:46	500
sec-Butylbenzene	140	U	500	140	ug/L			03/21/14 13:46	500
Styrene	48	U	500	48	ug/L			03/21/14 13:46	500
1,1,2,2-Tetrachloroethane	100	U	500	100	ug/L			03/21/14 13:46	500
Tetrachloroethene	74	U	500	74	ug/L			03/21/14 13:46	500
Toluene	2100		500	75	ug/L			03/21/14 13:46	500
trans-1,2-Dichloroethene	85	U	500	85	ug/L			03/21/14 13:46	500
trans-1,3-Dichloropropene	74	U	500	74	ug/L			03/21/14 13:46	500
1,2,3-Trichlorobenzene	77	U	500	77	ug/L			03/21/14 13:46	500

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Client Sample ID: GOFF PROPERTY REC FAC

Lab Sample ID: 180-30531-1

Date Collected: 03/11/14 11:50

Matrix: Water

Date Received: 03/11/14 14:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	140	U	500	140	ug/L			03/21/14 13:46	500
1,3,5-Trichlorobenzene	70	U	500	70	ug/L			03/21/14 13:46	500
1,1,1-Trichloroethane	140	U	500	140	ug/L			03/21/14 13:46	500
1,1,2-Trichloroethane	100	U	500	100	ug/L			03/21/14 13:46	500
Trichloroethene	72	U	500	72	ug/L			03/21/14 13:46	500
Trichlorofluoromethane	99	U	500	99	ug/L			03/21/14 13:46	500
1,1,2-Trichloro-1,2,2-trifluoroethane	160	U	500	160	ug/L			03/21/14 13:46	500
1,2,4-Trimethylbenzene	390	J	500	62	ug/L			03/21/14 13:46	500
Vinyl chloride	110	U	500	110	ug/L			03/21/14 13:46	500
Xylenes, Total	1900		1500	240	ug/L			03/21/14 13:46	500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 118		03/21/14 13:46	500
Dibromofluoromethane (Surr)	99		70 - 128		03/21/14 13:46	500
1,2-Dichloroethane-d4 (Surr)	106		64 - 135		03/21/14 13:46	500
Toluene-d8 (Surr)	101		71 - 118		03/21/14 13:46	500

Method: 8015B - Glycols -Direct Injection (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene glycol	10	U	100	10	mg/L			03/18/14 13:18	10
2-Butoxyethanol	13		10	1.0	mg/L			03/17/14 15:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-butyl alcohol (Surr)	130		70 - 130		03/17/14 15:39	1

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methanol	220		50	10	mg/L			03/18/14 12:32	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Isopropyl acetate (Surr)	84		52 - 128		03/18/14 12:32	5

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	3.6	U	100	3.6	ug/L		03/17/14 10:38	03/20/14 13:23	100
Aluminum	2700	J	3000	260	ug/L		03/17/14 10:38	03/20/14 13:23	100
Arsenic	29	U	100	29	ug/L		03/17/14 10:38	03/20/14 13:23	100
Boron	40000	B	500	28	ug/L		03/17/14 10:38	03/20/14 13:23	100
Barium	620000		1000	9.8	ug/L		03/17/14 10:38	03/20/14 13:23	100
Beryllium	3.7	U	100	3.7	ug/L		03/17/14 10:38	03/20/14 13:23	100
Cadmium	11	U	100	11	ug/L		03/17/14 10:38	03/20/14 13:23	100
Chromium	54	U	200	54	ug/L		03/17/14 10:38	03/20/14 13:23	100
Copper	160	J	200	24	ug/L		03/17/14 10:38	03/20/14 13:23	100
Iron	130000	B	5000	610	ug/L		03/17/14 10:38	03/20/14 13:23	100
Magnesium	1400000		10000	120	ug/L		03/17/14 10:38	03/20/14 13:23	100
Manganese	5400	B	500	3.9	ug/L		03/17/14 10:38	03/20/14 13:23	100
Molybdenum	22	U	500	22	ug/L		03/17/14 10:38	03/20/14 13:23	100
Sodium	38000000	B	100000	3800	ug/L		03/17/14 10:38	03/20/14 13:19	1000
Nickel	170	U	1000	170	ug/L		03/17/14 10:38	03/20/14 13:19	1000
Lead	5.5	J	100	1.9	ug/L		03/17/14 10:38	03/20/14 13:23	100
Selenium	160	J	500	42	ug/L		03/17/14 10:38	03/20/14 13:23	100

TestAmerica Pittsburgh

Client Sample Results

Client: Tetra Tech, Inc.
 Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Client Sample ID: GOFF PROPERTY REC FAC

Lab Sample ID: 180-30531-1

Date Collected: 03/11/14 11:50

Matrix: Water

Date Received: 03/11/14 14:35

Method: 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Strontium	4700000		5000	18	ug/L		03/17/14 10:38	03/20/14 13:19	1000
Zinc	640		500	96	ug/L		03/17/14 10:38	03/20/14 13:23	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil and Grease)	91	B	6.1	1.8	mg/L		03/21/14 04:46	03/21/14 06:25	1
Chloride	140000		2500	490	mg/L			03/14/14 13:36	2500
Sulfate	97	J B	250	54	mg/L			03/14/14 13:17	250
Bromide	710		130	48	mg/L			03/14/14 13:17	250
Nitrate Nitrite as N	1.6		0.10	0.014	mg/L			03/12/14 10:32	1
Chemical Oxygen Demand	1900		250	92	mg/L		03/24/14 11:45	03/24/14 14:34	1
Total Dissolved Solids	180000		1000	1000	mg/L			03/13/14 14:29	1
Total Suspended Solids	590		3.3	3.3	mg/L			03/13/14 14:56	1
Methylene Blue Active Substances	56		2.5	0.65	mg/L			03/13/14 09:30	50
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.74	HF	0.100	0.100	SU			03/21/14 14:10	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	2570	G	416	600	50.0	442	pCi/L	03/25/14 17:35	03/27/14 03:00	1
Radium-228	705		61.6	92.6	50.0	50.3	pCi/L	03/25/14 17:35	03/27/14 03:00	1

