

0 2.5 5 Miles  
0 2.5 5 Kilometers  
1:50,000  
UTM Zone 4 NAD 1983  
Prepared by U.S. Fish & Wildlife Service, Pacific Islands Office  
December 2009

## Critical Habitat Island of Kauai

- Proposed Critical Habitat - all species
- Existing Critical Habitat - all species



**Site 1: Gillins Beach (847)      21° 53.322' N Lat      159° 24.942' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
03/07/14	820	31		3255
04/12/14	750	33		520
05/10/14	745	35.5		2.3
06/22/14	835	28	5.66	1658
06/29/14	844	16	11.2	8164
7/6/2014	825	32	3.22	1860
7/13/2014	830	34.4	1.58	213
7/20/2014	814	33	3.19	2613
7/27/2014	723	31	2.94	1793
8/6/2014	710	33.4	4.06	275
8/10/2014	953	33.9	6.66	119
8/25/2014	848	31.5	3.88	670
9/14/2014	925	34.5	16.4	288
11/8/2014	740	28.5	9.22	5475
11/24/2014	820	32.1	3.57	1850
12/13/2014	730	32.6		910
12/15/2014	805	33.3		480
1/10/2015	740	32.8		1019
1/20/2015	838	33.8	2.76	109
2/14/2015	810	34.1	2.54	512

**Site 2: Waiopili Stream, Bridge      21° 53.328' N Lat      159° 24.099' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
04/12/14	745	0		5794
05/10/14	740	0		14136
06/14/14	730	1		8664
06/17/14	945	0	22.5	na
06/22/14	830	0	24.1	8164
06/29/14	836	0	20.2	9208
7/6/2014	817	0	22	10462
7/13/2014	820	0.3	21.2	12997
7/13/2014	900	0.1	22.1	9208
7/20/2014	808	0	34.6	24196
7/23/2014	850	0.07	23.6	
7/27/2014	717	0.18	24	7270
8/6/2014	725	0.18	32	6131
8/10/2014	1000	0.13	104	5475
8/25/2014	855	0.07	28.9	5475
9/14/2014	940	8.29	27.4	8164
10/7/2014	1115		458	
10/20/2014	13:48	0.03	149	

Additional Special Run Data - Surfrider

Date	Total Nitrogen mg/L	Nitrate + Nitrite mg/L	Total Phosphorus mg/L	Total Suspended Solids mg/L	Turbidity NTU	Ammonia mg/L	Salinity ppt	
HAR Standards 1	0.2	0.008	0.025	na	1.5	0.006	Estuaries	All Seasons
HAR Standards 1	0.18	0.03	0.03	10	2	na	Streams	Dry Season
7/13/2014	0.41	0.086	0.044	5.4	21.2	0.14	0.3	
8/10/2014	0.78	0.25	0.066	55	104	0.057	0.13	
9/14/2014	0.49	0.052	0.089	32	27.4	0.097	8.29	
1/20/2015	0.4	0.1	<.04	15	47.6	0.13	0.08	
Geo. mean	0.500	0.103	0.064	19.431	41.180	0.100	0.401	

**Site 2b: Waiopili Stream, Beach      21° 53.314' N Lat      159° 25.069' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
11/8/2014	738	0.31	39.6	14136
11/24/2014	821	0.41	22.5	14136
11/24/2014	822	0.32	22.9	4884
12/13/2014	720	0.37		19863
12/15/2014	811	0.12		4884
1/10/2015	735	0.33		8164
1/20/2015	831	0.08	47.6	2755
2/14/2015	800	0.33	47.6	24196



**Site 3: Waiopili Stream, Shack      21° 53.619' N Lat      159° 24.155' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
05/10/14	720	0		7701
06/14/14	715	0		11199
06/22/14	833	0	27.8	8164
06/29/14	826	0	23.6	6131
7/6/2014	809	0	22.7	10462
7/13/2014	815	0.09	21.2	17329
7/20/2014	757	0	51	>24196
7/27/2014	705	0.19	35	2603
8/10/2014	940	0.08	94.8	4352



**Site 4: Mahaulepu Beach      21° 53.365' N Lat      159° 24.745' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
06/29/14	1025	35		<10
7/6/2014	815	35		<10
7/13/2014	745	34.7		<10
7/20/2014	735	35	1.6	<10
7/27/2014		35		<10



**Site 5: Kawaiiloa Bay****21° 53.494' N Lat****159° 24.642' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
06/29/14	1030	35		<10
7/6/2014	825	35		<10
7/13/2014	800	34.9		<10
7/20/2014	750	35	0.57	<10
7/27/2014		34.8		<10



**Site 6: Gillin Well****21° 53.354' N Lat****159° 24.988' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
7/13/2014	830	0.28		10
8/10/2014	1045	0.29	1.41	<10
9/14/2014	908			<10

Additional Special Run Data - Surfrider

Date	Total Nitrogen mg/L	Nitrate + Nitrite mg/L	Total Phosphorus mg/L	Total Suspended Solids mg/L	Turbidity NTU	Ammonia mg/L	Salinity ppt	
HAR Standards 1	0.2	0.008	0.025	na	1.5	0.006	Estuaries	All Seasons
HAR Standards 1	0.18	0.03	0.03	10	2	na	Streams	Dry Season
7/13/2014	nd	0.035	0.052	4.2		0.13	0.28	
8/10/2014	0.27	0.11	0.071		1.41	0.03	0.29	
9/14/2014	0.33	0.062	0.15			0.14		
Geo. mean	0.298	0.062	0.082	4.200	1.410	0.082	0.285	



