



January 17, 2024

Port of Newport
Newport, Oregon

Past projects over 500sf in past 3 years

URETEK has completed the following projects:

Alaska Native Tribes Health Consortium-2023
Roger Hickel Contracting
Anchorage, AK
38,797sf with injections to -32ft

T-Mobile PDX-2022
Andersen Construction
Portland, OR
20,000sf with injections to -40ft

PDX - 2024
Interior Exterior Specialties
Portland, OR
4200sf with injections to -4'

John Schmidt
Project Manager OR/WA/AK

URETEK USA, Inc.
(503) 730-4450
jschmidt@uretekusa.com
www.uretekusa.com

URETEK 486 STAR 4R

Polyurethane Soil Stabilization Solutions

Uretek 486 Star 4R is a two-component polyurethane rigid foam. Designed specifically for Uretek 486 Star, this product is excellent for lifting settled pavement, stabilizing weak soil, and the filling or encapsulating of various voids. Uretek 486 Star 4R utilizes a fully EPA approved, non-CFC, non-HFC, zero ozone depleting blowing agent.

Uretek 486 Star 4R is inherently hydrophobic and is capable of being directly injected into water. Due to the hydrophobic nature, this product is excellent for lifting and/or stabilizing in areas with a high level of moisture content. The low viscosity of the system allows for easy penetration into soil and displaces water without losing product integrity as it stabilizes and lifts.

Storage and Handling

Uretek 486 Star 4R has a shelf life of 1 yr when stored in the original, sealed container at a temperature of 65° F - 85° F with humidity levels not greater than 85% and also not in direct sunlight. The "A" component is very sensitive to moisture and caution must be taken to ensure moisture is not introduced. Prolonged storage at temps below 60° F can affect both the "A" and "B" components.

Should the materials be subjected to temperatures at or below 40° F, there may be layering in the B-side containers. Should this occur, gradually raise the temperature to 70° F and use a drum or tote mixer for 30 minutes or more. The material will go back into the proper solution and is then usable.

Containers of Component-A should be kept properly closed and stored indoors at ambient temperatures (20-25° C) (65-80° F) in a well-ventilated area. Storage at low temperatures (below 5° C, 40° F) may lead to some crystallization; this material must, therefore, be protected from frost. If crystallization does occur, the material should be heated but not to exceed 70° C, 158° F, to melt it out, and should then be thoroughly agitated before use. Note that the product will decompose and give off gas above 230° C, 446° F.



Certified to
NSF/ANSI 61

The information herein is to assist customers in determining whether our products are suitable for their applications. Customer assumes full responsibility for quality control, testing and determination of suitability of product for its intended use or application. Uretek 486 Star warrants only that the material shall meet its specifications; this warranty is in lieu of all other written, expressed or implied warranties and Uretek 486 Star expressly disclaims any warranty or merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve Uretek 486 Star of all liability with respect to the material or the use thereof.

Typical Physical Properties

Property	4R	Test
Closed Cell Content	>85%	ASTM D 6226
Tensile Strength (PSI)	95	ASTM D 1623
Dimensional Stability	<2%	ASTM D 2126
Comprehensive Strength (PSI)	63	ASTM D 1621
Comprehensive Modules (PSI)	2100	ASTM D 1621
Tensile Modules (PSI)	2100	ASTM D 1623
Shear Strength	47	ASTM C 273
Shear Modulus	945	ASTM C 273
Flexural Strength	95	ASTM D 790
Flexural Modulus	2100	ASTM D 790
Water Absorption	<2%	ASTM D 2842
Core Density	3.5-4.5	

* Data generated under controlled laboratory conditions. Actual performance may vary due to environmental conditions.

Liquid Components as Supplied

	A (ISO)	B (Resin)
Specific Gravity @74°F (23°F)	1.22	1.04
Viscosity (Brookfield) @74°F (23°C), CPS	220-250	400-500
Mixing Ratio By Volume	1	1

Common Chemical Resistance

Chemical	Resistance
Water	Excellent
Toluene	Excellent
Gasoline	Excellent
Sulfuric Acid 10%	Excellent
Hydrochloric Acid 10%	Excellent
Isopropanol	Excellent
Benzene	Excellent
Motor Oil	Excellent
Acetone	Poor
Ethyl Alcohol	Poor
Methyl Alcohol	Poor

Emergency Notifications: Chemtrec: Material Leaks, Spills or Fire
(800) 424-9300

13900 Humble Road • Tomball, TX 77377 • 800.240.7868





August 15, 2017

Randall W. Brown, PhD, PE
Vice President for Engineering
URETEK USA, Inc.
PO Box 1929
Tomball, Texas 77377

Subject: Hydro-Insensitivity Certification for
URETEK High Density Polyurethane Grout
URETEK 02-40R-V3
BEI Project No. 13-071

Dear Dr. Brown:

Boudreau Engineering, Inc. (BEI) has completed the required inspection and physical property testing of a high density polyurethane grout referenced as URETEK 02-40R-V3. The testing was conducted in general conformance with the New York Department of Transportation (NYDOT) Geotechnical Test Procedure (GTP-9): *Hydro-Insensitivity of High Density Polyurethane Grout – Panel Test (March 2013)*.

A dry panel and a wet panel were injected with the polymer on the afternoon of October 2, 2013. The attached data form documents the particulars with respect to material and equipment utilized, as witnessed by Mr. Richard Boudreau.

GTP-9 requires a minimum of 90 percent density retention between the wet panel samples and the dry panel samples. **Test results indicate that this requirement was satisfied**—as highlighted at the bottom of the attached data form. The specified minimum compressive strength requirement of 50psi was also achieved.

If you have any questions, please do not hesitate to contact me at (404) 388-1137.

Sincerely,

Richard L. Boudreau, P.E.
Executive VP – Director of Engineering

attachment: Panel Test Data Sheet
clients\uretek\panel tests\02-40R-V3_2oct2013-Rev1.docx

Flow Meter Certification

TAG: RESIN

UNIT: 50

Tolerance 1.00%

Status: **PASS**

Flow Meter Information

Manufacturer : MICRO MOTION SN: (50)14690387
Flow Meter Model : (50)F100SB81C2BAEZZ SN:
Core Processor : PUCK800 SN: (50)14690388
Transmitter : (50)2700R12CBEZZ

Calibration Verification by Meter & Scale Method

TEST #	Meter LBS	Scale LBS	% Error
1	5.4	5.452	0.962962963
2	5.3	5.345	0.849056604
3	5.4	5.455	1.018518519
Average			0.93%

TAG: ISO

Tolerance 1.00%

Status: **PASS**

Flow Meter Information

Manufacturer : MICRO MOTION SN: (50)14697449
Flow Meter Model : (50)F100SB81C2BAEZZ SN:
Core Processor : PUCK800 SN: (50)14697449
Transmitter : (50)2700R12CBEZZ

Calibration Verification by Meter & Scale Method

Test #	Meter LBS	Scale LBS	% Error
1	6.3	6.355	0.873015873
2	6.5	6.555	0.846153846
3	5.4	5.452	0.962962963
Average			0.89%

Scale Certification & Traceability Information

Equipment ID: 2388 Temp./HR: 60 F / 80%
Manufacturer: TOLEDO CAROLINA Cal Interval: Annual
Model Number : BBA-442-60-1000 Cal Date: 2/20/2023
Serial Number : 2876422-7LH Calibration Result: **PASS**
Resolution : 100LBS. / 0.01LBS

DATE OF CERTIFICATION 2/21/2023

Certified By : Christopher Phelps

Flow Meter Certification

TAG: RESIN

UNIT: 60

Tolerance 1.00%

Status: **PASS**

Flow Meter Information

Manufacturer : MICRO MOTION SN: (60)14920556
 Flow Meter Model : (60)1700SB81C2BAEZZZ SN:
 Core Processor : PUCK800 SN: (60)33709620
 Transmitter : (60)2700R12CBAEZZZ

Calibration Verification by Meter & Scale Method

TEST #	Meter LBS	Scale LBS	% Error
1	5.4	5.45	0.925925926
2	5.4	5.44	0.740740741
3	5.3	5.35	0.943396226
Average			0.86%

TAG: ISO

Tolerance 1.00%

Status: **PASS**

Flow Meter Information

Manufacturer : MICRO MOTION SN: (60)14933357
 Flow Meter Model : (60)1700SB81C2BAEZZZ SN:
 Core Processor : PUCK800 SN: (60)3440220
 Transmitter : (60)2700R12CBAEZZZ

Calibration Verification by Meter & Scale Method

Test #	Meter LBS	Scale LBS	% Error
1	6.7	6.76	0.895522388
2	6.6	6.67	1.060606061
3	6.4	6.46	0.9375
Average			0.96%

Scale Certification & Traceability Information

Equipment ID: Wiggins Scale Company Temp./HR: 50 F / 80%
 Manufacturer: Ohaus ES Series Cal Interval: Annual
 Model Number : PA7600M/4412 Cal Date: 12/5/2022
 Serial Number : 6M-002204/802113R Calibration Result: **PASS**
 Resolution : 100LBS./0.01LBS

DATE OF CERTIFICATION

1/10/2023

Certified By : Christopher Phelps

**Hydro-Insensitivity of High Density Polyurethane Grout -
Panel Test Data Sheet**

Polymer Type & Manufacturer URETEK 02-40R-V3
Lot # & Date on Component Containers Resin: URETEK 4R (Lot #1309LK) / 10-01-2013
Component A Isocyanate (Batch# PB93000674) / 09-20-2013

PROPORTIONING EQUIPMENT

Proportioner Graco Reactor H25 Hose Length (ft.) 50ft
Gun Graco GX-7 Gun Set-up A20
A/B/H Temperature (°F) 100 A/B Pressure (psi) 1000/1000

CALIBRATION TEST

1:34:00 Time at Beginning of Injection (HH:MM:SS)
1:34:24 Time at End of Injection (HH:MM:SS)
5.0 Sample Weight (lbs.) vs. 5.0 Certified Flow Meter Weight (lbs.)

INJECTION PROCEDURE - DRY

✓ (✓) 5 lbs. of Material Injected
into Box
✓ (✓) After 10 minutes, Remove Top Cover
✓ (✓) After 30 minutes, Sample the HDP
Material

INJECTION PROCEDURE - Wet

✓ (✓) Add 15 lbs. of Water into
Box
✓ (✓) 5 lbs. of Material
Injected into Box
✓ (✓) After 10 minutes,
Remove Top Cover
✓ (✓) After 30 minutes, Sample
the HDP Material

MATERIAL ANALYSIS

Dry Injection Shots

	Density (pcf)	Compressive Strength (psi)
Sample 1	<u>5.31</u>	<u>59</u>
Sample 2	<u>5.24</u>	<u>67</u>

Wet Injection Shots

	Density (pcf)	Compressive Strength (psi)
	<u>5.24</u>	<u>64</u>
	<u>5.03</u>	<u>52</u>

	% Retention of Density
Sample 1	<u>98.7%</u>
Sample 2	<u>96.0%</u>

Technician Richard L. Boudreau
Date 2-Oct-13



URETEK Dynamic Cone Penetrometer (DCP) testing

1. Who manufactures the URETEK DCP?

URETEK employs the DPM 30-20 Model DCP manufactured by Pagani Geotechnical Equipment of Piacenza, Italy.

2. What are the specifications for the URETEK DCP?

- Diameter of Cone Tip = 35.6 mm (1.40 inches)
- Angle of Cone Tip, B = 60 degrees
- Area of Cone Tip, A = 10 square cm (1.55 square inches)
- Diameter of Rods = 20 mm (0.7874 inches)
- Length of Rods = 1 m (39.37 inches)
- Weight of Rods = 2.4 kg (5.29 pounds)
- Weight of Drop Hammer = 30 kg (66 pounds)
- Free Fall Drop Height = 20 cm (7.874 inches)

3. How does the URETEK DCP work?

- A 3.81 cm (1.5 inch) diameter hole is drilled in the pavement.
- A sacrificial cone and rods (incremented every 10 cm or 3.937 inches) are inserted into the hole.
- The cone and the rods are driven into the soil by a percussive head (weighing 30 kg or 66 pounds) dropped 20 cm (7.874 inches.) The percussive head is lifted by a mechanical arm driven by an electrical motor.

- The number of drops of the percussive head required to drive the rod 10 cm (3.937 inches) is recorded.
- These blow counts provide information about soil strength. Moreover, these blow counts can be correlated to the N-value associated with the Standard Penetration Test (SPT) by using a relationship developed by the manufacturer:

$$N \text{ (SPT)} = 0.766 \times N \text{ (DCP)}$$

4. How is the DCP information used?

- Identify weak layers in the soil mass so an injection pattern can be developed.
- Contribute to the development of material estimates. Weaker soils typically require more polyurethane than stronger soils.
- Assist in evaluating the effectiveness of polyurethane injection by comparing pre-injection DCP results to post-injection DCP results. Other evaluative tools (e.g., the Falling Weight Deflectometer – FWD) are used in conjunction with the DCP, when available.

Flow Meter Certification

TAG: RESIN

UNIT: U27

Tolerance 1.00%

Status: **PASS**

Flow Meter Information

Manufacturer : MICRO MOTION SN: (27)14500616
Flow Meter Model : (27)FS100SB1CQBAEZZZZ SN:
Core Processor : PUCK800 SN: N/A
Transmitter : (27)1700

Calibration Verification by Meter & Scale Method

TEST #	Meter LBS	Scale LBS	% Error
1	4.8	4.82	0.416666667
2	5.2	5.25	0.961538462
3	5	5.05	1
Average			0.70%

TAG: ISO

Tolerance 1.00%

Status: **PASS**

Flow Meter Information

Manufacturer : MICRO MOTION SN: (27)14500616
Flow Meter Model : (27)FS100SB1CQBAEZZZZ SN:
Core Processor : PUCK800 SN: N/A
Transmitter : (27)1700

Calibration Verification by Meter & Scale Method

Test #	Meter LBS	Scale LBS	% Error
1	5.6	5.65	0.892857143
2	4.9	4.94	0.816326531
3	4.8	4.84	0.833333333
Average			0.84%

Scale Certification & Traceability Information

Equipment ID:	Wiggins Scale Company	Temp./HR:	50 F / 80%
Manufacturer:	Ohaus ES Series	Cal Interval:	Annual
Model Number :	PA7600M / 4412	Cal Date:	12/5/2022
Serial Number :	6M-002204 / 802113R	Calibration Result:	PASS
Resolution :	100LBS. / 0.01LBS		

DATE OF CERTIFICATION

1/10/2023

Certified By : Christopher Phelps

REX KLENTZMAN, P.E.