Default Detection Limits

Client: Tetra Tech, Inc.
 Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

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

Analyte	RL	MDL	Units	Method
1,1,1-Trichloroethane	1.0	0.29	ug/L	8260B
1,1,1,2-Tetrachloroethane	1.0	0.20	ug/L	8260B
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	0.32	ug/L	8260B
1,1,2-Trichloroethane	1.0	0.20	ug/L	8260B
1,1-Dichloroethane	1.0	0.12	ug/L	8260B
1,1-Dichloroethene	1.0	0.30	ug/L	8260B
1,2,3-Trichlorobenzene	1.0	0.15	ug/L	8260B
1,2,4-Trichlorobenzene	1.0	0.27	ug/L	8260B
1,2,4-Trimethylbenzene	1.0	0.12	ug/L	8260B
1,2-Dibromo-3-Chloropropane	1.0	0.14	ug/L	8260B
1,2-Dibromoethane (EDB)	1.0	0.18	ug/L	8260B
1,2-Dichlorobenzene	1.0	0.15	ug/L	8260B
1,2-Dichloroethane	1.0	0.21	ug/L	8260B
1,2-Dichloropropane	1.0	0.095	ug/L	8260B
1,3,5-Trichlorobenzene	1.0	0.14	ug/L	8260B
1,3-Dichlorobenzene	1.0	0.11	ug/L	8260B
1,4-Dichlorobenzene	1.0	0.21	ug/L	8260B
1,4-Dioxane	200	34	ug/L	8260B
2-Butanone (MEK)	5.0	0.55	ug/L	8260B
2-Hexanone	5.0	0.16	ug/L	8260B
4-Methyl-2-pentanone (MIBK)	5.0	0.53	ug/L	8260B
Acetone	5.0	2.5	ug/L	8260B
Acrolein	20	2.6	ug/L	8260B
Acrylonitrile	20	0.55	ug/L	8260B
Benzene	1.0	0.11	ug/L	8260B
Bromochloromethane	1.0	0.18	ug/L	8260B
Bromodichloromethane	1.0	0.13	ug/L	8260B
Bromoform	1.0	0.19	ug/L	8260B
Bromomethane	1.0	0.31	ug/L	8260B
Carbon disulfide	1.0	0.21	ug/L	8260B
Carbon tetrachloride	1.0	0.14	ug/L	8260B
Chlorobenzene	1.0	0.14	ug/L	8260B
Chloroethane	1.0	0.21	ug/L	8260B
Chloroform	1.0	0.17	ug/L	8260B
Chloromethane	1.0	0.28	ug/L	8260B
cis-1,2-Dichloroethene	1.0	0.24	ug/L	8260B
cis-1,3-Dichloropropene	1.0	0.19	ug/L	8260B
Cyclohexane	1.0	0.25	ug/L	8260B
Dibromochloromethane	1.0	0.14	ug/L	8260B
Dichlorodifluoromethane	1.0	0.19	ug/L	8260B
Ethylbenzene	1.0	0.23	ug/L	8260B
Isopropylbenzene	1.0	0.16	ug/L	8260B
Methyl acetate	1.0	0.14	ug/L	8260B
Methyl tert-butyl ether	1.0	0.18	ug/L	8260B
Methylcyclohexane	1.0	0.26	ug/L	8260B
Methylene Chloride	1.0	0.13	ug/L	8260B
Naphthalene	1.0	0.078	ug/L	8260B
n-Butylbenzene	1.0	0.23	ug/L	8260B
N-Propylbenzene	1.0	0.20	ug/L	8260B
sec-Butylbenzene	1.0	0.28	ug/L	8260B
Styrene	1.0	0.097	ug/L	8260B
Tetrachloroethene	1.0	0.15	ug/L	8260B

Default Detection Limits

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

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

Analyte	RL	MDL	Units	Method
Toluene	1.0	0.15	ug/L	8260B
trans-1,2-Dichloroethene	1.0	0.17	ug/L	8260B
trans-1,3-Dichloropropene	1.0	0.15	ug/L	8260B
Trichloroethene	1.0	0.14	ug/L	8260B
Trichlorofluoromethane	1.0	0.20	ug/L	8260B
Vinyl chloride	1.0	0.23	ug/L	8260B
Xylenes, Total	3.0	0.49	ug/L	8260B

Method: 8015B - Glycols -Direct Injection (GC/FID)

Analyte	RL	MDL	Units	Method
2-Butoxyethanol	10	1.0	mg/L	8015B
Ethylene glycol	10	1.0	mg/L	8015B

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	RL	MDL	Units	Method
Methanol	10	2.0	mg/L	8015C

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	RL	MDL	Units	Method
Aluminum	30	2.6	ug/L	6020A
Arsenic	1.0	0.29	ug/L	6020A
Barium	10	0.098	ug/L	6020A
Beryllium	1.0	0.037	ug/L	6020A
Boron	5.0	0.28	ug/L	6020A
Cadmium	1.0	0.11	ug/L	6020A
Chromium	2.0	0.54	ug/L	6020A
Copper	2.0	0.24	ug/L	6020A
Iron	50	6.1	ug/L	6020A
Lead	1.0	0.019	ug/L	6020A
Magnesium	100	1.2	ug/L	6020A
Manganese	5.0	0.039	ug/L	6020A
Molybdenum	5.0	0.22	ug/L	6020A
Nickel	1.0	0.17	ug/L	6020A
Selenium	5.0	0.42	ug/L	6020A
Silver	1.0	0.036	ug/L	6020A
Sodium	100	3.8	ug/L	6020A
Strontium	5.0	0.018	ug/L	6020A
Zinc	5.0	0.96	ug/L	6020A

General Chemistry

Analyte	RL	MDL	Units	Method
HEM (Oil and Grease)	5.0	1.5	mg/L	1664A
Bromide	0.50	0.19	mg/L	300.0
Chloride	1.0	0.20	mg/L	300.0
Sulfate	1.0	0.21	mg/L	300.0
Nitrate Nitrite as N	0.10	0.014	mg/L	353.2
Chemical Oxygen Demand	10	3.7	mg/L	410.4
Total Dissolved Solids	10	10	mg/L	SM 2540C

TestAmerica Pittsburgh

Default Detection Limits

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

General Chemistry (Continued)