**Site 6: Gillin Faucet****21° 53.347' N Lat****159° 24.983' W Long**

Date	Time	Salinity (ppt)	Turbidity (NTU)	Enterococcus (mpn)
7/13/2014	915	0.39		<10



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Honolulu

1946 Young St. Suite 400A

Honolulu, HI 96826

Tel: 808-486-5227

TestAmerica Job ID: HXG0027

Client Project/Site: Water Quality 6.9.14

Client Project Description: Water Quality

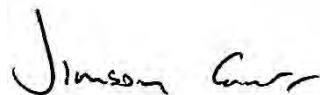
For:

Surfrider Foundation, Kauai Chapter

2637 Apapane St.

Lihue, HI 96766

Attn: Carl J. Berg



Authorized for release by:

8/15/2014 4:23:05 PM

Jimson E. Carr, Service Center Manager

808-486-5227

[Jimson.Carr@testamericainc.com](mailto:Jimson.Carr@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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## Definitions/Glossary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### Qualifiers

#### TSAV

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

### Glossary

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



## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### Job ID: HXG0027

#### Laboratory: TestAmerica Honolulu

##### Narrative

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

#### LABORATORY REPORT

At sample receipt, the cooler/sample was 3 degrees C.

TestAmerica has determined that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

#### Laboratory: TestAmerica Irvine

##### Narrative

Job Narrative  
440-83462-1

##### Comments

No additional comments.

##### Receipt

The samples were received on 7/17/2014 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

##### General Chemistry

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



## Sample Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HXG0027-01	Mahaulepu 1. Bridge	Water - NonPotable	07/13/14 08:45	07/15/14 13:50
HXG0027-02	Mahaulepu 2. Gillin's Well	Water - NonPotable	07/13/14 08:30	07/15/14 13:50



## Detection Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### Client Sample ID: Mahaulepu 1. Bridge

Lab Sample ID: HXG0027-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	5.4		1.0		mg/L	1		SM 2540D	Total/NA
Ammonia	0.14		0.050		mg/L	1		350.1	Total
Nitrogen, Kjeldahl	0.32		0.20		mg/L	1		351.2	Total
Nitrate Nitrite as N	0.086		0.050		mg/L	1		353.2	Total
Phosphorus	0.044	J	0.10		mg/L	1		365.4	Total
Nitrogen, Total	0.41		0.25		mg/L	1		Total Nitrogen	Total

### Client Sample ID: Mahaulepu 2. Gillin's Well

Lab Sample ID: HXG0027-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	4.2		1.1		mg/L	1		SM 2540D	Total/NA
Ammonia	0.13		0.050		mg/L	1		350.1	Total
Nitrate Nitrite as N	0.035	J	0.050		mg/L	1		353.2	Total
Phosphorus	0.052	J	0.10		mg/L	1		365.4	Total



# Client Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

## Client Sample ID: Mahaulepu 1. Bridge

Date Collected: 07/13/14 08:45

Date Received: 07/15/14 13:50

## Lab Sample ID: HXG0027-01

Matrix: Water - NonPotable

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	5.4		1.0		mg/L			07/18/14 14:14	1

### Method: 350.1 - Nitrogen, Ammonia

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.14		0.050		mg/L		07/22/14 14:23	07/22/14 14:23	1

### Method: 351.2 - Nitrogen, Total Kjeldahl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.32		0.20		mg/L		07/24/14 16:30	07/25/14 15:19	1

### Method: 353.2 - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.086		0.050		mg/L		07/23/14 12:25	07/23/14 12:25	1

### Method: 365.4 - Phosphorus, Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	0.044	J	0.10		mg/L		07/24/14 16:30	07/25/14 15:19	1

### Method: Total Nitrogen - Nitrogen, Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	0.41		0.25		mg/L		07/26/14 13:00	07/26/14 13:00	1

## Client Sample ID: Mahaulepu 2. Gillin's Well

Date Collected: 07/13/14 08:30

Date Received: 07/15/14 13:50

## Lab Sample ID: HXG0027-02

Matrix: Water - NonPotable

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.2		1.1		mg/L			07/18/14 14:14	1

### Method: 350.1 - Nitrogen, Ammonia

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.13		0.050		mg/L		07/22/14 13:52	07/22/14 13:52	1

### Method: 351.2 - Nitrogen, Total Kjeldahl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		0.20		mg/L		07/24/14 16:30	07/25/14 16:15	1

### Method: 353.2 - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.035	J	0.050		mg/L		07/23/14 13:23	07/23/14 13:23	1

### Method: 365.4 - Phosphorus, Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	0.052	J	0.10		mg/L		07/24/14 16:30	07/25/14 16:15	1

### Method: Total Nitrogen - Nitrogen, Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	ND		0.25		mg/L		07/26/14 13:00	07/26/14 13:00	1

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TestAmerica Honolulu



# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

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

Lab Sample ID: MB 440-194912/2

Matrix: Water

Analysis Batch: 194912

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0		mg/L			07/18/14 14:14	1

Lab Sample ID: LCS 440-194912/1

Matrix: Water

Analysis Batch: 194912

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	1000		mg/L		100	85 - 115

Lab Sample ID: 440-83527-B-1 DU

Matrix: Water

Analysis Batch: 194912

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	23		22.0		mg/L		6	10

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: 340419-5

Matrix: Water

Analysis Batch: 340419

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 340419\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.050		mg/L		07/22/14 14:03	07/22/14 14:03	1