DIRECTOR OF ENGINEERING, URETEK USA, INC.

LICENSED P.E.: TX, FL, WV, KY, LA, NY, MD, IL, VA, MI

Experience

URETEK USA, Director of Engineering Tomball TX (September 2017 – Present)

- Consult on Polyurethane Grouting Ground Improvement Projects relating to transportation infrastructure
- Coordinate and execute testing regimens with the goal of ground improvement verification
- Present Engineering solutions to potential clients in a concise and direct manner
- Educate sales staff design innovative and cost effective solutions for land development projects
- Review geotechnical reports and recommend pavement remediation designs

URETEK ICR, Engineering Support Manager Tomball TX (September 2014 - Present)

- Consult on Polyurethane Grouting Ground Improvement Projects relating to underground infrastructure, structural foundations, dewatering and shoreline stabilization
- Review geotechnical reports and recommend structural foundation remediation programs
- Develop training and educational materials for internal and public distribution
- Review geotechnical reports and recommend structural foundation remediation programs

Bleyl & Associates, Engineer Austin & Conroe TX (October 2008 - Present)

- Prepare construction documents; developed grading plans, cost estimates, utility plans, engineering reports and contract documents
- Provide construction oversight; conduct site visits, respond to requests for information and approve pay requests
- Design innovative and cost effective solutions for land development projects
- Review geotechnical reports and recommend pavement designs
- Develop and Maintain excellent relationships; stay in contact with all clients, respond promptly to inquiries, develop relationships with potential clients

Doucet & Associates, Engineer Austin TX (January 2006 – October 2008)

- Facilitate site permitting and platting with utility companies and the City of Austin and surrounding areas
- Manage project deadlines and give instructions to drafters
- Conduct hydraulic and hydrologic drainage studies, design storm water infrastructure
- Coordinate commercial and residential site and subdivision design with clients and design team

Uretek ICR Central Texas, Technician/Sales Austin TX (August 2004 – October 2004, Summer 2001)

- Apply the Uretek Method to resolve problem areas in sunken concrete
- Prepare project bids and make sales visits to potential clients

Uretek USA, Technician Houston TX (Summer & Fall 1998, Summer 1999)

- Apply the Uretek Method to resolve problem areas in sunken concrete

Education

Texas A&M University College Station, TX (1999-2003)

- Bachelor of Science, Civil Engineering, GPA 3.2
-

REX KLENTZMAN, P.E.

DIRECTOR OF ENGINEERING, URETEK USA, INC.

LICENSED P.E.: TX, FL, WV, KY, LA, NY, MD, IL, VA, MI

Experience

URETEK USA, Director of Engineering Tomball TX (September 2017 – Present)

- Consult on Polyurethane Grouting Ground Improvement Projects relating to transportation infrastructure
- Coordinate and execute testing regimens with the goal of ground improvement verification
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Education

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URETEK USA, INC
FLEET, PLATE/REGISTRATION/INSPECTION

YEAR 2016

#	Vehicle Model	Year	Vin #	Plate #	Garaged
S01	FORD F250	2016	1FT7W2BT7GEB76153	HZR8157	GA
S02	FORD F250	2016	1FT7W2BT7GED46396	RMS1318	TX
S03	FORD F250	2016	1Ft7W2BT3GED37968	HZP6367	TX
S04	RAM 2500	2017	3C6UR5HL5HG589337	JDY6816	TX
S05	RAM 2500	2017	3C6UR5HL7HG589338	JDY6817	GA
S06	RAM 2500	2017	3C6UR5HL1HG589321	JDY6818	TX
S07	FORD F250	2017	1FT7W2BT9HEF45676	KMZ0895	TX
S08	FORD F250	2017	1FT7W2BTXHEF36582	KMZ0896	GA
S10	FORD F350	2014	1FT8W3DT0EEA09251	RMW3329	GA
S11	FORD F350	2017	1FT8W3DT0HEF46237	TJF2155	GA
S13	CHEV 3500	2015	1GB4KYC87FF658968	SGM5693	TX
S14	CHEV 2500	2019	1GC1KTEY0KF214730	PMC5674	GA
S15	FORD F250	2019	1FT7W2BT2KEE72917	MBW2719	TX
S16	FORD F250	2019	1FT7W2BT6KEC57993	PKS4685	TX
S17	FORD F150	2019	1FTEW1E58KKC47658	MMS5791	TX
S18	CHEV 3500	2020	1GB4YSEY6LF248229	K101606	TX
S19	RAM 1500	2021	1C6RREFT7MN661486	PKW1665	TX
S20	RAM 1500	2021	1C6RREFT0MN661488	PKW1669	TX
S21	RAM 2500	2022	3C6UR5HL2NG157302	RJG8025	TX
S22	RAM 2500	2022	3C6UR5CL7NG224113	RKJ4194	TX
S23	RAM 2500	2022	3C6UR5CL9NG224114	RKJ4195	TX
S24	RAM 2500	2022	3C6UR5CL0NG224115	TFL0442	TX
S25	RAM 2500	2022	3C6UR5CL4NG224117	RKJ4197	TX
S26	FORD F350	2020	1FD8W3HT4LEC45582	K155957	GA
S27	RAM F3500	2022	3C63RRGL5NG364819	SNT6757	TX
S28	RAM 2500	2022	3C6UR5CL3NG369505	SNT6766	TX
S29	FORD F250	2022	1FT7W2BT8NEG32450	SVK3474	TX
S30	FORD F250	2022	1FT7W2BTXNEG32451	SVK3473	TX
S77	FORD F250	2012	1FT7W2ATXCEB68995	BX80083	GA
S79	FORD F150	2012	1FTEW1CM0CFB83524	BX80018	TX
S80	FORD F150	2013	1FTEW1CM7DKE19580	BXM5762	TX
S82	TOYOTA TUNDRA	2013	5TFEY5F14DX134227	CKH4460	TX
S83	TOYOTA TUNDRA	2013	5TFEY5F14DX135765	CKH4459	TX
S84	TOYOTA TUNDRA	2013	5TFEY5F18DX147109	KDJ2212	GA
S87	FORD F550	2015	1FDOW5HT1FEA48026	K046835	GA
S88	FORD F250	2015	1FT7W2BT7FEA39633	HXV9323	GA
S89	FORD F450	2016	1FT8W4DT0GEA37270	1M31740	TX
S90	FORD F450	2015	1FDOW4GT4FEC65520	K060362	TX
S92	FORD F450	2015	1FDOW4GTXFED58882	K060363	TX
S94	FORD F250	2016	1FT7W2BT9GEA64034	SSC5760	GA
S95	FORD F250	2016	1FT7W2BT1GEB04736	GXP3240	GA
S97	FORD F250	2016	1FT7W2BT2GEC02271	HHX3761	GA
S98	FORD F250	2016	1FT7W2BT4GEC68885	PKS4684	TX

URETEK USA, INC
FLEET, PLATE/REGISTRATION/INSPECTION

YEAR 2016

#	Vehicle Model	Year	Vin #	Plate #	Garaged
T10	FREIGHTLINER	1999	1FUYSYB6XPA87281	1L36442	TX
T13	FREIGHTLINER	2002	1FUJBBCG82LJ55053	R197359	TX
T14	FREIGHTLINER	2002	1FUJBBCG92LJ55059	R197360	GA
T17	FREIGHTLINER	2005	1FUJBBC35LN99627	R197362	GA
T18	FREIGHTLINER	2005	1FUJBBC85LN99607	R197363	GA
T22	FREIGHTLINER	2009	1FUJGLDR59LAH7315	R197366	GA
T23	FREIGHTLINER	2012	1FUJGBDVOC5BM5805	R252493	TX
T24	12 FREIGHTLINER	2012	1FUJGLDRXCLBE9620	R252494	TX
T27	INTERNATIONAL	2007	1HTMSAAR67H361956	K060364	TX
T28	FORD F750	2014	3FRNF7FC4FV643680	PMC8038	GA
T30	FREIGHTLINER	2012	1FUJGNDV3CDBN8408	R281604	GA
T31	PETERBILT	2017	1XPCD49X8HD367823	R325074	GA
T32	PETERBILT	2018	1XPCDP9X1JD455149	R325075	GA
T47	HINO	2016	5PVNV8JV9G4S55457	K125968	GA
T48	HINO	2016	5PVNV8JV1G4S55467	K054835	TX
T51	PETERBILT	2016	2NP3LJ0X1GM325639	K060915	GA
T52	PETERBILT	2016	2NP3LJ0X9GM326182	K065755	GA
T53	PETERBILT	2018	2NP2HM6X5JM479204	TKT4062	TX
T54	PETERBILT	2018	2NP2HM6X7JM479205	JXW8246	TX
T58	HINO	2005	JHBNE8JT851S10692	ZNK4167	TX
T61	FREIGHTLINER	2014	3ALACWU0EDFU6993	NKM5577	TX
T62	PETERBILT	2014	1XPHDP9X8ED232750	R507950	TX
T63	INTERNATIONAL	2018	1HTMSTAR0JH529853	K135911	TX
T64	INTERNATIONAL	2018	1HTMSTAR3JH529815	K135811	TX
T65	FREIGHTLINER	2016	3AKJGBDV0GDHA6198	1N39208	GA
TC4	INTERNATIONAL	2003	3HTMPAFN03N574943	K005107	GA
TC5	FORD F650	2006	3FRNF65F06V307921	KHJ7453	GA
H02	FORD F650	2002	3FDNF65Y92MA30468	BL6B514	TX
U30	UTILITY TRAILER	1999	1UYVS2489XU953001	Y55671	TX
U31	GREAT DANE	2002	1GRAA72212B055904	090B516	TX
U35	UTILITY TRAILER	1997	1K9133426V2054558	077B148	TX
U36	UTILITY TRAILER	2000	1K9133427Y2054590	122B979	TX
U39	UTILITY TRAILER	2004	1GRAA72284S701734	Y05340	TX
U40	UTILITY TRAILER	2004	1GRAA72244S701732	122C068	TX
U49	UTILITY TRAILER	2007	1UYVS248X7M207401	107B646	GA
U50	UTILITY TRAILER	2008	1UYVS25368G269302	160B689	GA
U3993	CHEETAH CHASIS	2000	5EF2GC405YB741038	093B68	GA
U4000	CHEETAH CHASIS	2001	5EF2GC4001B744550	093B369	TX
U59	HORTON	2011	5E2G12024B1043351	122C170	GA
U60	HORTON	2013	5E2G12028D1046644	139C149	GA
U65	LONE STAR	2022	3EVBC2020P1103801	299913M	GA
UT10	UTILITY TRAILER	2005	17YGN32225B029215	059B156	TX
UT14	UTILITY TRAILER	2012	16VPX2027C2330397	86440L	TX

URETEK USA, INC
FLEET, PLATE/REGISTRATION/INSPECTION

YEAR 2016

#	Vehicle Model	Year	Vin #	Plate #	Garaged
UT15	UTILITY TRAILER	2012	4ZECH1827C1029524	182117H	TX
UT16	UTILITY TRAILER	2014	5VNBU2021ET122232	178504K	TX
UT17	UTILITY TRAILER	2014	5VNBU2021ET122733	332320M	TX
UT18	UTILITY TRAILER	2014	5VNBU1826ET125559	692352J	TX
UT32	UTILITY TRAILER	1995	1UYVS2453SU568001	07617Z	TX
UT37	UTILITY TRAILER	2001	1UYVS248X1M446907	Y05343	TX
UT42	UTILITY TRAILER	2007	1B9GU25287T867073	986990H	TX
UT43	UTILITY TRAILER	2008	1UYVS25348G269301	107B780	TX
UT46	UTILITY TRAILER	2010	1UYVS2531AP830401	122c184	TX
UT47	UTILITY TRAILER	2016	4P5LY3220G1249396	290315J	TX
UT48	LOAD TRAIL	2016	4ZECH2026G1098261	496818J	TX
UT49	FEATHERLITE	2013	4FGA42021DC128669	63368N	TX
UT50	BIG TEX	2017	16VEX1820H2016250	4PX6246	GA
UT51	BIG TEX	2017	16VHX2023H6034376	695594J	GA
UT52	BIG TEX	2017	16VCX2023H2017983	691792J	GA
UT54	BIG TEX	2019	16VEX2020K2005371	437536M	GA
UT55	BIG TEX	2019	16VEX2026K2001986	338456K	GA
SIT1	EXIS	2000	4LAAU2423410055341	761731H	TX
A34	TOYOTA TUNDRA	2020	5TFAY5F13LX939102	NPP2273	TX
A35	FORD F150	2023	1FTFW1E84PFA46838	SVF5472	TX

Training History

Date Performed	License Number	Training Type
4/28/2010	25-003033853	Offline
4/28/2010	25-003033848	Offline
7/15/2011	26-003930591	Offline
1/6/2012	25-003920992	Offline
1/6/2012	25-003920990	Offline
1/6/2012	25-003920993	Offline
1/6/2012	25-003920986	Offline
1/6/2012	25-003920996	Offline
1/6/2012	25-003920987	Offline
1/6/2012	25-003920994	Offline
8/21/2013	36-701429405	Offline
4/3/2014	25-004798192	Offline
4/3/2014	25-004798193	Offline
6/8/2017		Offline
6/10/2017		Offline
6/25/2017	36-005966939	Offline
10/12/2017	36-006014808	Offline
11/17/2018		Offline
12/30/2018	36-006232481	Offline
7/23/2019		Offline
7/26/2019	36-006089323	Offline
7/26/2019		Offline
7/31/2019	36-006089639	Offline
10/8/2019		Offline
11/21/2019	20-0106090	Offline
11/22/2019	25-003920994	Offline
11/25/2019	20-0106090	Offline
1/21/2020	20-0106090	Offline
3/5/2020	20-106090	Offline
10/15/2020	20-106090	Offline
11/12/2020	20-106090	Offline
12/27/2018	OEC-7055742	Offline
12/31/2018	OEC-7055888	Offline
1/1/2019	OEC-7055926	Offline
1/1/2019	OEC-7055898	Offline
1/7/2019	OEC-7056183	Offline
2/22/2019		Offline
4/4/2019	OEC-7059891	Offline
6/20/2019	OEC 1030-7060852	Offline
7/23/2019		Offline
1/18/2020		Offline
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2/4/2020	20-0106090	Offline
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2/28/2020	20-0106090	Offline
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7/16/2020	20-0106090	Offline
7/16/2020	20-0106090	Offline
1/14/2021	20-0106090	Offline
2/24/2021	20-106090	Offline
3/4/2021	20-106090	Offline
2/21/2020	500132	Offline