Analyte	RL	MDL	Units	Method
Total Suspended Solids	2.0	2.0	mg/L	SM 2540D
pH	0.100	0.100	SU	SM 4500 H+ B
Methylene Blue Active Substances	0.050	0.013	mg/L	SM 5540C

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (70-118)	DBFM (70-128)	12DCE (64-135)	TOL (71-118)
180-30531-1	GOFF PROPERTY REC FAC	108	99	106	101
LCS 180-100235/7	Lab Control Sample	98	102	106	103
MB 180-100235/4	Method Blank	93	106	114	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015B - Glycols -Direct Injection (GC/FID)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		nBA1 (70-130)
180-30531-1	GOFF PROPERTY REC FAC	130
LCS 490-148161/4	Lab Control Sample	103
LCS 490-148393/4	Lab Control Sample	107
MB 490-148161/3	Method Blank	100
MB 490-148393/3	Method Blank	99

Surrogate Legend

nBA = n-butyl alcohol (Surr)

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		yl acetate (52-128)
180-30531-1	GOFF PROPERTY REC FAC	84
LCS 490-148392/4	Lab Control Sample	77
MB 490-148392/3	Method Blank	66

Surrogate Legend

Isopropyl acetate (Surr) = Isopropyl acetate (Surr)

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

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

Lab Sample ID: MB 180-100235/4

Matrix: Water

Analysis Batch: 100235

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	2.5	U	5.0	2.5	ug/L			03/21/14 10:44	1
Acrolein	2.6	U	20	2.6	ug/L			03/21/14 10:44	1
Acrylonitrile	0.55	U	20	0.55	ug/L			03/21/14 10:44	1
Benzene	0.11	U	1.0	0.11	ug/L			03/21/14 10:44	1
Bromochloromethane	0.18	U	1.0	0.18	ug/L			03/21/14 10:44	1
Bromodichloromethane	0.13	U	1.0	0.13	ug/L			03/21/14 10:44	1
Bromoform	0.19	U	1.0	0.19	ug/L			03/21/14 10:44	1
Bromomethane	0.31	U	1.0	0.31	ug/L			03/21/14 10:44	1
2-Butanone (MEK)	0.55	U	5.0	0.55	ug/L			03/21/14 10:44	1
Carbon disulfide	0.21	U	1.0	0.21	ug/L			03/21/14 10:44	1
Carbon tetrachloride	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
Chlorobenzene	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
Chloroethane	0.21	U	1.0	0.21	ug/L			03/21/14 10:44	1
Chloroform	0.17	U	1.0	0.17	ug/L			03/21/14 10:44	1
Chloromethane	0.28	U	1.0	0.28	ug/L			03/21/14 10:44	1
cis-1,2-Dichloroethene	0.24	U	1.0	0.24	ug/L			03/21/14 10:44	1
cis-1,3-Dichloropropene	0.19	U	1.0	0.19	ug/L			03/21/14 10:44	1
Cyclohexane	0.25	U	1.0	0.25	ug/L			03/21/14 10:44	1
Dibromochloromethane	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
1,2-Dibromo-3-Chloropropane	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
1,2-Dibromoethane (EDB)	0.18	U	1.0	0.18	ug/L			03/21/14 10:44	1
1,2-Dichlorobenzene	0.15	U	1.0	0.15	ug/L			03/21/14 10:44	1
1,3-Dichlorobenzene	0.11	U	1.0	0.11	ug/L			03/21/14 10:44	1
1,4-Dichlorobenzene	0.21	U	1.0	0.21	ug/L			03/21/14 10:44	1
Dichlorodifluoromethane	0.19	U	1.0	0.19	ug/L			03/21/14 10:44	1
1,1-Dichloroethane	0.12	U	1.0	0.12	ug/L			03/21/14 10:44	1
1,2-Dichloroethane	0.21	U	1.0	0.21	ug/L			03/21/14 10:44	1
1,1-Dichloroethene	0.30	U	1.0	0.30	ug/L			03/21/14 10:44	1
1,2-Dichloropropane	0.095	U	1.0	0.095	ug/L			03/21/14 10:44	1
1,4-Dioxane	34	U	200	34	ug/L			03/21/14 10:44	1
Ethylbenzene	0.23	U	1.0	0.23	ug/L			03/21/14 10:44	1
2-Hexanone	0.16	U	5.0	0.16	ug/L			03/21/14 10:44	1
Isopropylbenzene	0.16	U	1.0	0.16	ug/L			03/21/14 10:44	1
Methyl acetate	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
Methylcyclohexane	0.26	U	1.0	0.26	ug/L			03/21/14 10:44	1
Methylene Chloride	0.13	U	1.0	0.13	ug/L			03/21/14 10:44	1
4-Methyl-2-pentanone (MIBK)	0.53	U	5.0	0.53	ug/L			03/21/14 10:44	1
Methyl tert-butyl ether	0.18	U	1.0	0.18	ug/L			03/21/14 10:44	1
Naphthalene	0.390	J	1.0	0.078	ug/L			03/21/14 10:44	1
n-Butylbenzene	0.23	U	1.0	0.23	ug/L			03/21/14 10:44	1
N-Propylbenzene	0.20	U	1.0	0.20	ug/L			03/21/14 10:44	1
sec-Butylbenzene	0.28	U	1.0	0.28	ug/L			03/21/14 10:44	1
Styrene	0.097	U	1.0	0.097	ug/L			03/21/14 10:44	1
1,1,2,2-Tetrachloroethane	0.20	U	1.0	0.20	ug/L			03/21/14 10:44	1
Tetrachloroethene	0.15	U	1.0	0.15	ug/L			03/21/14 10:44	1
Toluene	0.15	U	1.0	0.15	ug/L			03/21/14 10:44	1
trans-1,2-Dichloroethene	0.17	U	1.0	0.17	ug/L			03/21/14 10:44	1
trans-1,3-Dichloropropene	0.15	U	1.0	0.15	ug/L			03/21/14 10:44	1