Lab Sample ID: 340419-6

Matrix: Water

Analysis Batch: 340419

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 340419\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.03		mg/L		103	90 - 110

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: 340976-44

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		0.20		mg/L		07/24/14 16:30	07/25/14 15:18	1

Lab Sample ID: 340976-43

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	1.98		mg/L		99	75 - 125

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TestAmerica Honolulu

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

## Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 1034331D

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	0.32		2.00	2.33		mg/L		101	75 - 125	2	40

Lab Sample ID: 1034331S

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Matrix Spike

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	0.32		2.00	2.29		mg/L		99	75 - 125		

Lab Sample ID: 1034332X

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Duplicate

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Kjeldahl	ND		ND		mg/L		NC	40

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: 340549-13

Matrix: Water

Analysis Batch: 340549

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 340549\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.050		mg/L		07/23/14 12:21	07/23/14 12:21	1

Lab Sample ID: 340549-15

Matrix: Water

Analysis Batch: 340549

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 340549\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	1.00	1.06		mg/L		106	90 - 110		

Lab Sample ID: 340549-26

Matrix: Water

Analysis Batch: 340549

Client Sample ID: Duplicate

Prep Type: Total

Prep Batch: 340549\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Nitrate Nitrite as N			1.94		mg/L		0.7	10

Lab Sample ID: 340550-13

Matrix: Water

Analysis Batch: 340550

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 340550\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.050		mg/L		07/23/14 13:19	07/23/14 13:19	1

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TestAmerica Honolulu



# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

## Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 340550-15

Matrix: Water

Analysis Batch: 340550

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 340550\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.00	1.06		mg/L		106	90 - 110

Lab Sample ID: 1034332D

Matrix: Water

Analysis Batch: 340550

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total

Prep Batch: 340550\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.035	J	1.00	1.06		mg/L		102	90 - 110	1	10

Lab Sample ID: 1034332S

Matrix: Water

Analysis Batch: 340550

Client Sample ID: Matrix Spike

Prep Type: Total

Prep Batch: 340550\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.035	J	1.00	1.05		mg/L		102	90 - 110

Lab Sample ID: 340550-20

Matrix: Water

Analysis Batch: 340550

Client Sample ID: Duplicate

Prep Type: Total

Prep Batch: 340550\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Nitrate Nitrite as N			0.0225	J	mg/L		6	10

## Method: 365.4 - Phosphorus, Total

Lab Sample ID: 340975-44

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		0.10		mg/L		07/24/14 16:30	07/25/14 15:18	1

Lab Sample ID: 340975-43

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	2.00	2.36		mg/L		118	60 - 140

Lab Sample ID: 1034331D

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	0.044	J	2.00	2.13		mg/L		104	60 - 140	1	40

Attachment B, page 18

TestAmerica Honolulu

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

## Method: 365.4 - Phosphorus, Total (Continued)

Lab Sample ID: 1034331S

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Matrix Spike

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	0.044	J	2.00	2.15		mg/L		105	60 - 140

Lab Sample ID: 1034332X

Matrix: Water

Analysis Batch: 340788

Client Sample ID: Duplicate

Prep Type: Total

Prep Batch: 340788\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Phosphorus	0.052	J	0.0472	J	mg/L		9	40



## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### General Chemistry

#### Analysis Batch: 194912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-83527-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	
HXG0027-01	Mahaulepu 1. Bridge	Total/NA	Water - NonPotable	SM 2540D	
HXG0027-02	Mahaulepu 2. Gillin's Well	Total/NA	Water - NonPotable	SM 2540D	
LCS 440-194912/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-194912/2	Method Blank	Total/NA	Water	SM 2540D	

### TSAV

#### Analysis Batch: 340419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
340419-5	Method Blank	Total	Water	350.1	340419_P
340419-6	Lab Control Sample	Total	Water	350.1	340419_P
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	350.1	340419_P
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	350.1	340419_P

#### Analysis Batch: 340549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
340549-13	Method Blank	Total	Water	353.2	340549_P
340549-15	Lab Control Sample	Total	Water	353.2	340549_P
340549-26	Duplicate	Total	Water	353.2	340549_P
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	353.2	340549_P

#### Analysis Batch: 340550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
1034332D	Matrix Spike Duplicate	Total	Water	353.2	340550_P
1034332S	Matrix Spike	Total	Water	353.2	340550_P
340550-13	Method Blank	Total	Water	353.2	340550_P
340550-15	Lab Control Sample	Total	Water	353.2	340550_P
340550-20	Duplicate	Total	Water	353.2	340550_P
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	353.2	340550_P

#### Analysis Batch: 340788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
1034331D	Matrix Spike Duplicate	Total	Water	351.2	340788_P
1034331D	Matrix Spike Duplicate	Total	Water	365.4	340788_P
1034331S	Matrix Spike	Total	Water	351.2	340788_P
1034331S	Matrix Spike	Total	Water	365.4	340788_P
1034332X	Duplicate	Total	Water	351.2	340788_P
1034332X	Duplicate	Total	Water	365.4	340788_P
340975-43	Lab Control Sample	Total	Water	365.4	340788_P
340975-44	Method Blank	Total	Water	365.4	340788_P
340976-43	Lab Control Sample	Total	Water	351.2	340788_P
340976-44	Method Blank	Total	Water	351.2	340788_P
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	351.2	340788_P

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TestAmerica Honolulu

## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### TSAV (Continued)

#### Analysis Batch: 340788 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	365.4	340788_P
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	351.2	340788_P
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	365.4	340788_P