Instructor Name	Employee Name
Keith McClure	Barnwell, Ed L
Keith McClure	Johnson, Bennie L
Joseph Froyd	Pollan, Scott E
Keith McClure	Cardoza, Hector R
Keith McClure	Hernandez, Jose L
Keith McClure	Hernandez, Richard J
Keith McClure	Hernandez-Lopez, Jose Leon
Keith McClure	Jackson, James R
Keith McClure	Negrete, Erasmo
Keith McClure	Romero-Parada, Jorge L
Rick Gleason	Blackwell, Rodney M
Keith McClure	Medina, Richard I
Keith McClure	Padilla, Sergio
Matthew Luman	Dejournette, Daniel D
Matthew Luman	Holmes, Quontavious
Matthew Luman	Arriaga, Hector R
Matthew Luman	Byrne, Brien A
David Crouch--USF Health	Walker, Thomas E
Dan Johnson	Schroder, Nathan C
David Crouch--USF Health	Adams, Nick (Rey)
David Crouch--USF Health	Lewis, Chad J
David Crouch--USF Health	White, Kevin T
David Crouch--USF Health	Quiroz, Gustavo A
David Couch	Buenrostro-Calderon, Jonas A
David Couch	Jordan, Timothy J
Keith McClure	Parada, Jorge
David Couch	Hibbard, Noah E
David Crouch--USF Health	Hembree, Joseph A
David Couch	Hattenbach, Robert
David Couch	Campos, Carlos
David Couch	Zamarripa, Hector D
Jeffrey Pairan--American Safety Council	Osorio, Jose A
Jeffrey Pairan--American Safety Council	Smith, Michael A
Jeffrey Pairan--American Safety Council	Pollan, Scott E
Jeffrey Pairan--American Safety Council	Price, Luke A
Jeffrey Pairan--American Safety Council	Morrison, Herbert C
David Crouch--USF Health	Arriaga, Hector R
Jeffrey Pairan--American Safety Council	Fourniquet, Elijah
Jeffrey Pairan--American Safety Council	Byrne, Brien A
David Crouch--USF Health	Boyett, Kevin W
David Crouch--USF Health	Metoyer, Johnny L
David Crouch--USF Health	Nichols, Derrick O
David Crouch--USF Health	Nickles, Jeremy C
David Crouch--USF Health	Schroder, Nathan C
David Crouch--USF Health	Humpries, Brian A
David Crouch--USF Health	Copeland, Casey C

David Couch	Williams, Trevin A
David Couch	Ellis, Ervin
David Couch	Metoyer, Johnny L
David Couch	Parada, Jorge
David Couch	Hattenbach, Robert
David Couch	Quiroz, Gustavo A
David Couch	Hiser, Jeremy L
David Couch	Padilla, Sergio
David Couch	White, Kevin T
David Couch	Diaz, Esequiel
Scott Wallace	Essig, Mike
David Couch	Lewis, Chad J
David Couch	Negréte-Corona, Saul D
David Couch	Ayala, Jeffrey
David Couch	Zamarripa, Hector D
David Couch	Adams, Nick (Rey)
Von M. Griggs-Law	McClure, Keith W

Training Name	Employee ID
OSHA 10-Hour Course	11004
OSHA 10-Hour Course	11033
OSHA 10-Hour Course	11179
OSHA 10-Hour Course	11012
OSHA 10-Hour Course	11026
OSHA 10-Hour Course	11090
OSHA 10-Hour Course	11027
OSHA 10-Hour Course	11164
OSHA 10-Hour Course	11079
OSHA 10-Hour Course	11052
OSHA 10-Hour Course	11008
OSHA 10-Hour Course	11078
OSHA 10-Hour Course	11046
OSHA 10-Hour Course	11138
OSHA 10-Hour Course	11029
OSHA 10-Hour Course	11084
OSHA 10-Hour Course	11098
OSHA 10-Hour Course	11113
OSHA 10-Hour Course	11241
OSHA 10-Hour Course	11148
OSHA 10-Hour Course	11233
OSHA 10-Hour Course	11062
OSHA 10-Hour Course	11154
OSHA 10-Hour Course	11142
OSHA 10-Hour Course	11130
OSHA 10-Hour Course	
OSHA 10-Hour Course	11226
OSHA 10-Hour Course	11184
OSHA 10-Hour Course	11174
OSHA 10-Hour Course	
OSHA 10-Hour Course	11175
OSHA 30-Hour Course	11045
OSHA 30-Hour Course	11221
OSHA 30-Hour Course	11179
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OSHA 30-Hour Course	11084
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OSHA 30-Hour Course	11156
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OSHA 30-Hour Course	11242
OSHA 30-Hour Course	11257

OSHA 30-Hour Course	11244
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OSHA 30-Hour Course	
OSHA 30-Hour Course	11233
OSHA 30-Hour Course	11083
OSHA 30-Hour Course	
OSHA 30-Hour Course	11175
OSHA 30-Hour Course	11148
OSHA 500 Train the Trainer	11038



ACRISURE Agency Partner

July 28, 2023

Uretek USA
13900 Humble Road
Tomball, TX 773775

Re: Workers Compensation Experience Modifier

To Whom It May Concern:

IBTX is the insurance agent for Uretek, USA. Please see below for current and past 5 years of experience modifier rates.

Effective Date of Modifier	Modifier Rate
7/1/2023	.66
7/1/2022	.65
7/1/2021	.76
7/1/2020	.76
7/1/2018	.84

Sincerely,

Bryan K. Moore

President



January 17, 2024

Port of Newport
Newport, Oregon

Past projects over 500sf in past 3 years

URETEK has completed the following projects:

Alaska Native Tribes Health Consortium-2023
Roger Hickel Contracting
Anchorage, AK
38,797sf with injections to -32ft

T-Mobile PDX-2022
Andersen Construction
Portland, OR
20,000sf with injections to -40ft

PDX - 2024
Interior Exterior Specialties
Portland, OR
4200sf with injections to -4'

John Schmidt
Project Manager OR/WA/AK

URETEK USA, Inc.
(503) 730-4450
jschmidt@uretekusa.com
www.uretekusa.com



URETEK Dynamic Cone Penetrometer (DCP) testing

1. Who manufactures the URETEK DCP?

URETEK employs the DPM 30-20 Model DCP manufactured by Pagani Geotechnical Equipment of Piacenza, Italy.

2. What are the specifications for the URETEK DCP?

- Diameter of Cone Tip = 35.6 mm (1.40 inches)
- Angle of Cone Tip, B = 60 degrees
- Area of Cone Tip, A = 10 square cm (1.55 square inches)
- Diameter of Rods = 20 mm (0.7874 inches)
- Length of Rods = 1 m (39.37 inches)
- Weight of Rods = 2.4 kg (5.29 pounds)
- Weight of Drop Hammer = 30 kg (66 pounds)
- Free Fall Drop Height = 20 cm (7.874 inches)

3. How does the URETEK DCP work?

- A 3.81 cm (1.5 inch) diameter hole is drilled in the pavement.
- A sacrificial cone and rods (incremented every 10 cm or 3.937 inches) are inserted into the hole.
- The cone and the rods are driven into the soil by a percussive head (weighing 30 kg or 66 pounds) dropped 20 cm (7.874 inches.) The percussive head is lifted by a mechanical arm driven by an electrical motor.

- The number of drops of the percussive head required to drive the rod 10 cm (3.937 inches) is recorded.
- These blow counts provide information about soil strength. Moreover, these blow counts can be correlated to the N-value associated with the Standard Penetration Test (SPT) by using a relationship developed by the manufacturer:

$$N \text{ (SPT)} = 0.766 \times N \text{ (DCP)}$$

4. How is the DCP information used?

- Identify weak layers in the soil mass so an injection pattern can be developed.
- Contribute to the development of material estimates. Weaker soils typically require more polyurethane than stronger soils.
- Assist in evaluating the effectiveness of polyurethane injection by comparing pre-injection DCP results to post-injection DCP results. Other evaluative tools (e.g., the Falling Weight Deflectometer – FWD) are used in conjunction with the DCP, when available.




25-000106454

Construction Safety and Health

This card acknowledges that the recipient has successfully completed the required training to be designated as an
OSHA Authorized Construction Trainer

Keith McClure

Completion of this course authorizes the trainer to conduct 10- and 30-hour
Construction courses in accordance with Outreach Training Program requirements.


Director, Directorate of Training and Education

2/21/2024
Expiration Date

TEXAS A&M ENGINEERING EXTENSION SERVICE


Keith McClure

Is hereby recognized to use the designation of
CERTIFIED SAFETY AND HEALTH OFFICIAL® (CSHO)
Construction Industry

Certificate #3649

Certification Date: 06/02/2008

For meeting the criteria in the areas of references, experience, education,
training, and contribution relevant to safety and health professionalism.


Director, Texas A&M Engineering Extension Service




Director, Directorate of Training and Education



EA Engineering, Science,
and Technology, Inc.

RESULTS OF ACUTE AND CHRONIC TOXICITY TESTING
ON A TCLP LEACHATE SAMPLE PREPARED FROM
A URETEK USA FOAM SAMPLE

Prepared for:

Urettek USA
P.O. Box 1929
Tomball, Texas 77377

Prepared by:

EA Engineering, Science, and Technology, Inc.
231 Schilling Circle
Hunt Valley, Maryland 21031
For questions, please contact Wayne McCulloch
ph: 410-584-7000

Results relate only to the items tested or to the samples as received by the laboratory.

*This report shall not be reproduced, except in full, without written approval of
EA Engineering, Science, and Technology, Inc.*

This report contains 15 pages plus 3 attachments.

Wayne L. McCulloch
Laboratory Director

15 October 2014

Date

EA Project Number 70005.08

Printed on sustainable wood forest paper using soy-based ink



EA Report Number 7002

1. INTRODUCTION

At the request of Urettek USA, EA Engineering, Science, and Technology, Inc. performed toxicity testing on a sample of TCLP Leachate prepared by Eurofins Lancaster Laboratories Environmental (hereafter, Eurofins) on a sample of Urettek final foam product. The toxicity tests included definitive, multi-concentration chronic toxicity tests with *Ceriodaphnia dubia* (water flea), and *Pimephales promelas* (fathead minnow), and a 10-day acute toxicity test with the redworm, *Eisenia fetida*. The objective of the testing was to evaluate the acute and chronic effects on the organisms exposed to the TCLP Leachate sample, as compared to the organisms exposed to the laboratory control. Additionally, Eurofins performed selected chemical analyses (RCRA metals, TOC and COD) on the TCLP Leachate. Eurofins also performed RCRA metal analysis of the Part A and Part B components of the foam product. The results of the toxicity testing and the chemical analyses are included in this report.

2. METHODS AND MATERIALS

2.1 TEST MATERIAL DESCRIPTIONS

Eurofins provided a TCLP Leachate sample prepared from a Uretek foam sample to EA's Ecotoxicology Laboratory. The sample was couriered to EA's Ecotoxicology Laboratory in Hunt Valley, Maryland, and arrived on 19 September 2014. Upon receipt at EA, the sample was logged in and assigned EA laboratory accession number AT4-460. The initial pH of the TCLP Leachate sample upon receipt was 5.0. The pH of the sample was adjusted up to 7.5 with NaOH per guidance from Dr. Robert Edstrom (MNDOT).

2.2 TEST ORGANISMS

The *Ceriodaphnia dubia* (water flea) were obtained from EA's Culture Facility in Hunt Valley, Maryland. The *C. dubia* were cultured in moderately hard synthetic freshwater, and the cultures were kept in an environmentally controlled room at 25°C with a 16-hour light/8-hour dark photoperiod. Organisms were fed daily a suspension of yeast/cereal leaves/trout chow supplemented with the algae *Pseudokirchneriella subcapitata* as described in US EPA (2002a). Individual adults were maintained in 30 ml cups. Gravid adults were reisolated during the day prior to the initiation of toxicity testing to ensure that neonates (young) produced were less than 24 hours old, had all been released within an 8-hour period, and all neonates were produced in broods of 8 or more from individual females.

The *Pimephales promelas* (fathead minnow) were obtained from EA's Culture Facility in Hunt Valley, Maryland. Brood organisms were maintained in recirculating dechlorinated tap water at 25°C in 20-gallon aquaria. Eggs produced from the brood system were removed from the brood aquaria and placed into culture water at 25°C until hatched. Hatched larvae were acclimated to the test temperature of 25°C prior to testing. The larvae utilized for testing were all less than 24 hours old at test initiation.

The adult redworm *Eisenia fetida* were obtained from Carolina Biological Supply Company, Burlington, North Carolina. The lot of *E. fetida* (EF-037) was received at EA on 17 September 2014.

2.3 DILUTION WATERS AND ARTIFICIAL SOIL

Test solutions for the *C. dubia* and *P. promelas* chronic toxicity tests were prepared with moderately hard synthetic freshwater (80-100 mg/L CaCO₃). Batches of this water were made by passing deionized water through activated carbon and adding reagent grade chemicals per US EPA guidance (2002a), and aerating overnight. The water was stored up to 14 days at 25°C under gentle aeration, until needed. Moderately hard synthetic freshwater was also used as the control water for these tests, and as culture water for the *C. dubia*.

Dechlorinated tap water was used as culture water for the *P. promelas*. The source of the tap water was the City of Baltimore municipal water system. Upon entering the laboratory, the water passed through a high-capacity, activated-carbon filtration system to remove any possible contaminants such as chlorine and trace organic compounds. This water source has proven safe for aquatic organism toxicity testing at EA as evidenced by maintenance of the multigeneration *H. azteca*, and fathead minnow cultures with no evident loss of fecundity.

An artificial soil was used as the control for the redworm toxicity test. The artificial soil was prepared by combining 10 percent sphagnum peat moss, 20 percent kaolinite clay, and 70 percent fine silica sand on a dry weight basis. The pH of the artificial soil was adjusted to pH 7.0 ± 0.5 with the addition of calcium carbonate. Prior to use in testing, the soil was hydrated to a target of 45 percent moisture at test initiation with dechlorinated tap water.