TestAmerica Pittsburgh

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

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

Lab Sample ID: MB 180-100235/4

Matrix: Water

Analysis Batch: 100235

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3-Trichlorobenzene	0.15	U	1.0	0.15	ug/L			03/21/14 10:44	1
1,2,4-Trichlorobenzene	0.27	U	1.0	0.27	ug/L			03/21/14 10:44	1
1,3,5-Trichlorobenzene	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
1,1,1-Trichloroethane	0.29	U	1.0	0.29	ug/L			03/21/14 10:44	1
1,1,2-Trichloroethane	0.20	U	1.0	0.20	ug/L			03/21/14 10:44	1
Trichloroethene	0.14	U	1.0	0.14	ug/L			03/21/14 10:44	1
Trichlorofluoromethane	0.20	U	1.0	0.20	ug/L			03/21/14 10:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.32	U	1.0	0.32	ug/L			03/21/14 10:44	1
1,2,4-Trimethylbenzene	0.12	U	1.0	0.12	ug/L			03/21/14 10:44	1
Vinyl chloride	0.23	U	1.0	0.23	ug/L			03/21/14 10:44	1
Xylenes, Total	0.49	U	3.0	0.49	ug/L			03/21/14 10:44	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	93		70 - 118		03/21/14 10:44	1
Dibromofluoromethane (Surr)	106		70 - 128		03/21/14 10:44	1
1,2-Dichloroethane-d4 (Surr)	114		64 - 135		03/21/14 10:44	1
Toluene-d8 (Surr)	96		71 - 118		03/21/14 10:44	1

Lab Sample ID: LCS 180-100235/7

Matrix: Water

Analysis Batch: 100235

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	80 - 120
Bromochloromethane	10.0	10.1		ug/L		101	70 - 127
Bromodichloromethane	10.0	10.2		ug/L		102	66 - 130
Bromoform	10.0	9.38		ug/L		94	46 - 150
Bromomethane	10.0	10.6		ug/L		106	33 - 150
2-Butanone (MEK)	10.0	9.11		ug/L		91	39 - 138
Carbon disulfide	10.0	8.69		ug/L		87	54 - 132
Carbon tetrachloride	10.0	11.8		ug/L		118	55 - 150
Chlorobenzene	10.0	10.3		ug/L		103	80 - 120
Chloroethane	10.0	10.2		ug/L		102	36 - 142
Chloroform	10.0	10.2		ug/L		102	72 - 127
Chloromethane	10.0	9.75		ug/L		98	50 - 139
cis-1,2-Dichloroethene	10.0	9.80		ug/L		98	70 - 120
cis-1,3-Dichloropropene	10.0	10.0		ug/L		100	66 - 120
Cyclohexane	10.0	9.50		ug/L		95	45 - 142
Dibromochloromethane	10.0	10.2		ug/L		102	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	9.11		ug/L		91	37 - 133
1,2-Dibromoethane (EDB)	10.0	10.4		ug/L		104	74 - 123
1,2-Dichlorobenzene	10.0	10.1		ug/L		101	77 - 120
1,3-Dichlorobenzene	10.0	10.2		ug/L		102	76 - 120
1,4-Dichlorobenzene	10.0	10.2		ug/L		102	77 - 120
Dichlorodifluoromethane	10.0	10.4		ug/L		104	13 - 150
1,1-Dichloroethane	10.0	10.0		ug/L		100	73 - 126
1,2-Dichloroethane	10.0	10.6		ug/L		106	68 - 132

TestAmerica Pittsburgh

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

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

Lab Sample ID: LCS 180-100235/7

Matrix: Water

Analysis Batch: 100235

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	10.0	9.62		ug/L		96	65 - 136
1,2-Dichloropropane	10.0	10.7		ug/L		107	76 - 124
Ethylbenzene	10.0	10.2		ug/L		102	72 - 126
2-Hexanone	10.0	7.59		ug/L		76	25 - 132
Isopropylbenzene	10.0	10.2		ug/L		102	58 - 130
Methyl acetate	50.0	54.6		ug/L		109	47 - 142
Methylcyclohexane	10.0	9.95		ug/L		99	45 - 145
Methylene Chloride	10.0	10.3		ug/L		103	63 - 129
4-Methyl-2-pentanone (MIBK)	10.0	8.64		ug/L		86	45 - 145
Methyl tert-butyl ether	10.0	9.87		ug/L		99	64 - 123
Naphthalene	10.0	7.23		ug/L		72	45 - 127
n-Butylbenzene	10.0	9.72		ug/L		97	49 - 134
N-Propylbenzene	10.0	11.1		ug/L		111	62 - 128
sec-Butylbenzene	10.0	10.6		ug/L		106	55 - 132
Styrene	10.0	10.2		ug/L		102	71 - 127
1,1,2,2-Tetrachloroethane	10.0	9.83		ug/L		98	62 - 125
Tetrachloroethene	10.0	10.5		ug/L		105	70 - 135
Toluene	10.0	10.3		ug/L		103	80 - 123
trans-1,2-Dichloroethene	10.0	9.96		ug/L		100	73 - 126
trans-1,3-Dichloropropene	10.0	10.8		ug/L		108	65 - 125
1,2,3-Trichlorobenzene	10.0	7.82		ug/L		78	59 - 127
1,2,4-Trichlorobenzene	10.0	7.93		ug/L		79	60 - 127
1,1,1-Trichloroethane	10.0	10.2		ug/L		102	63 - 133
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	77 - 127
Trichloroethene	10.0	10.1		ug/L		101	73 - 120
Trichlorofluoromethane	10.0	10.2		ug/L		102	44 - 150
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	9.96		ug/L		100	46 - 148
1,2,4-Trimethylbenzene	10.0	10.8		ug/L		108	71 - 122
Vinyl chloride	10.0	10.4		ug/L		104	53 - 138
Xylenes, Total	20.0	20.6		ug/L		103	76 - 128

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	98		70 - 118
Dibromofluoromethane (Surr)	102		70 - 128
1,2-Dichloroethane-d4 (Surr)	106		64 - 135
Toluene-d8 (Surr)	103		71 - 118

Method: 8015B - Glycols -Direct Injection (GC/FID)

Lab Sample ID: MB 490-148161/3

Matrix: Water

Analysis Batch: 148161

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Butoxyethanol	1.0	U	10	1.0	mg/L			03/17/14 11:57	1

TestAmerica Pittsburgh

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method: 8015B - Glycols -Direct Injection (GC/FID) (Continued)