#### Analysis Batch: 340997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	Total Nitrogen	340997_P
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	Total Nitrogen	340997_P

#### Prep Batch: 340419\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
340419-5	Method Blank	Total	Water	NA	
340419-6	Lab Control Sample	Total	Water	NA	
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	NA	
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	NA	

#### Prep Batch: 340549\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
340549-13	Method Blank	Total	Water	NA	
340549-15	Lab Control Sample	Total	Water	NA	
340549-26	Duplicate	Total	Water	NA	
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	NA	

#### Prep Batch: 340550\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
1034332D	Matrix Spike Duplicate	Total	Water	NA	
1034332S	Matrix Spike	Total	Water	NA	
340550-13	Method Blank	Total	Water	NA	
340550-15	Lab Control Sample	Total	Water	NA	
340550-20	Duplicate	Total	Water	NA	
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	NA	

#### Prep Batch: 340788\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
1034331D	Matrix Spike Duplicate	Total	Water	Digestion	
1034331S	Matrix Spike	Total	Water	Digestion	
1034332X	Duplicate	Total	Water	Digestion	
340975-43	Lab Control Sample	Total	Water	Digestion	
340975-44	Method Blank	Total	Water	Digestion	
340976-43	Lab Control Sample	Total	Water	Digestion	
340976-44	Method Blank	Total	Water	Digestion	
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	Digestion	

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TestAmerica Honolulu



## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### TSAV (Continued)

#### Prep Batch: 340788\_P (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	Digestion	

#### Prep Batch: 340997\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HXG0027-01	Mahaulepu 1. Bridge	Total	Water - NonPotable	NA	
HXG0027-02	Mahaulepu 2. Gillin's Well	Total	Water - NonPotable	NA	

## Lab Chronicle

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### Client Sample ID: Mahaulepu 1. Bridge

Date Collected: 07/13/14 08:45

Date Received: 07/15/14 13:50

### Lab Sample ID: HXG0027-01

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	194912	07/18/14 14:14	NTN	TAL IRV
Total	Analysis	350.1		1	340419	07/22/14 14:23	JME	TAL SAV
Total	Prep	NA			340419_P	07/22/14 14:23		TAL SAV
Total	Prep	Digestion			340788_P	07/24/14 16:30		TAL SAV
Total	Analysis	351.2		1	340788	07/25/14 15:19	AJO	TAL SAV
Total	Analysis	353.2		1	340549	07/23/14 12:25	GRX	TAL SAV
Total	Prep	NA			340549_P	07/23/14 12:25		TAL SAV
Total	Prep	Digestion			340788_P	07/24/14 16:30		TAL SAV
Total	Analysis	365.4		1	340788	07/25/14 15:19	AJO	TAL SAV
Total	Analysis	Total Nitrogen		1	340997	07/26/14 13:00	JER	TAL SAV
Total	Prep	NA			340997_P	07/26/14 13:00		TAL SAV

### Client Sample ID: Mahaulepu 2. Gillin's Well

Date Collected: 07/13/14 08:30

Date Received: 07/15/14 13:50

### Lab Sample ID: HXG0027-02

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	194912	07/18/14 14:14	NTN	TAL IRV
Total	Analysis	350.1		1	340419	07/22/14 13:52	JME	TAL SAV
Total	Prep	NA			340419_P	07/22/14 13:52		TAL SAV
Total	Prep	Digestion			340788_P	07/24/14 16:30		TAL SAV
Total	Analysis	351.2		1	340788	07/25/14 16:15	AJO	TAL SAV
Total	Analysis	353.2		1	340550	07/23/14 13:23	GRX	TAL SAV
Total	Prep	NA			340550_P	07/23/14 13:23		TAL SAV
Total	Prep	Digestion			340788_P	07/24/14 16:30		TAL SAV
Total	Analysis	365.4		1	340788	07/25/14 16:15	AJO	TAL SAV

#### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL 912.354.7858



## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### Laboratory: TestAmerica Honolulu

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

Authority	Program	EPA Region	Certification ID	Expiration Date
USDA	Federal		HON-S-206	01-31-15

### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-14
California	LA Cty Sanitation Districts	9	10256	01-31-15
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-14 *
New Mexico	State Program	6	N/A	01-29-15
Northern Mariana Islands	State Program	9	MP0002	01-29-15
Oregon	NELAP	10	4005	01-29-15
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

### Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		399.01	02-28-15
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-15
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-14
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-14
Kentucky (UST)	State Program	4	18	06-30-15
Louisiana	NELAP	6	30690	06-30-14
Louisiana (DW)	NELAP	6	LA140023	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15

\* Certification renewal pending - certification considered valid.

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TestAmerica Honolulu

## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

### Laboratory: TestAmerica Savannah (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-14
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-14
West Virginia DEP	State Program	3	94	06-30-15
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14



## Method Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Water Quality 6.9.14

TestAmerica Job ID: HXG0027

Method	Method Description	Protocol	Laboratory
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
350.1	Nitrogen, Ammonia		TAL SAV
351.2	Nitrogen, Total Kjeldahl		TAL SAV
353.2	Nitrogen, Nitrate-Nitrite		TAL SAV
365.4	Phosphorus, Total		TAL SAV
Total Nitrogen	Nitrogen, Total		TAL SAV

### Protocol References:

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

### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL 912.354.7858

☐ DOD QSM Required?  
☐ Report to MDL with J Flag values?