2.4 TOXICITY TEST OPERATIONS AND PERFORMANCE

Toxicity testing was conducted following EA's standard operating procedures (EA 2013) which are in accordance with US EPA guidance (2002a, 2002b). The results of the acute and chronic toxicity tests were analyzed using the ToxCalc statistical software package (Version 5.0,

Tidepool Scientific Software) and follow US EPA guidance (US EPA 2002a, 2002b). The acute toxicity test endpoint is expressed as the 10-day (*E. fetida*) median lethal concentration (LC50). The short-term chronic toxicity test endpoints are expressed as the No Observed Effect

Concentration (NOEC), the Lowest Observed Effect Concentration (LOEC), the Chronic Value (ChV), and the 25 Percent Inhibition Concentration (IC25).

The definitions of the chronic toxicity test endpoints are as follows:

- No Observed Effect Concentration (NOEC) - The highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle test, that causes no statistically significant adverse effect on the observed parameter (usually hatchability, survival, growth, or reproduction).
- Lowest Observed Effect Concentration (LOEC) - The lowest concentration of toxicant to which organisms are exposed in a life-cycle or partial life-cycle test, which causes a statistically significant adverse effect on the observed parameter (usually hatchability, survival, growth, or reproduction).
- Chronic Value (ChV) - A point estimate of the presumably safe (no-effect) concentration, lying between the NOEC and LOEC, and derived by calculating the geometric mean of the NOEC and LOEC.
- 25 Percent Inhibition Concentration (IC25) - A point estimate of the concentration that causes a 25 percent decrease in the observed parameter (usually hatchability, survival, growth, or reproduction).

Attachment I contains copies of the original data sheets and statistical analyses. The Eurofins analytical report is included as Attachment II. The Report Quality Assurance Record is included as Attachment III.

2.4.1 *Ceriodaphnia dubia* Chronic Toxicity Testing

The *Ceriodaphnia dubia* chronic toxicity test was conducted in 30 ml cups with 15 ml of test solution per cup. The definitive toxicity test utilized a test concentration series of control, 18, 32, 56, 100 and 200 mg/L TCLP Leachate. The test had 10 replicates per concentration and control, with one organism per replicate, for a total of 10 organisms exposed per test concentration and

control. To initiate the chronic toxicity test, neonates (<24 hours old) were assigned to the test chambers using the known parentage (blocking) procedure. The test were maintained at $25\pm 1^{\circ}\text{C}$ with a 16-hour light/8-hour dark photoperiod. Daily renewals of test solutions were performed by transferring the test organisms to new cups containing freshly prepared test solutions. Test organisms were fed daily with trout chow/yeast/cereal leaves solution supplemented with algae (*S. capricornutum*) as described in US EPA (2002). Temperature, dissolved oxygen, conductivity, and pH were measured in one replicate of each concentration and the controls for new and old test solutions daily during the test. Water quality measurements, mortality observations and young counts were made daily throughout the study and were recorded on the data sheets.

2.4.2 *Pimephales promelas* Chronic Toxicity Testing

The *P. promelas* chronic toxicity test was conducted in 1,000 ml beakers, with each beaker containing 250 ml of test solution. For the definitive chronic toxicity tests, each test concentration and the control had four replicates of ten organisms, for a total of 40 organisms exposed per test concentration and control. The test concentration series for the *P. promelas* chronic toxicity test was: control, 18, 32, 56, 100 and 200 mg/L TCLP Leachate. The tests were performed at $25\pm 1^{\circ}\text{C}$ with a 16-hour light/8-hour dark photoperiod. The test solutions were renewed each day by siphoning approximately 80 percent of the old test solution from the beaker, and replacing with freshly prepared test solution. Observations of mortality were recorded daily, and dead organisms were removed when observed. Temperature, pH, dissolved oxygen, and conductivity measurements were recorded on one replicate of each concentration daily on the new and old test solutions. The *P. promelas* larvae were fed 0.10 ml of a 0.05 g/ml suspension of newly hatched brine shrimp nauplii (*Artemia* sp., less than 24 hours old) daily.

2.4.4 *Eisenia fetida* Acute Toxicity Testing

The 10-day soil toxicity test with *Eisenia fetida* was conducted in accordance with ASTM Standard E 1676-04. The definitive acute toxicity test utilized a test concentration series of control, 18, 32, 56, 100 and 200 mg/L TCLP Leachate.

The toxicity test was performed in 500 ml wide-mouth glass jars equipped with screw-top lids with a screened hole for air exchange. The test concentrations were added to the test chambers a minimum of 24 hours before the worms were introduced to allow the temperature of the soils to reach the target test temperature. The test concentrations were hydrated with dechlorinated tap water in order to achieve a water holding capacity of 35-45 percent at test initiation.

Each test concentration and control had three replicate test chambers, with 10 worms per replicate. Organisms were selected for testing based on maturity, uniformity of size, and absence of morphological abnormalities. The organisms used in the test were a minimum of 300 mg each. At test initiation, ten worms were randomly loaded into the test chambers. The test chambers were maintained in an environmentally controlled laboratory at $20 \pm 1^{\circ}\text{C}$ with a 16 hour light:8 hour dark photoperiod. The worms were not fed during the 10-day exposure period.

On Day 10, the soil from each replicate was removed from the test chamber and spread out in a 9 x 11 inch Pyrex baking dish. Adult worms were removed from the soil and the number of surviving adult worms was recorded. Death was defined by lack of response to a gentle prod.

2.5 REFERENCE TOXICANT TESTS

In conformance with EA's quality assurance/quality control program, reference toxicant tests were performed on the in-house cultured organisms (*Ceriodaphnia dubia*, and *Pimephales promelas*) and on the acquired organism stock of *Eisenia fetida*. The results of each reference toxicant test were compared to EA's established control chart limits. The reference toxicants used were potassium chloride (KCl) for *C. dubia* and *P. promelas* and 2-chloroacetamide for *E. fetida*.

2.6 ARCHIVES

Original data sheets, records, memoranda, notes, and computer printouts are archived at EA's Baltimore Office in Hunt Valley, Maryland. These data will be retained for a period of 5 years unless a longer period of time is requested by Uretex USA.

3. RESULTS AND DISCUSSION

The goal of the toxicity testing program was to evaluate the acute and chronic toxicity of the TCLP Leachate sample prepared by Eurofins for Uretex to selected test species. The results of these toxicity tests comply with current NELAC standards where applicable.

3.1 *Ceriodaphnia dubia* CHRONIC TOXICITY TEST

The results of the *C. dubia* definitive chronic renewal toxicity tests are presented in Table 1. At test termination at the end of six days there was 100 percent survival in all of the test concentrations and in the laboratory control. The 6-day LC50 value for the chronic toxicity test was >200 mg/L TCLP Leachate. Mean young production in the TCLP Leachate concentrations ranged from 27.0 to 30.2 neonates per organism, none of which were significantly different ($p=0.05$) from the control mean young production of 30.1 neonates per organism. Based on this data for the chronic toxicity test, the 6-day NOEC was 200 mg/L TCLP Leachate. The LOEC, ChV and IC25 were all >200 mg/L TCLP Leachate. Water quality parameters (temperature, pH, dissolved oxygen and conductivity) measured on the new and old test solutions of the chronic toxicity test are also presented in Table 1.

3.2 *Pimephales promelas* CHRONIC TOXICITY TEST

Table 2 presents the results of the *Pimephales promelas* definitive chronic renewal toxicity test. At test termination on day 7, there was a minimum of 95 percent survival in all of the TCLP Leachate concentrations and in the control. The resulting 7-day LC50 value for the chronic toxicity test was >200 mg/L TCLP Leachate. At test termination, mean biomass in the TCLP Leachate concentrations ranged from 0.755 to 0.824 mg per organism, and none were significantly different from the control mean biomass of 0.838 mg per organism. The 7-day NOEC for the *P. promelas* chronic toxicity test was 200 mg/L TCLP Leachate. The LOEC, ChV and IC25 were all > 200 mg/L. Water quality parameters (temperature, pH, dissolved oxygen and conductivity) measured on the new and old test solutions of the chronic toxicity test are also presented in Table 2.

TCLP Leachate concentrations ranged from 0.755 to 0.824 mg per organism, and none were significantly different from the control mean biomass of 0.838 mg per organism. The 7-day NOEC for the *P. promelas* chronic toxicity test was 200 mg/L TCLP Leachate. The LOEC, ChV and IC25 were all > 200 mg/L. Water quality parameters (temperature, pH, dissolved oxygen and conductivity) measured on the new and old test solutions of the definitive chronic toxicity test are also presented in Table 2.

3.3 *Eisenia fetida* ACUTE TOXICITY TEST

The results of the definitive acute toxicity test with *Eisenia fetida* are presented in Table 3. At the end of the 10-day test, there was a minimum of 97 percent survival in all TCLP Leachate concentrations, and there was 100 percent survival in the control. Therefore, in the definitive acute toxicity test, the 10-day LC50 was >200 mg/L TCLP Leachate. A summary of the test temperature measurements recorded during the 10-day test period are also presented on Table 3.

3.6 REFERENCE TOXICANT TESTING

The results of the reference toxicant tests conducted on the EA-cultured and acquired organisms used in the definitive toxicity tests for this study are reported in Table 4. The reference toxicant test results were within acceptable control charts limits for the test species.

4. REFERENCES

- American Society for Testing and Materials (ASTM). 2004. Standard Guide for Conducting Laboratory Soil Toxicity or Bioaccumulation Tests with the Lumbricid Earthworm *Eisenia fetida* and the Enchytraeid Potworm *Enchytraeus albidus*. ASTM Designation: E1676-04, Philadelphia, Pennsylvania.
- EA. 2013. EA Ecotoxicology Laboratory Quality Assurance and Standard Operating Procedures Manual. EA Manual ATS-102. Internal document prepared by EA's Ecotoxicology Laboratory, EA Engineering, Science, and Technology, Inc., Hunt Valley, Maryland.
- US EPA. 2002a. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA-821-R-02-012. U.S. Environmental Protection Agency, Office of Water, Washington, DC.
- US EPA. 2002b. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition. EPA-821-R-02-013. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

TABLE 1 RESULTS OF *Ceriodaphnia dubia* CHRONIC TOXICITY TESTING ON A TCLP LEACHATE SAMPLE FROM URETEK USA

Test Species: *Ceriodaphnia dubia* (water flea)
 Sample Description: TCLP Leachate Sample
 Sample Receipt: 19 September 2014
 EA Test Number: TN-14-439

Test Concentration (mg/L TCLP Leachate)	6-Day Percent Survival	Mean Young Production as Neonates/Organism (\pm S.D.)
Control	100	30.1 (\pm 3.5)
18	100	28.6 (\pm 4.5)
32	100	28.2 (\pm 2.9)
56	100	28.6 (\pm 6.0)
100	100	27.0 (\pm 5.2)
200	100	30.2 (\pm 5.0)

Chronic Toxicity Test Endpoints (as mg/L TCLP Leachate)

NOEC: 200
 LOEC: >200
 ChV: >200
 IC25 >200
 PSMD: 15.7

Water Quality Parameters on Test Solutions	Range
Temperature ($^{\circ}$ C):	24.0 – 25.1
pH:	7.6 – 8.4
Dissolved Oxygen (mg/L):	7.9 – 8.7
Conductivity (μ S/cm):	318 – 349

TABLE 2 RESULTS OF *Pimephales promelas* CHRONIC TOXICITY TESTING ON A TCLP LEACHATE SAMPLE FROM URETEK USA

Test Species: *Pimephales promelas* (fathead minnow)
 Sample Description: TCLP Leachate Sample
 Sample Receipt: 19 September 2014
 EA Test Number: TN-14-440

Test Concentration (mg/L TCLP Leachate)	7-Day Percent Survival	Mean Biomass as mg/Organism (\pm S.D.)
Control	95	0.838 (\pm 0.043)
18	95	0.755 (\pm 0.072)
32	98	0.801 (\pm 0.060)
56	95	0.816 (\pm 0.078)
100	98	0.824 (\pm 0.111)
200	98	0.802 (\pm 0.064)

Chronic Toxicity Test Endpoints (as mg/L TCLP Leachate)

NOEC:	200
LOEC:	>200
ChV:	>200
IC25:	>200
PMSD:	15.1

Water Quality Parameters on Test Solutions

	Range
Temperature ($^{\circ}$ C):	24.0 – 25.4
pH:	7.6 – 8.4
Dissolved Oxygen (mg/L):	6.1 – 8.4
Conductivity (μ S/cm):	318 – 341

TABLE 3 RESULTS OF *Eisenia fetida* ACUTE TOXICITY TESTING ON A TCLP LEACHATE SAMPLE FROM URETEK USA

Test Species: *Eisenia fetida* (redworm)
 Sample Description: TCLP Leachate Sample
 Sample Receipt: 19 September 2014
 EA Test Number: TN-14-436

<u>Test Concentration (mg/L TCLP Leachate)</u>	<u>10-Day Percent Survival</u>
Control	100
18	100
32	97
56	97
100	100
200	100
10-day LC50 (mg/L)	>200

<u>Selected Test Parameter</u>	<u>Range</u>
Temperature (°C):	20.4 – 21.9

TABLE 4 RESULTS OF REFERENCE TOXICANT TESTS ASSOCIATED WITH URETEK USA TESTING

Test Species	Reference Toxicant	Endpoint	Acceptable Control Chart Limits
<i>Ceriodaphnia dubia</i>			
September 2014	Potassium chloride (KCl)	IC25: 436 mg/L KCl	149-459 mg/L KCl
<i>Pimephales promelas</i>			
September 2014	Potassium chloride (KCl)	IC25: 611 mg/L KCl	496-717 mg/L KCl
<i>Eisenia fetida</i>			
September 2014	2-Chloroacetamide	96-Hour LC50: 141 mg/L 2-Chloroacetamide	14-249 mg/L 2-Chloroacetamide

TABLE 5 RESULTS OF CHEMICAL ANALYSES PERFORMED ON URETEK USA FOAM PRODUCTS^(a)

Analyte	TCLP Leachate	Uretek 4R ISO (Part "A")	Uretek 4R Resin (Part "B")
Arsenic	<0.0072 mg/L	<0.634 mg/kg	<0.610 mg/kg
Barium	0.147 mg/L	<0.0327 mg/kg	0.0514 mg/kg ^(b)
Cadmium	<0.00033 mg/L	<0.0327 mg/kg	<0.0314 mg/kg
Chromium	0.0018 mg/L ^(b)	<0.109 mg/kg	<0.105 mg/kg
Lead	<0.0047 mg/L	<0.495 mg/kg	<0.476 mg/kg
Selenium	<0.0048 mg/L	<0.436 mg/kg	<0.419 mg/kg
Silver	<0.0018 mg/L	<0.188 mg/kg	<0.181 mg/kg
Tin	0.02117 mg/L	0.638 mg/kg ^(b)	28.3 mg/kg
Mercury	<0.000060 mg/L	<0.0097 mg/kg	<0.0097 mg/kg
TOC	2,650 mg/L	N/A	N/A
BOD	17.4 mg/L	N/A	N/A

(a) For detailed analyses, see Eurofins report in Attachment II.