Lab Sample ID: MB 490-148161/3
Matrix: Water
Analysis Batch: 148161

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>n-butyl alcohol (Surr)</i>	100		70 - 130		03/17/14 11:57	1

Lab Sample ID: LCS 490-148161/4
Matrix: Water
Analysis Batch: 148161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>n-butyl alcohol (Surr)</i>	103		70 - 130

Lab Sample ID: MB 490-148393/3
Matrix: Water
Analysis Batch: 148393

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ethylene glycol	1.0	U	10	1.0	mg/L			03/18/14 12:44	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>n-butyl alcohol (Surr)</i>	99		70 - 130		03/18/14 12:44	1

Lab Sample ID: LCS 490-148393/4
Matrix: Water
Analysis Batch: 148393

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>n-butyl alcohol (Surr)</i>	107		70 - 130

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Lab Sample ID: MB 490-148392/3
Matrix: Water
Analysis Batch: 148392

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methanol	2.0	U	10	2.0	mg/L			03/18/14 12:20	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>Isopropyl acetate (Surr)</i>	66		52 - 128		03/18/14 12:20	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection) (Continued)

Lab Sample ID: LCS 490-148392/4
Matrix: Water
Analysis Batch: 148392

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Isopropyl acetate (Surr)	77		52 - 128

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-99752/1-A
Matrix: Water
Analysis Batch: 100106

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 99752

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sodium	3.8	U	100	3.8	ug/L		03/17/14 10:38	03/19/14 14:32	1

Lab Sample ID: MB 180-99752/1-A
Matrix: Water
Analysis Batch: 100228

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 99752

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silver	0.036	U	1.0	0.036	ug/L		03/17/14 10:38	03/20/14 12:11	1
Aluminum	2.6	U	30	2.6	ug/L		03/17/14 10:38	03/20/14 12:11	1
Arsenic	0.29	U	1.0	0.29	ug/L		03/17/14 10:38	03/20/14 12:11	1
Boron	0.394	J	5.0	0.28	ug/L		03/17/14 10:38	03/20/14 12:11	1
Barium	0.098	U	10	0.098	ug/L		03/17/14 10:38	03/20/14 12:11	1
Beryllium	0.037	U	1.0	0.037	ug/L		03/17/14 10:38	03/20/14 12:11	1
Cadmium	0.11	U	1.0	0.11	ug/L		03/17/14 10:38	03/20/14 12:11	1
Chromium	0.54	U	2.0	0.54	ug/L		03/17/14 10:38	03/20/14 12:11	1
Copper	0.24	U	2.0	0.24	ug/L		03/17/14 10:38	03/20/14 12:11	1
Iron	6.43	J	50	6.1	ug/L		03/17/14 10:38	03/20/14 12:11	1
Magnesium	1.2	U	100	1.2	ug/L		03/17/14 10:38	03/20/14 12:11	1
Manganese	0.0430	J	5.0	0.039	ug/L		03/17/14 10:38	03/20/14 12:11	1
Molybdenum	0.257	J	5.0	0.22	ug/L		03/17/14 10:38	03/20/14 12:11	1
Nickel	0.17	U	1.0	0.17	ug/L		03/17/14 10:38	03/20/14 12:11	1
Lead	0.019	U	1.0	0.019	ug/L		03/17/14 10:38	03/20/14 12:11	1
Selenium	0.42	U	5.0	0.42	ug/L		03/17/14 10:38	03/20/14 12:11	1
Strontium	0.018	U	5.0	0.018	ug/L		03/17/14 10:38	03/20/14 12:11	1
Zinc	0.96	U	5.0	0.96	ug/L		03/17/14 10:38	03/20/14 12:11	1

Lab Sample ID: LCS 180-99752/2-A
Matrix: Water
Analysis Batch: 100106

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 99752

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Sodium	50000	47100		ug/L		94	80 - 120

Lab Sample ID: LCS 180-99752/2-A
Matrix: Water
Analysis Batch: 100228

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 99752

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Silver	50.0	50.9		ug/L		102	80 - 120

TestAmerica Pittsburgh

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-99752/2-A
Matrix: Water
Analysis Batch: 100228

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 99752

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	
Aluminum	2000	1900		ug/L		95	80 - 120	
Arsenic	40.0	38.0		ug/L		95	80 - 120	
Boron	1000	1040		ug/L		104	80 - 120	
Barium	2000	2030		ug/L		102	80 - 120	
Beryllium	50.0	51.0		ug/L		102	80 - 120	
Cadmium	50.0	51.0		ug/L		102	80 - 120	
Chromium	200	198		ug/L		99	80 - 120	
Copper	250	252		ug/L		101	80 - 120	
Iron	1000	1050		ug/L		105	80 - 120	
Magnesium	50000	48200		ug/L		96	80 - 120	
Manganese	500	494		ug/L		99	80 - 120	
Molybdenum	1000	1030		ug/L		103	80 - 120	
Nickel	500	500		ug/L		100	80 - 120	
Lead	20.0	20.7		ug/L		103	80 - 120	
Selenium	10.0	9.99		ug/L		100	80 - 120	
Strontium	1000	1000		ug/L		100	80 - 120	
Zinc	500	502		ug/L		100	80 - 120	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 180-100211/1-A
Matrix: Water
Analysis Batch: 100226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 100211

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HEM (Oil and Grease)	1.50	J	5.0	1.5	mg/L		03/21/14 04:46	03/21/14 06:25	1

Lab Sample ID: LCS 180-100211/2-A
Matrix: Water
Analysis Batch: 100226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 100211

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	
HEM (Oil and Grease)	40.0	33.8		mg/L		84	78 - 114	

Lab Sample ID: LCSD 180-100211/3-A
Matrix: Water
Analysis Batch: 100226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 100211

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD Limit
							Limits	RPD	
HEM (Oil and Grease)	40.0	34.6		mg/L		87	78 - 114	2	18

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 180-99668/6
Matrix: Water
Analysis Batch: 99668

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfate	0.347	J	1.0	0.21	mg/L			03/14/14 11:36	1

TestAmerica Pittsburgh

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 180-99668/6
Matrix: Water
Analysis Batch: 99668