### Chain of Custody / Analysis Request Form

Report to:		Project identification		Indicate analyses requested		Laboratory ID no.
Company name	Address	Job name	Job number	Job number	Job number	
Surfrider - Kawai	2637 Haganey St.	Mahalegu				
Lihue HI 96766						
City	State	PO number				
808 639-2968	ZIP					
Phone	Fax	Contact email address	Date results needed			
Carl Berg		cborg@pixi.com	8/1/14			
Sampler	# samples in shipment					
4						

Item no.	Client sample ID	Multi Incremental	Composite	Grab	Matrix							Preservation method	Sampling		No. of containers	Laboratory ID no.
					Water	Soil	Wastewater	Drinking water	Sludge	Liquid	Solid		Oil	Other		
1	Mahalegu 1 Bridge			X								Drill	7/13/14	845	1	HXG0027-01
2	Mahalegu 1 Bridge			X								acid	7/13/14	845	1	
3	Mahalegu 2 Gillis well			X				X				chill	7/13/14	830	1	-02
4	Mahalegu 2 - Gillis well			X				V				acid	7/13/14	830	1	
5																
6																
7																
8																
9																
10																

Released by (print / sign)	Date / time released	Delivery method	Received by (print / sign)	Company / Agency affiliation	Date / time received	Condition noted
Carl Berg	7/14/14 12:30	FedEx	Yiput	TA-HON	7/14/1350	3°C water ice

Please check one:  
☐ Dispose by lab  
☐ Return to client  
☐ Archive (fee may apply)



TestAmerica

Destination Laboratory

Destination Laboratory PM (if known)

## Drop Shipment Receipt Checklist

Client Name: Surfrider Kauai

Date/ Time Received: 7/15/14 1350

Received By: Elizabeth Chavez

### Matrices:

### Carrier:

### Airbill# :

Shipping container/cooler in good condition?

Yes ☒ No ☐ Not Present ☐

Chain of Custody present?

Yes ☒ No ☐

Chain of Custody Signed when relinquished and received?

Yes ☒ No ☐

Cooler opened at TestAmerica Honolulu?

Yes ☒ No ☐

Sample containers matched to COC at TestAmerica Honolulu?

Yes ☒ No ☐

Any sample containers obviously broken/damaged upon receipt?

Yes ☐ No ☒

Sample containers on ice?

Yes ☒ No ☐ Type: Wet

Custody seals present? If so, location? (Cooler, sample containers?)

Yes ☒ No ☐

Custody seals intact?

Yes ☒ No ☐

Water - VOA Vials have Zero Headspace?

Yes ☐ No ☒ No VOA vials present: ☒

Water - pH acceptable upon receipt?

Yes ☐ No ☒ Not Checked: ☒

pH Adjusted? Yes ☐ No ☒ Final pH:

Encores / MI-VOC / 5035 Vials Present?

Yes ☐ No ☒

Sample Filtration Needed?

Yes ☐ No ☒ Filtered in Field: ☐

DODQSM / QAPP Project (if known)?

Yes ☐ No ☒ Type:

Temperature Blank Present? Yes ☐ No ☒

Sample Container Temperature: 3 °C

Samples drop shipped on ice?

Yes ☐ No ☐ Type:

Date of drop shipment:

### Comments/ Sampling Handling Notes:

Attachment B, page 28

**FedEx** USA Airbill  
Express

FedEx  
Tracking  
Number

828454235841

1 From Date 7/14/14

Sender's Name Dr Carl Berg Phone 808 639-2968

Company Hawaiian Wildlife Tours

Address 2637 Apogee St

City Lihue State HI ZIP 96766

2 Your Internal Billing Reference

3 To Recipient's Name Jimson Carr Phone 808 4186 5227

Company

Address Text America

To "HOLD" at FedEx location, print FedEx address.

1946 Young Street

City Honolulu State HI ZIP 96826



0200

Recipient's Copy

4a Express Package Service  
☒ FedEx Priority Overnight  
☐ Next business morning  
☐ FedEx Standard Overnight  
☐ Next business afternoon  
☐ FedEx First Overnight  
☐ Earliest next business morning delivery to select locations

☐ FedEx 2Day  
☐ Second business day  
☐ FedEx Express Saver  
☐ Third business day  
☐ NEW FedEx Extra Hours  
☐ Later drop-off with next business afternoon delivery to select locations

4b Express Freight Service  
☐ FedEx 1Day Freight\*  
☐ Next business day  
☐ FedEx 2Day Freight  
☐ Second business day  
☐ FedEx 3Day Freight  
☐ Third business day

5 Packaging  
☐ FedEx Pak\*  
☐ Includes FedEx Small Pak, FedEx Large Pak, and FedEx Surety Pak  
☒ Other Pkg.  
☐ Includes FedEx Box, FedEx Tube, and customer pkg

6 Special Handling  
☐ SATURDAY Delivery  
☐ Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes  
☐ SUNDAY Delivery  
☐ Available only for FedEx Priority Overnight to select ZIP codes  
☐ HOLD Weekday at FedEx Location  
☐ Available only for FedEx Priority Overnight and FedEx 2Day to select locations  
☐ HOLD Saturday at FedEx Location  
☐ Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods?  
☒ No  
☐ Yes  
☐ As per attached Shipper's Declaration  
☐ Dry Ice  
☐ Dry Ice 8, UN 1845  
☐ Cargo Aircraft Only

7 Payment Bill to:  
☒ Sender  
☐ Recipient  
☐ Third Party  
☐ Credit Card  
☐ Cash/Check  
☐ Other (Specify)

Total Packages 1  
 Total Weight 19  
 Total Declared Value\* \$ 100.00  
 Total Charges  
 Credit Card Auth.