(b) Estimated Value – The results is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

ATTACHMENT I

Data Sheets and Statistical Analyses
(32 pages)



SAMPLE CHECK-IN FOR TESTING

Client:

Uretek

EA Accession Number:

AT4-460

TCLP Leachate

Parameter	Acceptable Range	Measurement*	Date	Time	Initials
Temperature (°C)	≤4	1.3°C	9/19/14	1004	Wm
Is ice present?	---	YES	↓	↓	↓
pH	6.0-9.0	5.0	↓	↓	↓
TRC (mg/L)	<0.01	NA	↓	↓	↓
Visual Description	---	CLEAR	↓	↓	↓

*If outside acceptable range, contact project manager.

OTHER PARAMETERS IF REQUIRED (SEE STUDY PLAN):

Parameter	Acceptable Range	(✓)	Date	Time	Initials
Ammonia (preserve aliquot)	--				
Parameter	Acceptable Range	Measurement*	Date	Time	Initials
Salinity (ppt)	--				



C. dubia CHRONIC TOXICITY TEST DATA SHEET

Test Method: EPA 821-R-02-013 (1002.0)

Project Number: 70005.08

Client: Uretek

QC Test Number: TN-14-439

Test Material: Leachate

Accession Number: AT4-460

Dilution Water: Mod Hard

Accession Number: LD4-408

Test Container: 30 mL cup Test Volume: 15 mL

Beginning Date: 9/23/14 Time: 1015

Ending Date: 9/29/14 Time: 1410

Adults Isolated Date: 9/22/14 Time: 1209

Neonates Pulled Date: 9/22/14 Time: 1620

Age of Neonates: <24 hrs Brood Size: 8+

Source: EA

Culture Water Temperature: 24.7 °C

Photoperiod: 16 L, 8 d Light Intensity: 50 - 100 fc

TEST SET-UP									
TEST INITIATION					CONCENTRATION SERIES				
Date	Time	Initials	Activity		Test Concentration	Volume Test Material	Final Volume		
9/23/14	0930	vy	Dilutions Made		Mod Hard Control		200ml		
					18 ppm	SEE ATTACHED			
	0938		Test Vessels Filled		32 ppm				
					56 ppm				
	1015		Organisms Transferred		100 ppm				
					200 ppm				
	1041	MJ	Head Counts						
Comments:									
INTERMEDIATE DILUTION PREPARATION AND FEEDING									
DILUTION PREPARATION					FEEDING				
Day	Date	Time	Initials	Sample / Diluent	Food: YCT + <i>Selenastrum capricornutum</i>				
					Day	Date	Time	Initials	Amount
0	9/23/14	0930	vy	AT4-460	0	9/23/14	1017	vy	200µl
				LD4-408					
1	9/24/14	0836	MJ	AT4-460	1	9/24/14	0911	MJ	200µl
				LD4-409					
2	9/25/14	0847	vy	AT4-460	2	9/25/14	1030	vy	200µl
				LD4-411					
3	9/26/14	1005	MJ	AT4-460	3	9/26/14	1115	MJ	200µl
				LD4-412					
4	9/27/14	0914	MJ	AT4-460	4	9/27/14	1302	MJ	200µl
				LD4-416					
5	9/28/14	0940	vy	AT4-460	5	9/28/14	1200	vy	200µl
				LD4-417					
6					6				



Ceriodaphnia dubia CHRONIC TOXICITY TEST

Client: Uretek

QC Test Number: TN-14-439

First column=# neonates ; Second column = 0 (female), 1 (dead female), 2 (male), 3 (dead male), 9 (lost replicate)

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
Mod Hard Control 9/29/14	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0903 MJ
	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1012 UY
	3	4 0	6 0	5 0	5 0	3 0	3 0	5 0	4 0	5 0	5 0	1109 MJ
	4	0 0	8 0	8 0	7 0	8 0	6 0	4 0	9 0	9 0	2 0	1254 MJ
	5	13 0	0 0	0 0	0 0	0 0	0 0	1 0	0 0	0 0	12 0	1125 UY
	6	19 0	16 0	15 0	17 0	18 0	14 0	21 0	17 0	17 0	15 0	1410 UY
	7											
Total # Neonates:		36	30	28	29	29	23	31	30	31	34	

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
18 ppm	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	MJ
	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	UY
	3	7 0	2 0	5 0	6 0	4 0	5 0	3 0	5 0	5 0	6 0	MJ
	4	8 0	6 0	6 0	8 0	9 0	9 0	6 0	8 0	8 0	2 0	MJ
	5	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	12 0	UY
	6	15 0	11 0	18 0	18 0	13 0	19 0	14 0	14 0	12 0	17 0	UY
	7											
Total # Neonates:		28	24	29	32	26	33	23	27	25	37	

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
32 ppm	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	MJ
	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	UY
	3	3 0	4 0	6 0	5 0	2 0	4 0	4 0	5 0	4 0	2 0	MJ
	4	9 0	8 0	7 0	2 0	10 0	8 0	8 0	5 0	10 0	0 0	MJ
	5	0 0	0 0	0 0	10 0	0 0	0 0	0 0	0 0	0 0	12 0	UY
	6	16 0	14 0	15 0	17 0	14 0	14 0	15 0	14 0	17 0	16 0	UY
	7											
Total # Neonates:		28	26	28	34	28	26	27	24	31	30	

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
56 ppm	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	MJ
	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	UY
	3	3 0	3 0	5 0	4 0	0 0	5 0	4 0	5 0	3 0	2 0	MJ
	4	9 0	8 0	11 0	6 0	6 0	8 0	0 0	0 0	9 0	4 0	MJ
	5	0 0	0 0	0 0	0 0	0 0	0 0	12 0	11 0	6 0	14 0	UY
	6	15 0	16 0	16 0	12 0	16 0	14 0	15 0	12 0	15 0	23 0	UY
	7											
Total # Neonates:		27	27	32	22	22	27	31	28	27	43	

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
100 ppm	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	MJ
	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	UY
	3	6 0	3 0	4 0	3 0	3 0	4 0	4 0	3 0	4 0	6 0	MJ
	4	0 0	9 0	10 0	8 0	10 0	5 0	11 0	6 0	10 0	0 0	MJ
	5	11 0	0 0	0 0	0 0	0 0	0 0	0 0	13 0	0 0	14 0	UY
	6	14 0	14 0	16 0	11 0	13 0	16 0	12 0	3 0	12 0	18 0	UY
	7											
Total # Neonates:		31	26	30	22	26	25	27	19	26	38	

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
200 ppm	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	MJ
	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	UY
	3	5 0	4 0	4 0	4 0	3 0	7 0	5 0	4 0	4 0	5 0	MJ
	4	0 0	8 0	11 0	9 0	0 0	0 0	10 0	0 0	1 0	0 0	MJ
	5	13 0	0 0	0 0	0 0	9 0	9 0	0 0	13 0	14 0	7 0	UY
	6	17 0	8 0	17 0	18 0	12 0	14 0	21 0	13 0	16 0	17 0	UY
	7											
Total # Neonates:		35	20	32	31	24	30	36	30	35	29	

Neonate totals checked (date, initials): 9/30/14 CH

 ATS-T4
04/19/13

1,500 ml Total Volume

Leachate = 1,000,000 ppm

Stock A (1 ml leachate: 99 ml mod hard) = 10,000 ppm (10 mg/ml)

200 mg/L Add 30 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

100 mg/L Add 15 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

56 mg/L Add 8.4 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

32 mg/L Add 4.8 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

18 mg/L Add 2.7 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

Mod Hard Control

1,000 ml Total Volume

Leachate = 1,000,000 ppm

Stock A (1 ml leachate: 99 ml mod hard) = 10,000 ppm (10 mg/ml)

200 mg/L Add 20 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

100 mg/L Add 10 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

56 mg/L Add 5.6 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

32 mg/L Add 3.2 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

18 mg/L Add 1.8 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

Mod Hard Control



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.08
Client: Urefek
QC Test Number: TN-14-439

TEST ORGANISM
Common Name: Water flea
Scientific Name: C. dubia

Beginning Date: 9/23/14
Ending Date: 9/29/14
Time: 1015
Time: 1410

TARGET VALUES: Temp: 25±1 °C pH: 6.0-9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16L 8D Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) Salinity (ppt)						
		0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6							
MH Control		24.1	24.3	24.0	24.0	24.5	24.5		8.4	7.7	8.1	7.9	7.6	7.7		8.2	8.4	8.3	8.4	8.2	8.3		323	324	322	323	319	320	
18 ppm		24.1	24.5	24.0	24.0	24.5	24.5		8.3	7.7	8.0	7.9	7.7	7.8		8.4	8.4	8.4	8.4	8.3	8.3		323	325	323	322	319	320	
32 ppm		24.1	24.6	24.0	24.4	24.9	24.5		8.2	7.7	8.0	7.9	7.7	7.7		8.4	8.4	8.5	8.4	8.3	8.3		324	324	323	321	319	321	
56 ppm		24.1	24.5	24.0	24.4	25.0	24.5		8.1	7.7	8.0	7.9	7.7	7.7		8.4	8.4	8.6	8.4	8.3	8.3		324	324	323	322	318	322	
100 ppm		24.1	24.6	24.0	24.4	25.1	24.5		8.1	7.7	8.0	7.9	7.8	7.8		8.4	8.3	8.6	8.4	8.3	8.3		325	324	323	323	318	321	
200 ppm		24.1	24.6	24.0	24.4	25.0	24.5		8.0	7.7	8.0	7.9	7.8	7.9		8.4	8.4	8.6	8.4	8.3	8.3		326	325	325	323	319	323	
Meter Number		1078	1078	1078	1078	1078	1078		1078	1078	1078	1078	1078	1078		1078	1078	1078	1078	1078	1078		1078	1078	1078	1078	1078	1078	
Time		0935	0945	0955	1001	0920	1017		0935	0945	0955	1011	0920	1017		0935	0945	0955	1011	0920	1017		0935	0945	0955	1011	0920	1017	
Initials		VX	MS	VX	MS	MS	VX		VX	MS	VX	MS	MS	VX		VX	MS	VX	MS	MS	VX		VX	MS	VX	MS	MS	VX	



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.08
Client: Uretek
QC Test Number: TN- 14-439

TEST ORGANISM
Common Name: Water flea
Scientific Name: *C. dubia*

Beginning Date: 9/23/14
Ending Date: 9/29/14

Time: 1015
Time: 1410

TARGET VALUES: Temp: 25±1 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16 L 8 D Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) Salinity (ppt)						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
MH Control		24.0	24.1	24.2	24.7	24.7	24.3		7.9	7.9	8.0	8.2	8.1	7.9		8.5	8.5	8.6	8.5	7.9	8.1		334	349	339	333	328	333	
18 ppm		24.0	24.1	24.4	24.7	24.7	24.5		7.8	7.9	8.0	8.0	7.9	7.8		8.6	8.7	8.5	8.5	8.1	8.1		339	336	333	331	325	333	
32 ppm		24.0	24.4	24.6	24.9	24.6	24.7		7.8	7.9	7.9	7.9	7.8	7.8		8.8	8.6	8.5	8.5	8.1	8.1		343	330	335	332	328	338	
56 ppm		24.0	24.5	24.7	25.0	24.6	24.7		7.8	7.9	7.9	7.8	7.7	7.9		8.9	8.6	8.4	8.4	8.2	8.2		333	330	333	332	323	335	
100 ppm		24.1	24.6	24.7	24.9	24.6	24.7		7.8	7.9	7.9	7.8	7.7	7.9		8.9	8.5	8.4	8.4	8.2	8.2		336	333	337	342	329	339	
200 ppm		24.0	24.6	24.7	24.8	24.6	24.9		7.8	7.9	7.9	7.8	7.7	7.9		8.8	8.6	8.4	8.4	8.3	8.2		334	329	334	331	326	349	
Meter Number	678	678	678	678	678	678	678		678	678	678	678	678	678		678	678	678	678	678	678		678	678	678	678	678	678	
Time	0917	1020	1032	1306	1132	1419		0917	1000	1032	1306	1132	1419		0917	1026	1032	1306	1132	1419		0917	1020	1032	1306	1132	1419		
Initials	MS	UX	MS	MS	UX	UX		MS	UX	MS	MS	UX	UX		MS	UX	MS	MS	UX	UX		MS	UX	MS	MS	UX	UX		



RANDOMIZATION CHART
(*C. dubia* Chronic Toxicity Test)

Project Number: 70005.08

Client: Uretex

QC Test Number: TN-14-439

(White Boards)

1	4	6	3	5	2
4	3	6	1	2	5
6	1	5	2	4	3
6	2	1	4	5	3
3	6	2	4	1	5
3	5	4	6	2	1
5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.08

Client: Uretak

QC Test Number: TN-14-439

Date/Time/Initials

Comments/Activity

Ceriodaphnia Survival and Reproduction Test-6 Day Survival

Start Date: 9/23/2014	Test ID: TN-14-439	Sample ID: Uretex
End Date: 9/29/2014	Lab ID:	Sample Type: TCLP Leachate AT4-460
Sample Date:	Protocol: EPAF 91-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments:		

Conc-mg/L	1	2	3	4	5	6	7	8	9	10
Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
56	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
200	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-mg/L	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
Control	1.0000	1.0000	0	10	10	10		
18	1.0000	1.0000	0	10	10	10	1.0000	0.0500
32	1.0000	1.0000	0	10	10	10	1.0000	0.0500
56	1.0000	1.0000	0	10	10	10	1.0000	0.0500
100	1.0000	1.0000	0	10	10	10	1.0000	0.0500
200	1.0000	1.0000	0	10	10	10	1.0000	0.0500