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bromide	0.19	U	0.50	0.19	mg/L			03/14/14 11:36	1

Lab Sample ID: LCS 180-99668/5
Matrix: Water
Analysis Batch: 99668

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	10.0	10.4		mg/L		104	90 - 110

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 180-99361/16
Matrix: Water
Analysis Batch: 99361

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate Nitrite as N	0.014	U	0.10	0.014	mg/L			03/12/14 10:07	1

Lab Sample ID: LCS 180-99361/15
Matrix: Water
Analysis Batch: 99361

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Method: 410.4 - COD

Lab Sample ID: MB 180-100426/14-A
Matrix: Water
Analysis Batch: 100427

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 100426

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chemical Oxygen Demand	3.7	U	10	3.7	mg/L		03/24/14 11:45	03/24/14 14:21	1

Lab Sample ID: LCS 180-100426/13-A
Matrix: Water
Analysis Batch: 100427

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 100426

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-99526/2
Matrix: Water
Analysis Batch: 99526

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	10	U	10	10	mg/L			03/13/14 14:29	1

Lab Sample ID: LCS 180-99526/1
Matrix: Water
Analysis Batch: 99526

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 180-99530/2
Matrix: Water
Analysis Batch: 99530

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Suspended Solids	2.0	U	2.0	2.0	mg/L			03/13/14 14:56	1

Lab Sample ID: LCS 180-99530/1
Matrix: Water
Analysis Batch: 99530

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 180-100241/1
Matrix: Water
Analysis Batch: 100241

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits

Method: SM 5540C - Methylene Blue Active Substances (MBAS)

Lab Sample ID: MB 180-99449/4
Matrix: Water
Analysis Batch: 99449

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methylene Blue Active Substances	0.013	U	0.050	0.013	mg/L			03/13/14 09:30	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method: SM 5540C - Methylene Blue Active Substances (MBAS) (Continued)

Lab Sample ID: LCS 180-99449/3
Matrix: Water
Analysis Batch: 99449

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	0.500	0.504		mg/L		101	90 - 110

Lab Sample ID: 180-30531-1 MS
Matrix: Water
Analysis Batch: 99449

Client Sample ID: GOFF PROPERTY REC FAC
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methylene Blue Active Substances	56		25.0	83.9		mg/L		110	75 - 125

Lab Sample ID: 180-30531-1 DU
Matrix: Water
Analysis Batch: 99449

Client Sample ID: GOFF PROPERTY REC FAC
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methylene Blue Active Substances	56		57.5		mg/L		2	20

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-112646/1-A
Matrix: Water
Analysis Batch: 112867

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 112646

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-71.27	U G	242	242	50.0	241	pCi/L	03/25/14 17:35	03/26/14 11:00	1
Radium-228	8.312	U	19.1	19.2	50.0	37.6	pCi/L	03/25/14 17:35	03/26/14 11:00	1

Lab Sample ID: LCS 160-112646/2-A
Matrix: Water
Analysis Batch: 112868

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 112646

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	137000	133200		15400		473	pCi/L	97	90 - 111
Cesium-137	50300	49210		4930		162	pCi/L	98	90 - 111
Cobalt-60	58200	55610		5500		121	pCi/L	96	89 - 110

Lab Sample ID: 180-30531-1 DU
Matrix: Water
Analysis Batch: 112870

Client Sample ID: GOFF PROPERTY REC FAC
Prep Type: Total/NA
Prep Batch: 112646

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	2570	G	2815	G	671	50.0	479	pCi/L	0.19	1
Radium-228	705		757.8		113	50.0	43.7	pCi/L	0.26	1

TestAmerica Pittsburgh

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

GC/MS VOA

Analysis Batch: 100235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	8260B	
LCS 180-100235/7	Lab Control Sample	Total/NA	Water	8260B	
MB 180-100235/4	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 148161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	8015B	
LCS 490-148161/4	Lab Control Sample	Total/NA	Water	8015B	
MB 490-148161/3	Method Blank	Total/NA	Water	8015B	

Analysis Batch: 148392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	8015C	
LCS 490-148392/4	Lab Control Sample	Total/NA	Water	8015C	
MB 490-148392/3	Method Blank	Total/NA	Water	8015C	

Analysis Batch: 148393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	8015B	
LCS 490-148393/4	Lab Control Sample	Total/NA	Water	8015B	
MB 490-148393/3	Method Blank	Total/NA	Water	8015B	

Metals

Prep Batch: 99752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total Recoverable	Water	3005A	
LCS 180-99752/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 180-99752/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 100106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
CRI 180-100106/101	DL		Water	6020A	
CRI 180-100106/7	DL		Water	6020A	
ICSA 180-100106/8	ICS		Water	6020A	
ICSAB 180-100106/9	ICS		Water	6020A	
LCS 180-99752/2-A	Lab Control Sample	Total Recoverable	Water	6020A	99752
MB 180-99752/1-A	Method Blank	Total Recoverable	Water	6020A	99752

Analysis Batch: 100228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total Recoverable	Water	6020A	99752
180-30531-1	GOFF PROPERTY REC FAC	Total Recoverable	Water	6020A	99752
CRI 180-100228/63	DL		Water	6020A	
CRI 180-100228/7	DL		Water	6020A	
ICSA 180-100228/8	ICS		Water	6020A	
ICSAB 180-100228/9	ICS		Water	6020A	
LCS 180-99752/2-A	Lab Control Sample	Total Recoverable	Water	6020A	99752

TestAmerica Pittsburgh

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Metals (Continued)

Analysis Batch: 100228 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-99752/1-A	Method Blank	Total Recoverable	Water	6020A	99752

General Chemistry

Analysis Batch: 99361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	353.2	
LCS 180-99361/15	Lab Control Sample	Total/NA	Water	353.2	
MB 180-99361/16	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 99449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	SM 5540C	
180-30531-1 DU	GOFF PROPERTY REC FAC	Total/NA	Water	SM 5540C	
180-30531-1 MS	GOFF PROPERTY REC FAC	Total/NA	Water	SM 5540C	
LCS 180-99449/3	Lab Control Sample	Total/NA	Water	SM 5540C	
MB 180-99449/4	Method Blank	Total/NA	Water	SM 5540C	