8 Release Signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.  
 Questions? Visit our Web site at [fedex.com](http://fedex.com)  
 or call 1-800-Go-FedEx (800)463-3339.  
 Fed. Tax: 12/01-14/01 415511-1199-3007 Fed. + Reg. 11/17 N.J.S.A. 17:27A 4/01

404



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Honolulu

1946 Young St. Suite 400A

Honolulu, HI 96826

Tel: 808-486-5227

TestAmerica Job ID: HXH0034

Client Project/Site: Mahaulepu-2

Client Project Description: Water Quality

For:

Surfrider Foundation, Kauai Chapter

2637 Apapane St.

Lihue, HI 96766

Attn: Carl J. Berg

*Authorized for release by:*

8/26/2014 11:30:30 AM

Craig O. Piliialoha, Project Manager

[Craig.Piliialoha@testamericainc.com](mailto:Craig.Piliialoha@testamericainc.com)

Designee for

Jimson E. Carr, Service Center Manager

808-486-5227

[Jimson.Carr@testamericainc.com](mailto:Jimson.Carr@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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## Definitions/Glossary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

### Qualifiers

#### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery exceeds the control limits
U	Indicates the analyte was analyzed for but not detected.

### Glossary

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



## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

### Job ID: HXH0034

#### Laboratory: TestAmerica Honolulu

##### Narrative

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

#### LABORATORY REPORT

At sample receipt, the cooler/sample was 17 degrees C.

TestAmerica has determined that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

#### Laboratory: TestAmerica Irvine

##### Narrative

Job Narrative  
440-85814-1

##### Comments

No additional comments.

##### Receipt

The samples were received on 8/15/2014 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 2.5° C, 3.0° C, 3.1° C, 3.2° C, 3.3° C and 3.5° C.

##### General Chemistry

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

## Sample Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HXH0034-02	Well	Water - NonPotable	08/10/14 10:45	08/12/14 11:15
HXH0034-03	Stream	Water - NonPotable	08/10/14 10:00	08/12/14 11:15
HXH0034-04	Stream	Water - NonPotable	08/10/14 10:00	08/12/14 11:15

## Detection Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

### Client Sample ID: Well

### Lab Sample ID: HXH0034-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	0.030	J	0.050	0.026	mg/L	1			350.1	Total/NA
Nitrogen, Kjeldahl	0.16	J	0.20	0.15	mg/L	1			351.2	Total/NA
Nitrate Nitrite as N	0.11		0.050	0.010	mg/L	1			353.2	Total/NA
Phosphorus	0.071	J	0.10	0.041	mg/L	1			365.4	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Nitrogen, Total	0.27		0.25	0.25	mg/L	1			Total Nitrogen	Total/NA

### Client Sample ID: Stream

### Lab Sample ID: HXH0034-03

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Total Suspended Solids	55		3.3		mg/L	1			SM 2540D	Total/NA

### Client Sample ID: Stream

### Lab Sample ID: HXH0034-04

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	0.057		0.050	0.026	mg/L	1			350.1	Total/NA
Nitrogen, Kjeldahl	0.53		0.20	0.15	mg/L	1			351.2	Total/NA
Nitrate Nitrite as N	0.25		0.050	0.010	mg/L	1			353.2	Total/NA
Phosphorus	0.066	J	0.10	0.041	mg/L	1			365.4	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Nitrogen, Total	0.78		0.25	0.25	mg/L	1			Total Nitrogen	Total/NA



## Client Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

### Client Sample ID: Well

Date Collected: 08/10/14 10:45

Date Received: 08/12/14 11:15

### Lab Sample ID: HXH0034-02

Matrix: Water - NonPotable

#### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.030	J	0.050	0.026	mg/L			08/18/14 17:12	1
Nitrogen, Kjeldahl	0.16	J	0.20	0.15	mg/L		08/19/14 15:32	08/20/14 11:42	1
Nitrate Nitrite as N	0.11		0.050	0.010	mg/L			08/19/14 12:26	1
Phosphorus	0.071	J	0.10	0.041	mg/L		08/19/14 15:32	08/20/14 11:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	0.27		0.25	0.25	mg/L			08/21/14 14:51	1

### Client Sample ID: Stream

Date Collected: 08/10/14 10:00

Date Received: 08/12/14 11:15

### Lab Sample ID: HXH0034-03

Matrix: Water - NonPotable

#### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	55		3.3		mg/L			08/15/14 13:44	1

### Client Sample ID: Stream

Date Collected: 08/10/14 10:00

Date Received: 08/12/14 11:15

### Lab Sample ID: HXH0034-04

Matrix: Water - NonPotable

#### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.057		0.050	0.026	mg/L			08/18/14 17:12	1
Nitrogen, Kjeldahl	0.53		0.20	0.15	mg/L		08/19/14 15:32	08/20/14 11:45	1
Nitrate Nitrite as N	0.25		0.050	0.010	mg/L			08/19/14 12:28	1
Phosphorus	0.066	J	0.10	0.041	mg/L		08/19/14 15:32	08/20/14 11:45	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	0.78		0.25	0.25	mg/L			08/21/14 14:51	1

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-344705/7

Matrix: Water

Analysis Batch: 344705

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.050	U	0.050	0.026	mg/L			08/18/14 16:51	1