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	200	>200		

Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 9/23/2014	Test ID: TN-14-439	Sample ID: Uretek
End Date: 9/29/2014	Lab ID:	Sample Type: TCLP Leachate AT4-460
Sample Date:	Protocol: EPAF 91-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments:		

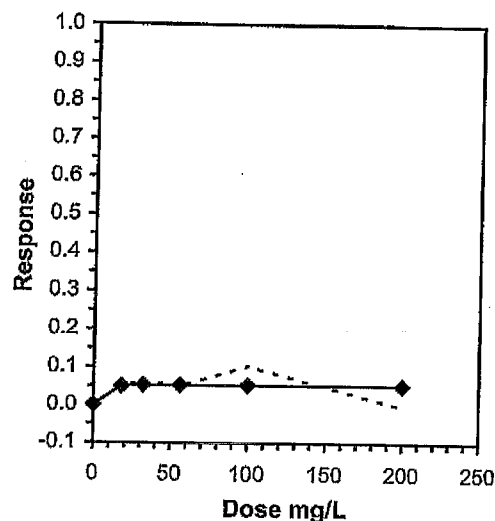
Conc-mg/L	1	2	3	4	5	6	7	8	9	10	s.d.
Control	36.000	30.000	28.000	29.000	29.000	23.000	31.000	30.000	31.000	34.000	3.47851
18	30.000	24.000	29.000	32.000	26.000	33.000	23.000	27.000	25.000	37.000	4.45222
32	28.000	26.000	28.000	34.000	28.000	26.000	27.000	24.000	31.000	30.000	2.85968
56	27.000	27.000	32.000	22.000	22.000	27.000	31.000	28.000	27.000	43.000	5.98517
100	31.000	26.000	30.000	22.000	26.000	25.000	27.000	19.000	26.000	38.000	5.18545
200	35.000	20.000	32.000	31.000	24.000	30.000	36.000	30.000	35.000	29.000	5.02881

Conc-mg/L	Mean	N-Mean	Transform: Untransformed					t-Stat	1-Tailed Critical	MSD	Isotonic	
			Mean	Min	Max	CV%	N				Mean	N-Mean
Control	30.100	1.0000	30.100	23.000	36.000	11.556	10				30.100	1.0000
18	28.600	0.9502	28.600	23.000	37.000	15.567	10	0.726	2.287	4.725	28.600	0.9502
32	28.200	0.9369	28.200	24.000	34.000	10.141	10	0.919	2.287	4.725	28.500	0.9468
56	28.600	0.9502	28.600	22.000	43.000	20.927	10	0.726	2.287	4.725	28.500	0.9468
100	27.000	0.8970	27.000	19.000	38.000	19.205	10	1.500	2.287	4.725	28.500	0.9468
200	30.200	1.0033	30.200	20.000	36.000	16.652	10	-0.048	2.287	4.725	28.500	0.9468

Auxiliary Tests

					Statistic	Critical	Skew	Kurt				
Kolmogorov D Test indicates normal distribution (p > 0.01)					0.91533	1.035	0.55692	1.45688				
Bartlett's Test indicates equal variances (p = 0.32)					5.90304	15.0863						
Hypothesis Test (1-tail, 0.05)					MSDu	MSDp	MSB	MSE	F-Prob	df		
Dunnett's Test					200	>200	4.72516	0.15698	14.6567	21.35	0.63571	5, 54

Point	mg/L	SD	Linear Interpolation (200 Resamples)	
			95% CL	Skew
IC05	18.700			
IC10	>200			
IC15	>200			
IC20	>200			
IC25	>200			
IC40	>200			
IC50	>200			





TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.08

Client: Uretex

QC Test Number: TN-14-440

TEST ORGANISM INFORMATION

Common Name: Fathead minnow Adults Isolated (Time, Date): _____
 Scientific Name: P. promelas Neonates Pulled & Fed (Time, Date): _____
 Lot Number: FH4-9/22-23 Acclimation: <24 hrs Age: <24 hrs
 Source: EA Culture Water (T/S): 24.6 °C 0 ppt

TEST SET-UP

TEST INITIATION

Date	Time	Initials	Activity
9/23/14	0930	WJ	Dilutions Made
	1456	MJ	Test Vessels Filled
	1456	MJ	Organisms Transferred
	1620	MC	Head Counts

CONCENTRATION SERIES

Test Concentration	Volume Test Material	Final Volume 1000ml
Mod Hard Control	SEE ATTACHED	
18 ppm		
32 ppm		
56 ppm		
100 ppm		
200 ppm		

Comments:

INTERMEDIATE DILUTION PREPARATION AND FEEDING

DILUTION PREPARATION

Day	Date	Time	Initials	Sample / Diluent
0	9/23/14	0930	WJ	AT4-4160 LD4-408
1	9/24/14	0836	MJ	AT4-4160 LD4-409
2	9/25/14	0847	WJ	AT4-4160 LD4-411
3	9/26/14	1005	MJ	AT4-4160 LD4-412
4	9/27/14	0914	MJ	AT4-4160 LD4-416
5	9/28/14	0940	WJ	AT4-4160 LD4-417
6	9/29/14	0929	WJ	AT4-4160 LD4-419

FEEDING

Food: Artemia			
Day	Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount
0			1620 MC 2 drops
1	0740 MJ 3 drops	1200 MJ 3 drops	1555 MJ 3 drops
2	0753 MJ 4 drops	1200 MJ 4 drops	1642 WJ 4 drops
3	0805 MJ 4 drops	1155 MJ 4 drops	1707 MJ 4 drops
4	0755 MJ 5 drops	1150 MJ 5 drops	1650 MJ 5 drops
5	0830 WJ 5 drops	1202 WJ 5 drops	1715 WJ 5 drops
6	0810 WJ 5 drops	1210 WJ 5 drops	1730 WJ 5 drops

1,500 ml Total Volume

Leachate = 1,000,000 ppm

Stock A (1 ml leachate: 99 ml mod hard) = 10,000 ppm (10 mg/ml)

200 mg/L Add 30 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

100 mg/L Add 15 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

56 mg/L Add 8.4 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

32 mg/L Add 4.8 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

18 mg/L Add 2.7 mls of **Stock A** to graduated cylinder and bring to a total of 1,500 ml with mod hard.

Mod Hard Control

1,000 ml Total Volume

Leachate = 1,000,000 ppm

Stock A (1 ml leachate: 99 ml mod hard) = 10,000 ppm (10 mg/ml)

200 mg/L Add 20 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

100 mg/L Add 10 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

56 mg/L Add 5.6 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

32 mg/L Add 3.2 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

18 mg/L Add 1.8 mls of **Stock A** to graduated cylinder and bring to a total of 1,000 ml with mod hard.

Mod Hard Control



TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.08 TEST ORGANISM: Uretek Beginning Date: 9/23/14 Time: 1456
Client: Uretek Common Name: Fathead minnow Ending Date: 9/30/14 Time: 1447
QC Test Number: TN-14-440 Scientific Name: P. promelas

TARGET VALUES: Temp: 25±1 °C pH: 6.0-9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16 L 8 D Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) Salinity (ppt)						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
MH Control		24.0	24.0	24.0	24.0	24.0	24.0	25.0	7.7	8.1	8.2	8.4	8.3	8.4	8.0	7.9	7.0	7.2	7.8	7.3	7.3	7.5	330	335	339	341	334	335	332
18 ppm		24.4	24.0	24.0	24.4	24.0	24.5	25.2	7.7	7.9	8.1	8.3	8.2	8.3	7.9	7.7	7.8	7.1	7.3	7.2	6.9	7.0	329	333	337	338	334	334	331
32 ppm		24.4	24.3	24.0	24.4	24.0	24.6	25.4	7.7	7.8	8.0	8.1	8.1	8.1	7.8	7.5	7.6	7.2	7.0	7.1	6.8	6.1	328	331	335	338	331	333	330
56 ppm		24.4	24.4	24.0	24.2	24.0	24.6	25.2	7.7	7.8	8.0	7.9	8.0	8.0	7.8	7.6	7.7	7.1	6.9	7.1	6.8	6.6	328	330	335	337	329	333	330
100 ppm		24.5	24.4	24.0	24.3	24.0	24.6	25.2	7.7	7.7	8.0	7.9	8.0	7.9	7.7	7.7	7.6	7.0	6.9	7.1	6.8	6.7	329	332	335	338	331	332	333
200 ppm		24.5	24.4	24.0	24.3	24.0	24.7	25.2	7.7	7.7	7.9	7.9	7.9	7.8	7.7	7.6	7.0	7.0	7.0	7.1	6.9	6.8	329	332	336	338	332	336	331
Meter Number	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678	678
Time	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820	0820
Initials	MJ	VX	MJ	MJ	VX	VX	CH	MJ	MJ	MJ	MJ	MJ	MJ	MJ	CH	MJ	VX	MJ	MJ	VX	VX	CH	MJ	VX	MJ	MJ	VX	VX	VX



TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.08 TEST ORGANISM Common Name: Fathead minnow Beginning Date: 9/23/14 Time: 1456
Client: Uretex Scientific Name: P. promelas Ending Date: 9/30/14 Time: 1447
QC Test Number: TN-14-440

TARGET VALUES: Temp: 25±1 °C pH: 6.0-9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16L 8D Light Intensity: 50-100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) Salinity (ppt)								
		0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6		
MH Control		24.1	24.3	24.0	24.0	24.5	24.5	24.5	8.4	7.7	8.1	7.9	7.6	7.7	7.8	8.2	8.4	8.3	8.4	8.2	8.3	8.2	8.2	8.2	323	324	322	323	319	320	318
18 ppm		24.1	24.5	24.0	24.0	24.8	24.5	24.7	8.3	7.7	8.0	7.9	7.7	7.8	7.8	8.4	8.4	8.4	8.2	8.3	8.2	8.2	8.2	323	325	323	322	319	320	318	
32 ppm		24.1	24.6	24.0	24.4	24.9	24.5	24.7	8.2	7.7	8.0	7.9	7.7	7.7	7.7	8.4	8.4	8.5	8.4	8.3	8.2	8.2	8.2	324	324	323	321	319	321	319	
56 ppm		24.1	24.5	24.0	24.4	25.0	24.5	24.7	8.1	7.7	8.0	7.9	7.7	7.7	7.8	8.4	8.4	8.6	8.4	8.3	8.2	8.2	8.2	324	324	323	322	318	322	320	
100 ppm		24.1	24.6	24.0	24.4	25.1	24.5	24.6	8.1	7.7	8.0	7.9	7.8	7.8	7.8	8.4	8.3	8.6	8.4	8.3	8.2	8.2	8.2	325	324	323	323	318	321	320	
200 ppm		24.1	24.6	24.0	24.4	25.0	24.5	24.6	8.0	7.7	8.0	7.9	7.8	7.9	7.8	8.4	8.4	8.6	8.4	8.3	8.2	8.2	8.2	326	325	325	323	319	323	322	
Meter Number		1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	1678	
Time		0835	0845	0855	1011	0920	1017	1008	0935	0845	0855	1011	0920	1017	1008	0935	0845	0855	1011	0920	1017	1008	0935	0845	0855	1011	0920	1017	1008	1008	
Initials		VX	MJ	VX	MJ	MJ	VX	VX	VX	MJ	VX	MJ	MJ	VX	VX	VX	MJ	VX	MJ	VX	VX	VX	VX	VX	MJ	MJ	VX	MJ	VX	VX	



TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.08 Beginning Date: 9/23/14 Time: 1456
Client: Uretek Ending Date: 9/30/14 Time: 1447
QC Test Number: TN-14-440
Test Material: Leachate
Accession Number: A-14-440 Test Container: 1-L Beaker
Dilution Water: Mod Hard Test Volume: 250 ml
Accession Number: LD4-408 Photoperiod: 16L 8d Light Intensity: 50 - 100 fc Test Duration: 7 days

TEST ORGANISM
Common Name: Fathead minnow
Scientific Name: P. promelas

TEST TYPE: Static / Flowthrough
Renewal / Non-renewal

Concentration	Rep	Number of Surviving Organisms									
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7		
Mod Hard Control	A	10	10	9	9	9	9	9	9		
	B	10	10	9	9	9	9	9	9		
	C	10	10	10	10	10	10	10	10		
	D	10	10	10	10	10	10	10	10		
18 ppm	A	10	10	10	10	10	10	10	10		
	B	10	10	10	9	9	9	9	9		
	C	10	10	10	10	10	10	10	10		
	D	10	9	9	9	9	9	9	9		
32 ppm	A	10	10	10	10	10	10	10	10		
	B	10	10	9	9	9	9	9	9		
	C	10	10	10	10	10	10	10	10		
	D	10	10	10	10	10	10	10	10		
Time / Initials		1620 MC	0951 MS	0927 WX	1401 MS	1342 MS	1100 WX	1042 WX	1447 CH		

EPA TEST METHOD: (FW) EPA 821-R-02-013/(SW) EPA 821-R-02-012(CHECK ONE):

Fathead: (1000.0) X Cyprinodon: (1004.0) Menidia: (1006.0) Americanus: (1007.0) OTHER:



TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.08 Beginning Date: 9/23/14 Time: 1456
Client: Uretex Ending Date: 9/30/14 Time: 1447
QC Test Number: TN-14-440
Test Material: Leachate
Accession Number: AT4-4100 Test Container: 1-L Beaker
Dilution Water: Mod Hard Test Volume: 250 ml
Accession Number: LD4-408 Test Duration: 7 days
TEST TYPE: Static / Flowthrough
Renewal / Non-renewal
Common Name: Fathead minnow
Scientific Name: P. promelas
Photoperiod: 16 L, 8 d Light Intensity: 50 - 100 fc

Concentration		Number of Surviving Organisms									
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7		
56 ppm	Rep A	10	10	10	10	10	10	10	10		
	B	10	9	8	8	8	8	8	8		
	C	10	10	10	10	10	10	10	10		
	D	10	10	10	10	10	10	10	10		
100 ppm	A	10	10	9	9	9	9	9	9		
	B	10	10	10	10	10	10	10	10		
	C	10	10	10	10	10	10	10	10		
	D	10	10	10	10	10	10	10	10		
200 ppm	A	10	10	10	10	10	10	10	10		
	B	10	10	10	10	10	10	10	10		
	C	10	10	10	10	10	10	10	10		
	D	10	10	10	10	10	10	10	10		
Time / Initials		1620 MC	0951 MJ	0927 VY	1401 MJ	1342 MJ	1100 VY	1042 VY	1447 CH		