Analysis Batch: 99526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	SM 2540C	
LCS 180-99526/1	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 180-99526/2	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 99530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	SM 2540D	
LCS 180-99530/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 180-99530/2	Method Blank	Total/NA	Water	SM 2540D	

Analysis Batch: 99668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	300.0	
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	300.0	
LCS 180-99668/5	Lab Control Sample	Total/NA	Water	300.0	
MB 180-99668/6	Method Blank	Total/NA	Water	300.0	

Prep Batch: 100211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	1664A	
LCS 180-100211/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 180-100211/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	
MB 180-100211/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 100226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	1664A	100211
LCS 180-100211/2-A	Lab Control Sample	Total/NA	Water	1664A	100211
LCSD 180-100211/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	100211
MB 180-100211/1-A	Method Blank	Total/NA	Water	1664A	100211

TestAmerica Pittsburgh

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

General Chemistry (Continued)

Analysis Batch: 100241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	SM 4500 H+ B	
LCS 180-100241/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Prep Batch: 100426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	410.4	
LCS 180-100426/13-A	Lab Control Sample	Total/NA	Water	410.4	
MB 180-100426/14-A	Method Blank	Total/NA	Water	410.4	

Analysis Batch: 100427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	410.4	100426
LCS 180-100426/13-A	Lab Control Sample	Total/NA	Water	410.4	100426
MB 180-100426/14-A	Method Blank	Total/NA	Water	410.4	100426

Rad

Prep Batch: 112646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30531-1	GOFF PROPERTY REC FAC	Total/NA	Water	Fill_Geo-0	
180-30531-1 DU	GOFF PROPERTY REC FAC	Total/NA	Water	Fill_Geo-0	
LCS 160-112646/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-112646/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Lab Chronicle

Client: Tetra Tech, Inc.
 Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Client Sample ID: GOFF PROPERTY REC FAC

Lab Sample ID: 180-30531-1

Date Collected: 03/11/14 11:50

Matrix: Water

Date Received: 03/11/14 14:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	100235	03/21/14 13:46	MAZ	TAL PIT
Total/NA	Analysis	8015B		1	148161	03/17/14 15:39	JPS	TAL NSH
Total/NA	Analysis	8015B		10	148393	03/18/14 13:18	JPS	TAL NSH
Total/NA	Analysis	8015C		5	148392	03/18/14 12:32	JPS	TAL NSH
Total Recoverable	Prep	3005A			99752	03/17/14 10:38	CEH	TAL PIT
Total Recoverable	Analysis	6020A		1000	100228	03/20/14 13:19	CNS	TAL PIT
Total Recoverable	Prep	3005A			99752	03/17/14 10:38	CEH	TAL PIT
Total Recoverable	Analysis	6020A		100	100228	03/20/14 13:23	CNS	TAL PIT
Total/NA	Prep	1664A			100211	03/21/14 04:46	CLL	TAL PIT
Total/NA	Analysis	1664A		1	100226	03/21/14 06:25	CLL	TAL PIT
Total/NA	Analysis	300.0		250	99668	03/14/14 13:17	CMR	TAL PIT
Total/NA	Analysis	300.0		2500	99668	03/14/14 13:36	CMR	TAL PIT
Total/NA	Analysis	353.2		1	99361	03/12/14 10:32	CAK	TAL PIT
Total/NA	Prep	410.4			100426	03/24/14 11:45	MTW	TAL PIT
Total/NA	Analysis	410.4		1	100427	03/24/14 14:34	MTW	TAL PIT
Total/NA	Analysis	SM 2540C		1	99526	03/13/14 14:29	ALF	TAL PIT
Total/NA	Analysis	SM 2540D		1	99530	03/13/14 14:56	ALF	TAL PIT
Total/NA	Analysis	SM 4500 H+ B		1	100241	03/21/14 14:10	HRA	TAL PIT
Total/NA	Analysis	SM 5540C		50	99449	03/13/14 09:30	HRA	TAL PIT
Total/NA	Prep	Fill_Geo-0			112646	03/25/14 17:35	RLS	TAL SL
Total/NA	Analysis	901.1		1	113024	03/27/14 03:00	EMN	TAL SL

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
 TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
 TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Certification Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Laboratory: TestAmerica Pittsburgh

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-14
California	NELAP	9	4224CA	03-31-14 *
Connecticut	State Program	1	PH-0688	09-30-14
Florida	NELAP	4	E871008	06-30-14
Illinois	NELAP	5	002602	06-30-14
Kansas	NELAP	7	E-10350	04-01-14 *
Louisiana	NELAP	6	04041	06-30-14
New Hampshire	NELAP	1	203011	04-05-14
New Jersey	NELAP	2	PA005	06-30-14
New York	NELAP	2	11182	04-01-14 *
North Carolina DENR	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-14 *
South Carolina	State Program	4	89014	04-30-14 *
Texas	NELAP	6	T104704528	03-31-15
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	04-30-14 *
Virginia	NELAP	3	460189	09-14-14
West Virginia DEP	State Program	3	142	03-31-14 *
Wisconsin	State Program	5	998027800	08-31-14

Laboratory: TestAmerica Nashville

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-15
Alaska (UST)	State Program	10	UST-087	07-24-14
Arizona	State Program	9	AZ0473	05-05-14
Arizona	State Program	9	AZ0473	05-05-14 *
Arkansas DEQ	State Program	6	88-0737	04-25-14 *
California	NELAP	9	1168CA	10-31-14
Connecticut	State Program	1	PH-0220	12-31-15
Florida	NELAP	4	E87358	06-30-14
Illinois	NELAP	5	200010	12-09-14
Iowa	State Program	7	131	05-01-14
Kansas	NELAP	7	E-10229	10-31-14
Kentucky (UST)	State Program	4	19	06-30-14
Louisiana	NELAP	6	30613	06-30-14
Maryland	State Program	3	316	03-31-14 *
Massachusetts	State Program	1	M-TN032	06-30-14
Minnesota	NELAP	5	047-999-345	12-31-14
Mississippi	State Program	4	N/A	06-30-14
Montana (UST)	State Program	8	NA	01-01-20
Nevada	State Program	9	TN00032	07-31-14
New Hampshire	NELAP	1	2963	10-10-14
New Jersey	NELAP	2	TN965	06-30-14
New York	NELAP	2	11342	04-01-14 *
North Carolina DENR	State Program	4	387	12-31-14
North Dakota	State Program	8	R-146	06-30-14
Ohio VAP	State Program	5	CL0033	10-16-15

* Expired certification is currently pending renewal and is considered valid.