Lab Sample ID: LCS 680-344705/1

Matrix: Water

Analysis Batch: 344705

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.00		mg/L		100	90 - 110

Lab Sample ID: 680-104342-A-4 MS

Matrix: Water

Analysis Batch: 344705

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.040	J	1.00	1.26	F1	mg/L		122	90 - 110

Lab Sample ID: 680-104342-A-4 MSD

Matrix: Water

Analysis Batch: 344705

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	0.040	J	1.00	1.28	F1	mg/L		124	90 - 110	1	30

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 680-344865/2-A

Matrix: Water

Analysis Batch: 345036

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 344865

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.20	U	0.20	0.15	mg/L		08/19/14 15:32	08/20/14 11:41	1

Lab Sample ID: LCS 680-344865/1-A

Matrix: Water

Analysis Batch: 345036

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 344865

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	1.96		mg/L		98	75 - 125

Lab Sample ID: 680-104342-1 MS

Matrix: Water

Analysis Batch: 345036

Client Sample ID: HXH0034-02

Prep Type: Total/NA

Prep Batch: 344865

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	0.16	J	2.00	2.18		mg/L		101	75 - 125

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

## Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 680-104342-1 MSD

Matrix: Water

Analysis Batch: 345036

Client Sample ID: HXH0034-02

Prep Type: Total/NA

Prep Batch: 344865

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	0.16	J	2.00	2.18		mg/L		101	75 - 125	0	40

Lab Sample ID: 680-104342-2 DU

Matrix: Water

Analysis Batch: 345036

Client Sample ID: HXH0034-04

Prep Type: Total/NA

Prep Batch: 344865

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Kjeldahl	0.53		0.529		mg/L		0.2	40

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-344811/13

Matrix: Water

Analysis Batch: 344811

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.050	U	0.050	0.010	mg/L			08/19/14 12:12	1

Lab Sample ID: LCS 680-344811/15

Matrix: Water

Analysis Batch: 344811

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.00	1.01		mg/L		101	90 - 110

Lab Sample ID: 640-48878-A-4 MS

Matrix: Water

Analysis Batch: 344811

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.034	J	1.00	1.03		mg/L		99	90 - 110

Lab Sample ID: 640-48878-A-4 MSD

Matrix: Water

Analysis Batch: 344811

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.034	J	1.00	1.02		mg/L		99	90 - 110	0	10

Lab Sample ID: 640-48878-A-10 DU

Matrix: Water

Analysis Batch: 344811

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate Nitrite as N	0.20		0.198		mg/L		1	10



# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

## Method: 365.4 - Phosphorus, Total

Lab Sample ID: MB 680-344865/2-A  
Matrix: Water  
Analysis Batch: 345035

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 344865

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	0.10	U	0.10	0.041	mg/L		08/19/14 15:32	08/20/14 11:41	1

Lab Sample ID: LCS 680-344865/1-A  
Matrix: Water  
Analysis Batch: 345035

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 344865

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	2.00	2.08		mg/L		104	60 - 140

Lab Sample ID: 680-104342-1 MS  
Matrix: Water  
Analysis Batch: 345035

Client Sample ID: HXH0034-02  
Prep Type: Total/NA  
Prep Batch: 344865

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	0.071	J	2.00	2.08		mg/L		100	60 - 140

Lab Sample ID: 680-104342-1 MSD  
Matrix: Water  
Analysis Batch: 345035

Client Sample ID: HXH0034-02  
Prep Type: Total/NA  
Prep Batch: 344865

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	0.071	J	2.00	2.05		mg/L		99	60 - 140	1	40

Lab Sample ID: 680-104342-2 DU  
Matrix: Water  
Analysis Batch: 345035

Client Sample ID: HXH0034-04  
Prep Type: Total/NA  
Prep Batch: 344865

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Phosphorus	0.066	J	0.0923	J	mg/L		33	40

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

Lab Sample ID: MB 440-200040/2  
Matrix: Water  
Analysis Batch: 200040

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0		mg/L			08/15/14 13:44	1

Lab Sample ID: LCS 440-200040/1  
Matrix: Water  
Analysis Batch: 200040

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	972		mg/L		97	85 - 115

## QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

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

Lab Sample ID: 440-85557-A-2 DU

Matrix: Water

Analysis Batch: 200040

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	470		457		mg/L		2	10

# QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

## General Chemistry

### Analysis Batch: 200040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-85557-A-2 DU	Duplicate	Total/NA	Water	SM 2540D	
HXH0034-03	Stream	Total/NA	Water - NonPotable	SM 2540D	
LCS 440-200040/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-200040/2	Method Blank	Total/NA	Water	SM 2540D	

### Analysis Batch: 344705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-104342-A-4 MS	Matrix Spike	Total/NA	Water	350.1	
680-104342-A-4 MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	
HXH0034-02	Well	Total/NA	Water - NonPotable	350.1	
HXH0034-04	Stream	Total/NA	Water - NonPotable	350.1	
LCS 680-344705/1	Lab Control Sample	Total/NA	Water	350.1	
MB 680-344705/7	Method Blank	Total/NA	Water	350.1	

### Analysis Batch: 344811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-48878-A-4 MS	Matrix Spike	Total/NA	Water	353.2	
640-48878-A-4 MSD	Matrix Spike Duplicate	Total/NA	Water	353.2	
640-48878-A-10 DU	Duplicate	Total/NA	Water	353.2	
HXH0034-02	Well	Total/NA	Water - NonPotable	353.2	
HXH0034-04	Stream	Total/NA	Water - NonPotable	353.2	
LCS 680-344811/15	Lab Control Sample	Total/NA	Water	353.2	
MB 680-344811/13	Method Blank	Total/NA	Water	353.2	