EPA TEST METHOD: (FW) EPA 821-R-02-013(SW) EPA 821-R-02-012(CHECK ONE):

Fathead: (1000.0) X Cyprinodon: (1004.0) Menidia: (1006.0) Americamysis: (1007.0) OTHER:



WEIGHT DATA (Test Species: P. promelas)

Project Number: 70005.08

Client: Urettek

QC Test Number: TN-14-440

Tin Lot: Blue 134

Oven Temp (°C): Start: 102 End: 102.0

Date: 9/30/14 Time: 1500 Initials: CH

Loaded tins placed in oven: 10/1/14

Loaded tins removed from oven: 10/1/14

Loaded tins weighed: 10/1/14

Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
MH Control	A	1	30.91	39.49	8.58	9	0.953	0.858
	B	2	29.83	37.72	7.89	9	0.877	0.789
	C	3	31.31	39.48	8.17	10	0.817	0.817
	D	4	30.03	38.89	8.86	10	0.886	0.886
18 ppm	A	5	30.57	39.04	8.47	10	0.847	0.847
	B	6	29.52	36.80	7.28	9	0.809	0.728
	C	9	31.91	39.61	7.70	10	0.770	0.770
	D	10	30.71	37.47	6.76	9	0.751	0.676
32 ppm	A	11	33.60	41.32	7.72	10	0.772	0.772
	B	12	31.41	40.00	8.59	9	0.954	0.859
	C	13	31.52	38.83	7.31	10	0.731	0.731
	D	14	30.53	38.95	8.42	10	0.842	0.842

Dry wt. calculations checked (date, initials): 10/2/14 Wm

Biomass calculations checked (date, initials): 10/2/14 Wm



WEIGHT DATA (Test Species: P. promelas)

Project Number: 70005.08
Client: Uretek
QC Test Number: TN-14-440
Tin Lot: Blue 134
Oven Temp (°C): Start: 102 End: 102.0

Date 9/30/14 Time 1500 Initials CH
Loaded tins placed in oven: 10/1/14 1404 WJ
Loaded tins removed from oven: 10/1/14 1445 WJ
Loaded tins weighed: 10/1/14 1445 WJ
Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
32 ppm	A	15	31.92	40.50	8.58	10	0.858	0.858
	B	16	32.17	39.17	7.00	8	0.875	0.700
	C	17	31.77	40.39	8.62	10	0.862	0.862
	D	18	29.51	37.95	8.44	10	0.844	0.844
100 ppm	A	19	31.62	38.22	6.60	9	0.733	0.660
	B	21	29.91	38.42	8.51	10	0.851	0.851
	C	22	30.97	39.84	8.87	10	0.887	0.887
	D	23	30.91	39.89	8.98	10	0.898	0.898
200 ppm	A	24	31.32	40.10	8.78	10	0.878	0.878
	B	25	31.36	38.95	7.59	10	0.759	0.759
	C	26	30.69	38.10	7.41	9	0.823	0.741
	D	27	31.76	40.07	8.31	10	0.831	0.831

Dry wt. calculations checked (date, initials): 10/2/14 WJ

Biomass calculations checked (date, initials): 10/2/14 WJ



RANDOMIZATION CHART

Project Number: 70005.08

Client: Uretek

QC Test Number: TN-14-440

5	6	2	3	1	4
4	3	2	1	5	6
2	1	4	3	5	6
1	6	3	2	5	4



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.08

Client: Uretek

QC Test Number: TN-14-440

Date/Time/Initials

Comments/Activity

Larval Fish Growth and Survival Test-7 Day Survival

Start Date: 9/23/2014	Test ID: TN-14-440	Sample ID: Uretak
End Date: 9/30/2014	Lab ID:	Sample Type: TCLP Leachate AT4-460
Sample Date:	Protocol: EPAF 91-EPA Freshwater	Test Species: PP-Pimephales promelas
Comments:		

Conc-mg/L	1	2	3	4
Control	0.9000	0.9000	1.0000	1.0000
18	1.0000	0.9000	1.0000	0.9000
32	1.0000	0.9000	1.0000	1.0000
56	1.0000	0.8000	1.0000	1.0000
100	0.9000	1.0000	1.0000	1.0000
200	1.0000	1.0000	0.9000	1.0000

Conc-mg/L	Transform: Arcsin Square Root							Rank Sum	1-Tailed Critical
	Mean	N-Mean	Mean	Min	Max	CV%	N		
Control	0.9500	1.0000	1.3305	1.2490	1.4120	7.072	4		
18	0.9500	1.0000	1.3305	1.2490	1.4120	7.072	4	18.00	10.00
32	0.9750	1.0263	1.3713	1.2490	1.4120	5.942	4	20.00	10.00
56	0.9500	1.0000	1.3358	1.1071	1.4120	11.411	4	19.00	10.00
100	0.9750	1.0263	1.3713	1.2490	1.4120	5.942	4	20.00	10.00
200	0.9750	1.0263	1.3713	1.2490	1.4120	5.942	4	20.00	10.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.80063	0.884	-1.0391	0.04285
Bartlett's Test indicates equal variances ($p = 0.86$)	1.89771	15.0863		
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	200	>200		

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date: 9/23/2014 Test ID: TN-14-440 Sample ID: Uretek
 End Date: 9/30/2014 Lab ID: Sample Type: TCLP Leachate AT4-460
 Sample Date: Protocol: EPAF 91-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments:

Conc-mg/L	1	2	3	4	s.d.
Control	0.8580	0.7890	0.8170	0.8860	0.04299
18	0.8470	0.7280	0.7700	0.6760	0.07225
32	0.7720	0.8590	0.7310	0.8420	0.05996
56	0.8580	0.7000	0.8620	0.8440	0.07772
100	0.6600	0.8510	0.8870	0.8980	0.11116
200	0.8780	0.7590	0.7410	0.8310	0.06374

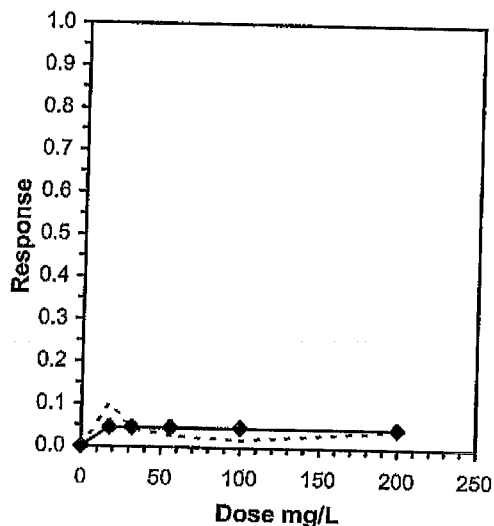
Conc-mg/L	Mean	N-Mean	Transform: Untransformed					t-Stat	1-Tailed Critical	MSD	Isotonic	
			Mean	Min	Max	CV%	N				Mean	N-Mean
Control	0.8375	1.0000	0.8375	0.7890	0.8860	5.133	4				0.8375	1.0000
18	0.7553	0.9018	0.7553	0.6760	0.8470	9.566	4	1.566	2.410	0.1266	0.7997	0.9549
32	0.8010	0.9564	0.8010	0.7310	0.8590	7.486	4	0.695	2.410	0.1266	0.7997	0.9549
56	0.8160	0.9743	0.8160	0.7000	0.8620	9.524	4	0.409	2.410	0.1266	0.7997	0.9549
100	0.8240	0.9839	0.8240	0.6600	0.8980	13.490	4	0.257	2.410	0.1266	0.7997	0.9549
200	0.8023	0.9579	0.8023	0.7410	0.8780	7.945	4	0.671	2.410	0.1266	0.7997	0.9549

Auxiliary Tests

	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution ($p > 0.01$)	0.93465	0.884	-0.802	0.10838
Bartlett's Test indicates equal variances ($p = 0.76$)	2.62914	15.0863		
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Dunnett's Test	200	>200		
	MSDu	MSDp	MSB	MSE
	0.12662	0.15118	0.00322	0.00552
			F-Prob	df
			0.71192	5, 18

Linear Interpolation (200 Resamples)

Point	mg/L	SD	95% CL(Exp)	Skew
IC05	>200			
IC10	>200			
IC15	>200			
IC20	>200			
IC25	>200			
IC40	>200			
IC50	>200			





TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.08

Client: Uretak

QC Test Number: TN-436

14-
wm 9/19/14

TEST ORGANISM INFORMATION

Common Name: Red worm

Adults Isolated (Time, Date): _____

Scientific Name: E. fetida

Neonates Pulled & Fed (Time, Date): _____

Lot Number: EF-037

Acclimation: _____

Age: Adult

Source: Carolina Biological

Culture Water (T/S): _____ °C 0 ppt

TEST INITIATION

<u>Date</u>	<u>Time</u>	<u>Initials</u>	<u>Activity</u>
9/19/14	1330	WM	Dilutions Made
9/19/14	1330	WM	Test Vessels Filled
9/19/14	1515	WM	Organisms Transferred
		N/A	Head Counts

TEST SET-UP

Sample Number: AT4-460

Dilution Number: ARTIFICIAL SOIL

Test Concentration

Volume Test Material

Final Volume

Control

See Attached

18 mg/L

32 mg/L

56 mg/L

100 mg/L

200 mg/L

Leachate = 1,000,000 ppm

Stock A (1 ml leachate: 99 ml mod hard) = 10,000 ppm (10 mg/ml)

200 mg/L Add 12.0 mls of **Stock A** to 588 grams of Control Soil in a stainless steel bowl and mix well.

100 mg/L Add 6.0 mls of **Stock A** to 594 grams of Control Soil in a stainless steel bowl and mix well.

56 mg/L Add 3.36 mls of **Stock A** to 596.6 grams of Control Soil in a stainless steel bowl and mix well.

32 mg/L Add 1.92 mls of **Stock A** to 598.1 grams of Control Soil in a stainless steel bowl and mix well.

18 mg/L Add 1.08 mls of **Stock A** to 598.9 grams of Control Soil in a stainless steel bowl and mix well.

Control Soil



SOIL TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.08 Client: Uretex QC Test Number: TN-14-436 Test Material(s): Leachate Accession Number(s): AT4- 460 Overlying Water: Artificial Soil Accession Number: N/A

TEST ORGANISM
Common Name: Red worm Scientific Name: E. fetida

Beginning Date: 9/19/14 Time: 1515
Ending Date: 9/29/14 Time: 1558

TEST TYPE: Static / Flowthrough Test Container: 500ml beaker
Renewal / Non-renewal Test Volume: 200g sediment
Photoperiod: 16L 8d Light Intensity: 50 - 100 fc Test Duration: 10 days

		Number of Surviving Organisms									
Treatment	Rep	Day 0 Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day Date	Day 10 Date
Control	A	10									10
	B	10									10
	C	10									10
18 mg/L	A	10									10
	B	10									10
	C	10									10
32 mg/L	A	10									10
	B	10									10
	C	10									10
56 mg/L	A	10									9 *
	B	10									10
	C	10									9
100 mg/L	A	10									10
	B	10									10
	C	10									10
200 mg/L	A	10									10
	B	10									10
	C	10									10
Time / Initials		1515 WJM									1558 VJ



ACUTE TOXICITY TEST DATA SHEET

Project Number: 70005.08
Client: Uretex
QC Test Number: TN-14-436
Test Material: Leachate
Accession Number: AT4-460
Dilution Water: Artificial Soil
Accession Number:

TEST ORGANISM
Common Name: Red worm
Scientific Name: Eisenia fetida
Temp: 20±1 °C DO N/A mg/L
pH: 6.0 - 9.0 Salinity: 0 ppt
Photoperiod: 16 L 8 D Light Intensity: 50 - 100 fc
Beginning Date: 9/19/14 Time: 1515
Ending Date: 9/29/14 Time: 1558
TEST TYPE: Static / Flowthrough
Non-renewal / Renewal
Test Container: 500 ml glass jar
Test Volume: 200 ml
Test Duration: 10 days

TARGET VALUES

Concentration	Rep	Number of Live Organisms						Temperature (°C)						pH						Dissolved Oxygen (mg/L)						Conductivity (µS/cm)					
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Control																															
18 mg/L												7.4																			
32 mg/L												7.4																			
56 mg/L												7.4																			
100 mg/L												7.4																			
200 mg/L												7.4																			
Meter Number																															
Time												678																			
Initials												1340																			
												DM																			

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0
Magna/pulex: 2021.0
Fathead: 2000.0
Trout: 2019.0

Americamysis: 2007.0
Cyprinodon: 2004.0
OTHER: X

Eisenia fetida



TOXICOLOGY LABORATORY BENCH SHEET - TEMPERATURE RECORD

Project Number: 70005.08

Client: Uretek

QC Test Number: TN-14-436

Day	Date	Time	Initials	Temperature (°C)
0	9/19/14	1608	com	21.9
1	9/20/14	1000	CH	21.5
2	9/21/14	1602	VJ	21.6
3	9/22/14	0805	CH	21.5
4	9/23/14	0810	CH	20.6
5	9/24/14	0932	VJ	21.0
6	9/25/14	0830	MJ	21.4
7	9/26/14	1151	MJ	20.7
8	9/27/14	0805	MJ	20.4
9	9/28/14	0841	VJ	20.6
10	9/29/14	1545	VJ	20.8
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				



TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.08

Client: Uretex

QC Test Number: TN-14-436

Date/Time/Initials

Comments/Activity

9/19/14 1110 WM Initial pH of leachate AT4-460 was 5.0.
pH adjusted sample to 7.5 w/ NaOH per conversation
with Dr. Robert Edstrom - MN DOT.

9/29/14 1558 vy worm was impinged on outside of jar.