Certification Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Laboratory: TestAmerica Nashville (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9412	08-31-14
Oregon	NELAP	10	TN200001	04-29-14
Pennsylvania	NELAP	3	68-00585	06-30-14
Rhode Island	State Program	1	LAO00268	12-30-14
South Carolina	State Program	4	84009 (002)	02-23-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077-09-TX	08-31-14
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-14
Virginia	NELAP	3	460152	06-14-14
Washington	State Program	10	C789	07-19-14
West Virginia DEP	State Program	3	219	02-28-15
Wisconsin	State Program	5	998020430	08-31-14
Wyoming (UST)	A2LA	8	453.07	12-31-15

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-14
California	NELAP	9	09266CA	03-31-14 *
Connecticut	State Program	1	PH-0241	03-31-15
Florida	NELAP	4	E87689	06-30-14
Illinois	NELAP	5	200023	11-30-14
Iowa	State Program	7	373	12-01-14
Kansas	NELAP	7	E-10236	10-31-14
Kentucky (DW)	State Program	4	90125	12-31-14
L-A-B	DoD ELAP		L2305	01-10-16
Louisiana	NELAP	6	LA140007	12-31-14
Maryland	State Program	3	310	09-30-14
Missouri	State Program	7	780	06-30-14
Nevada	State Program	9	MO000542013-1	07-31-14
New Jersey	NELAP	2	MO002	06-30-14
New Mexico	State Program	6		06-30-10 *
New York	NELAP	2	11616	04-01-14 *
North Dakota	State Program	8	R207	06-30-14
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	2013-049	08-31-14
Pennsylvania	NELAP	3	68-00540	02-28-15
South Carolina	State Program	4	85002001	06-30-14
Texas	NELAP	6	T104704193-13-6	07-31-14
USDA	Federal		P330-07-00122	01-09-17
USEPA Reg V SDWA	Federal	1	WG-15J	08-30-14
Utah	NELAP	8	MO000542013-5	07-31-14
Virginia	NELAP	3	2236	06-14-14
Washington	State Program	10	C592	08-30-14
West Virginia DEP	State Program	3	381	08-30-14

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
8015B	Glycols -Direct Injection (GC/FID)	SW846	TAL NSH
8015C	Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)	SW846	TAL NSH
6020A	Metals (ICP/MS)	SW846	TAL PIT
1664A	HEM and SGT-HEM	1664A	TAL PIT
300.0	Anions, Ion Chromatography	MCAWW	TAL PIT
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL PIT
410.4	COD	MCAWW	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL PIT
SM 4500 H+ B	pH	SM	TAL PIT
SM 5540C	Methylene Blue Active Substances (MBAS)	SM	TAL PIT
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

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

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Goff Property Recycle Facility

TestAmerica Job ID: 180-30531-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-30531-1	GOFF PROPERTY REC FAC	Water	03/11/14 11:50	03/11/14 14:35

SECTION 8. VOLUME OF MATERIAL TO BE HANDLED

SECTION 8**VOLUME OF MATERIAL TO BE HANDLED**

Estimated volume of materials to be managed by the facility daily, monthly, and annually.

Volume	Time
1,800 BBL	Day
54,000 BBL	Month
648,000 BBL	Year

SECTION 9. METHOD OF DOCUMENTATION

SECTION 9

METHOD OF DOCUMENTATION

- A. The Utica Solids Treatment System (UST System) work order will be used to document the type and volume of material received. The UST System Form is provided on the following page.
- B. Water after treatment will be pumped to the Goff UIC well
- C. Water for reuse will be reticketed at the UST System site as reuse water
- D. Solids will be disposed of in a permitted landfill



HECKMANN WATER RESOURCES (CVR), INC.
D/B/A NUVERRA ENVIRONMENTAL SOLUTIONS

9350 EAST PIKE
NORWICH, OHIO 43767

EMERGENCY CONTACTS:
DIAMOND, OHIO 330-654-2500
MASONTOWN, WV 304-291-0807

DATE: _____ TIME: _____

UST SYSTEM WORK ORDER UST000000

NUVERRA WORK ORDER _____

UTICA SOLIDS TREATMENT SYSTEM (UST SYSTEM)

PLEASE PRESS FIRMLY
AND PRINT ALL!

WELL OWNER: _____

CHARGE TO: _____

MAILING ADDRESS: _____

LEASE NAME: _____

PERMIT # _____

PO# _____

AFE# _____

STATE: _____

COUNTY: _____

TOWNSHIP: _____

WATER TYPE:

- | | | | |
|---|---|--|---|
| <input type="checkbox"/> PRODUCED | <input type="checkbox"/> FLOWBACK | <input type="checkbox"/> RECYCLED COMPLETION | <input type="checkbox"/> FRESH COMPLETION |
| <input type="checkbox"/> PRODUCED GAS PIPE LINE | <input type="checkbox"/> RAINWATER | <input type="checkbox"/> RECYCLED DRILLING | <input type="checkbox"/> FRESH DRILLING |
| <input type="checkbox"/> SOG | <input type="checkbox"/> OIL BASED MUD | <input type="checkbox"/> FRESH DUST CONTROL | <input type="checkbox"/> FRESH CONSTRUCTION |
| <input type="checkbox"/> MARCELLUS | <input type="checkbox"/> WATERBASED MUD | <input type="checkbox"/> FRESH GAS PIPELINE | <input type="checkbox"/> OTHER |

BARRELS: _____

TRUCKING COMPANY _____

UIC# _____

DRIVER NAME: _____

HWR YARD: _____

TRUCK NUMBER: _____

LICENSE NUMBER: _____

FOR OFFICE USE ONLY

WELL TENDER: _____

PRICE PER BBL _____

WATER WEIGHT: _____

TOTAL _____

% OF SOLIDS: _____

COMMENTS: _____