ATTACHMENT II

Eurofins Analytical Report
(10 pages)

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

EA Science & Technology
225 Schilling Circle
suite 400
Hunt Valley MD 21031

October 02, 2014

Project: Spray Products Testing

Submittal Date: 09/09/2014
Group Number: 1503039
PO Number: SERVICE ORDER 13167
State of Sample Origin: GAClient Sample DescriptionURETEK 4R Resin (Part "B") Foam
URETEK 4R Iso (Part "A") Foam
URETEK 4R Foam (Finished Product) FoamLancaster Labs (LL) #7597869
7597870
7597871

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC EA EST
COPY TO
ELECTRONIC EA EST
COPY TO

Attn: Michael Chanov

Attn: Wayne McCulloch

Respectfully Submitted,


Nicole L. Maljovec
Principal Specialist Group Leader

(717) 556-7259

Sample Description: URETEK 4R Resin (Part "B") Foam
Spray Product Testing

LL Sample # G5 7597869
LL Group # 1503039
Account # 04756

Project Name: Spray Products Testing

Collected: 09/04/2014 08:15 by DM

EA Science & Technology
225 Schilling Circle
suite 400
Hunt Valley MD 21031

Submitted: 09/09/2014 09:30

Reported: 10/02/2014 14:28

PART B

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals		SW-846 6010B	mg/kg	mg/kg	
06935	Arsenic	7440-38-2	N.D.	0.610	1
06946	Barium	7440-39-3	0.0514 J	0.0314	1
06949	Cadmium	7440-43-9	N.D.	0.0314	1
06951	Chromium	7440-47-3	N.D.	0.105	1
06955	Lead	7439-92-1	N.D.	0.476	1
06936	Selenium	7782-49-2	N.D.	0.419	1
06966	Silver	7440-22-4	N.D.	0.181	1
06969	Tin	7440-31-5	28.3	0.410	1
		SW-846 7471A	mg/kg	mg/kg	
00159	Mercury	7439-97-6	N.D.	0.0097	1
The mercury result was performed by the Method of Standard Addition.					

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/15.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06935	Arsenic	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
06946	Barium	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
06949	Cadmium	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
06951	Chromium	SW-846 6010B	1	142595708002	09/19/2014 02:43	Elaine F Stoltzfus	1
06955	Lead	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
06936	Selenium	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
06966	Silver	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
06969	Tin	SW-846 6010B	1	142595708002	09/17/2014 20:05	Katlin N Cataldi	1
00159	Mercury	SW-846 7471A	2	142595711001	09/19/2014 10:45	Damary Valentin	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	142595708002	09/16/2014 12:47	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142595711001	09/16/2014 16:02	James L Mertz	1

Sample Description: URETEK 4R Iso (Part "A") Foam
Spray Product TestingLL Sample # G5 7597870
LL Group # 1503039
Account # 04756

Project Name: Spray Products Testing

Collected: 09/04/2014 08:15 by DM

EA Science & Technology
225 Schilling Circle
suite 400
Hunt Valley MD 21031

Submitted: 09/09/2014 09:30

Reported: 10/02/2014 14:28

PART A

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals		SW-846 6010B	mg/kg	mg/kg	
06935	Arsenic	7440-38-2	N.D.	0.634	1
06946	Barium	7440-39-3	N.D.	0.0327	1
06949	Cadmium	7440-43-9	N.D.	0.0327	1
06951	Chromium	7440-47-3	N.D.	0.109	1
06955	Lead	7439-92-1	N.D.	0.495	1
06936	Selenium	7782-49-2	N.D.	0.436	1
06966	Silver	7440-22-4	N.D.	0.188	1
06969	Tin	7440-31-5	0.638 J	0.426	1
		SW-846 7471A	mg/kg	mg/kg	
00159	Mercury	7439-97-6	N.D.	0.0097	1
The mercury result was performed by the Method of Standard Addition.					

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/15.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06935	Arsenic	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06946	Barium	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06949	Cadmium	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06951	Chromium	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06955	Lead	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06936	Selenium	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06966	Silver	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
06969	Tin	SW-846 6010B	1	142595708002	09/17/2014 19:39	Katlin N Cataldi	1
00159	Mercury	SW-846 7471A	2	142595711001	09/17/2014 19:39	Katlin N Cataldi	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	142595708002	09/19/2014 10:49	Damary Valentin	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	142595711001	09/16/2014 12:47	James L Mertz	1
					09/16/2014 16:02	James L Mertz	1



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: URETEK 4R Foam (Finished Product) Foam
Spray Product Testing

LL Sample # TL 7597871
LL Group # 1503039
Account # 04756

Project Name: Spray Products Testing

Collected: 09/04/2014 08:15 by DM

EA Science & Technology

Submitted: 09/09/2014 09:30

225 Schilling Circle

Reported: 10/02/2014 14:28

suite 400

Hunt Valley MD 21031

FINISH

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals					
		SW-846 6010B	mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07046	Barium	7440-39-3	0.147	0.00033	1
07049	Cadmium	7440-43-9	N.D.	0.00033	1
07051	Chromium	7440-47-3	0.0018 U	0.0013	1
07055	Lead	7439-92-1	N.D.	0.0047	1
07036	Selenium	7782-49-2	N.D.	0.0048	1
07066	Silver	7440-22-4	N.D.	0.0018	1
07069	Tin	7440-31-5	0.0217	0.0024	1
00259 Mercury					
		SW-846 7470A	mg/l	mg/l	
		7439-97-6	N.D.	0.000060	1
Wet Chemistry					
		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	2,650	50.0	100
00235 Biochemical Oxygen Demand					
		SM 5210 B-2001	mg/l	mg/l	
		n.a.	17.4	0.80	1
The DO uptake for the unseeded blank is greater than 0.20 mg/L.					

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/15.
For trial 2 of the TCLP analysis, D.I.H₂O was used for the extraction fluid for TOC and BOD analyses.

If the analysis is for determination of Hazardous Waste Characteristics, see Table 1 in EPA Code of Federal Regulations 40 CFR 261.24.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
07046	Barium	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
07049	Cadmium	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
07051	Chromium	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
07055	Lead	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
07036	Selenium	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
07066	Silver	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: URETEK 4R Foam (Finished Product) Foam
Spray Product Testing

LL Sample # TL 7597871
LL Group # 1503039
Account # 04756

Project Name: Spray Products Testing

Collected: 09/04/2014 08:15 by DM

EA Science & Technology

Submitted: 09/09/2014 09:30

225 Schilling Circle

Reported: 10/02/2014 14:28

suite 400

Hunt Valley MD 21031

FINISH

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07069	Tin	SW-846 6010B	1	142605705004	09/19/2014 01:01	Elaine F Stoltzfus	1
00259	Mercury	SW-846 7470A	1	142605713006	09/19/2014 10:37	Damary Valentin	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	142605705004	09/18/2014 13:15	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	142605713006	09/18/2014 14:24	James L Mertz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	14261049503A	09/24/2014 05:25	James S Mathiot	100
00235	Biochemical Oxygen Demand	SM 5210 B-2001	1	14267023502A	09/24/2014 14:28	Susan A Engle	1
00947	TCLP Non-volatile Extraction	SW-846 1311	1	14259-482-0947	09/16/2014 12:40	Darin P Wagner	n.a.
00947	TCLP Non-volatile Extraction	SW-846 1311	2	14266-482-0947	09/23/2014 15:00	Darin P Wagner	n.a.

Quality Control Summary

Client Name: EA Science & Technology
Reported: 10/02/14 at 02:28 PM

Group Number: 1503039

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 142595708002	Sample number(s): 7597869-7597870							
Arsenic	N.D.	0.640	mg/kg	100		82-111		
Barium	N.D.	0.0330	mg/kg	104		83-113		
Cadmium	N.D.	0.0330	mg/kg	103		82-113		
Chromium	N.D.	0.110	mg/kg	100		85-113		
Lead	N.D.	0.500	mg/kg	102		81-112		
Selenium	N.D.	0.440	mg/kg	103		78-111		
Silver	N.D.	0.190	mg/kg	101		82-112		
Tin	1.13 J	0.430	mg/kg	97		80-120		
Batch number: 142595711001	Sample number(s): 7597869-7597870							
Mercury	N.D.	0.0100	mg/kg	95		80-124		
Batch number: 142605705004	Sample number(s): 7597871							
Arsenic	N.D.	0.0072	mg/l	105		87-113		
Barium	0.00043 J	0.00033	mg/l	97		88-113		
Cadmium	N.D.	0.00033	mg/l	104		88-113		
Chromium	N.D.	0.0013	mg/l	100		90-113		
Lead	N.D.	0.0047	mg/l	102		86-113		
Selenium	N.D.	0.0048	mg/l	111		83-114		
Silver	N.D.	0.0018	mg/l	112		84-115		
Tin	N.D.	0.0024	mg/l	98		88-115		
Batch number: 142605713006	Sample number(s): 7597871							
Mercury	N.D.	0.00006	mg/l	98		80-120		
Batch number: 14261049503A	Sample number(s): 7597871							
Total Organic Carbon	N.D.	0.50	mg/l	105		91-113		
Batch number: 14267023502A	Sample number(s): 7597871							
Biochemical Oxygen Demand				91		85-115		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142595708002	Sample number(s): 7597869-7597870 UNSPK: 7597870 BKG: 7597870								

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control SummaryClient Name: EA Science & Technology
Reported: 10/02/14 at 02:28 PM

Group Number: 1503039

Sample Matrix Quality ControlUnspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Arsenic	100	102	82-111	4	20	N.D.	N.D.	0 (1)	20
Barium	99	99	83-113	2	20	N.D.	N.D.	0 (1)	20
Cadmium	101	102	82-113	3	20	N.D.	N.D.	0 (1)	20
Chromium	93	92	85-113	1	20	N.D.	N.D.	0 (1)	20
Lead	102	101	81-112	1	20	N.D.	N.D.	0 (1)	20
Selenium	106	105	78-111	2	20	N.D.	N.D.	0 (1)	20
Silver	98	97	82-112	1	20	N.D.	N.D.	0 (1)	20
Tin	86	89	80-120	5	20	0.638 J	0.826 J	26* (1)	20
Batch number: 142595711001	Sample number(s): 7597869-7597870 UNSPK: 7597869 BKG: 7597869								
Mercury	69*	69*	80-124	3	20	N.D.	N.D.	0 (1)	20
Batch number: 142605705004	Sample number(s): 7597871 UNSPK: 7597871 BKG: 7597871								
Arsenic	94	92	87-113	2	20	N.D.	N.D.	0 (1)	20
Barium	89	85*	88-113	4	20	0.147	0.143	3	20
Cadmium	89	87*	88-113	3	20	N.D.	N.D.	0 (1)	20
Chromium	88*	86*	90-113	3	20	0.0018 J	0.0021 J	16 (1)	20
Lead	86	83*	86-113	3	20	N.D.	N.D.	0 (1)	20
Selenium	97	95	83-114	2	20	N.D.	N.D.	0 (1)	20
Silver	72*	69*	84-115	4	20	N.D.	N.D.	0 (1)	20
Tin	89	86*	88-115	4	20	0.0217	0.0204	6 (1)	20
Batch number: 142605713006	Sample number(s): 7597871 UNSPK: 7597871 BKG: 7597871								
Mercury	86	89	80-120	3	20	N.D.	N.D.	0 (1)	20
Batch number: 14261049503A	Sample number(s): 7597871 UNSPK: P602021 BKG: P602021								
Total Organic Carbon	99		63-142			25.4	25.6	1	4
Batch number: 14267023502A	Sample number(s): 7597871 UNSPK: P610372 BKG: P610687								
Biochemical Oxygen Demand	107	109	59-139	2	8	36.3	37.0	2	15

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
 (2) The unspiked result was more than four times the spike added.

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m3	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Data Qualifiers:

C - result confirmed by reanalysis.

J - estimated value - The result is \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns $>25\%$
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is $<CRDL$, but $\geq IDL$
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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ATTACHMENT III
Report Quality Assurance Record
(2 pages)



REPORT QUALITY ASSURANCE RECORD

Client: Uretek USA Project Number: 70005.08
Author: Wayne McCulloch EA Report Number: 7602

REPORT CHECKLIST

QA/QC ITEM	REVIEWER	DATE
1. Samples collected, transported, and received according to study plan requirements.	<u>W McCulloch</u>	<u>10/6/14</u>
2. Samples prepared and processed according to study plan requirements.	<u>W McCulloch</u>	<u>10/6/14</u>
3. Data collected using calibrated instruments and equipment.	<u>W McCulloch</u>	<u>10/6/14</u>
4. Calculations checked: - Hand calculations checked.	<u>W McCulloch</u>	<u>10/6/14</u>
- Documented and verified statistical procedure used.	<u>W McCulloch</u>	<u>10/6/14</u>
5. Data input/statistical analyses complete and correct.	<u>Michael D. [Signature]</u>	<u>10/14/14</u>
6. Reported results and facts checked against original sources.	<u>Michael D. [Signature]</u>	<u>10/14/14</u>
7. Data presented in figures and tables correct and in agreement with text.	<u>Michael D. [Signature]</u>	<u>10/14/14</u>
8. Results reviewed for compliance with study plan requirements.	<u>W McCulloch</u>	<u>10/6/14</u>

	AUTHOR	DATE
9. Commentary reviewed and resolved.	<u>W McCulloch</u>	<u>10/15/14</u>
10. All study plan and quality assurance/control requirements have been met and the report is approved:	<u>W McCulloch</u>	<u>10/15/14</u>
	PROJECT MANAGER	DATE
	<u>Michael D. [Signature]</u>	<u>10/14/14</u>
	QUALITY CONTROL OFFICER	DATE
	<u>[Signature]</u>	<u>10/14/14</u>
	SENIOR TECHNICAL REVIEWER	DATE



7 June 2019

URETEK USA
P.O. Box 1929
Tomball, TX 77377

The purpose of this letter is to provide a summary of the results reported in EA Engineering, Science, and Technology's final report titled "Results of Acute and Chronic Toxicity Testing on a TCLP Leachate Sample Prepared from a Uretek USA Foam Sample" (EA Report # 7002). The testing was conducted in order to satisfy the requirements of the Minnesota Department of Transportation Product Hazard Evaluation Process. The testing consisted of aquatic and terrestrial toxicity testing, and chemical analyses (RCRA metals, TOC and COD). As a part of the MNDOT requirements the toxicity test results needed to show a lack of toxicity at 100 ppm TCLP leachate, and the testing indicated that for all three test species, there was no observed toxicity. Furthermore, at MNDOT's request, we also tested 200 ppm TCLP leachate, and the Uretek samples tested were also non-toxic for all test species at double the pass/fail criterion.

Sincerely,

Michael K. Chanov II

A handwritten signature in black ink, appearing to read 'Michael K. Chanov II'.

Director,
Ecotoxicology Laboratory