### Prep Batch: 344865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-104342-1 MS	HXH0034-02	Total/NA	Water	Digestion	
680-104342-1 MSD	HXH0034-02	Total/NA	Water	Digestion	
680-104342-2 DU	HXH0034-04	Total/NA	Water	Digestion	
HXH0034-02	Well	Total/NA	Water - NonPotable	Digestion	
HXH0034-04	Stream	Total/NA	Water - NonPotable	Digestion	
LCS 680-344865/1-A	Lab Control Sample	Total/NA	Water	Digestion	
MB 680-344865/2-A	Method Blank	Total/NA	Water	Digestion	

### Analysis Batch: 345035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-104342-1 MS	HXH0034-02	Total/NA	Water	365.4	344865
680-104342-1 MSD	HXH0034-02	Total/NA	Water	365.4	344865
680-104342-2 DU	HXH0034-04	Total/NA	Water	365.4	344865
HXH0034-02	Well	Total/NA	Water - NonPotable	365.4	344865
HXH0034-04	Stream	Total/NA	Water - NonPotable	365.4	344865
LCS 680-344865/1-A	Lab Control Sample	Total/NA	Water	365.4	344865
MB 680-344865/2-A	Method Blank	Total/NA	Water	365.4	344865

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TestAmerica Honolulu



## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

### General Chemistry (Continued)

#### Analysis Batch: 345036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-104342-1 MS	HXH0034-02	Total/NA	Water	351.2	344865
680-104342-1 MSD	HXH0034-02	Total/NA	Water	351.2	344865
680-104342-2 DU	HXH0034-04	Total/NA	Water	351.2	344865
HXH0034-02	Well	Total/NA	Water - NonPotable	351.2	344865
HXH0034-04	Stream	Total/NA	Water - NonPotable	351.2	344865
LCS 680-344865/1-A	Lab Control Sample	Total/NA	Water	351.2	344865
MB 680-344865/2-A	Method Blank	Total/NA	Water	351.2	344865

#### Analysis Batch: 345299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HXH0034-02	Well	Total/NA	Water - NonPotable	Total Nitrogen	
HXH0034-04	Stream	Total/NA	Water - NonPotable	Total Nitrogen	

# Lab Chronicle

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

## Client Sample ID: Well

Date Collected: 08/10/14 10:45

Date Received: 08/12/14 11:15

## Lab Sample ID: HXH0034-02

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	344705	08/18/14 17:12	JME	TAL SAV
Total/NA	Prep	Digestion			344865	08/19/14 15:32	ASH	TAL SAV
Total/NA	Analysis	351.2		1	345036	08/20/14 11:42	AJO	TAL SAV
Total/NA	Analysis	353.2		1	344811	08/19/14 12:26	GRX	TAL SAV
Total/NA	Prep	Digestion			344865	08/19/14 15:32	ASH	TAL SAV
Total/NA	Analysis	365.4		1	345035	08/20/14 11:42	AJO	TAL SAV
Total/NA	Analysis	Total Nitrogen		1	345299	08/21/14 14:51	AJO	TAL SAV

## Client Sample ID: Stream

Date Collected: 08/10/14 10:00

Date Received: 08/12/14 11:15

## Lab Sample ID: HXH0034-03

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	200040	08/15/14 13:44	NTN	TAL IRV

## Client Sample ID: Stream

Date Collected: 08/10/14 10:00

Date Received: 08/12/14 11:15

## Lab Sample ID: HXH0034-04

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	344705	08/18/14 17:12	JME	TAL SAV
Total/NA	Prep	Digestion			344865	08/19/14 15:32	ASH	TAL SAV
Total/NA	Analysis	351.2		1	345036	08/20/14 11:45	AJO	TAL SAV
Total/NA	Analysis	353.2		1	344811	08/19/14 12:28	GRX	TAL SAV
Total/NA	Prep	Digestion			344865	08/19/14 15:32	ASH	TAL SAV
Total/NA	Analysis	365.4		1	345035	08/20/14 11:45	AJO	TAL SAV
Total/NA	Analysis	Total Nitrogen		1	345299	08/21/14 14:51	AJO	TAL SAV

### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

### Laboratory: TestAmerica Honolulu

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

Authority	Program	EPA Region	Certification ID	Expiration Date
USDA	Federal		HON-S-206	01-31-15

### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-14 *
California	LA Cty Sanitation Districts	9	10256	01-31-15
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15
Northern Mariana Islands	State Program	9	MP0002	01-29-15
Oregon	NELAP	10	4005	01-29-15
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

### Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Hawaii	State Program	9	N/A	06-30-15

\* Certification renewal pending - certification considered valid.

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TestAmerica Honolulu

## Method Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-2

TestAmerica Job ID: HXH0034

Method	Method Description	Protocol	Laboratory
350.1	Nitrogen, Ammonia	MCAWW	TAL SAV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
365.4	Phosphorus, Total	EPA	TAL SAV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
Total Nitrogen	Nitrogen, Total	EPA	TAL SAV

### Protocol References:

EPA = US Environmental Protection Agency

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

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

### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



## Chain of Custody / Analysis Request Form

Report to:						Project identification							Indicate analyses requested													
Dr. Carl Berg Sunder Foundation-Kuan 2637 Hapane St. City Lihue State HI ZIP 96766						Job name Maholepu Job number Maholepu-2 PO number Contact email address change@ixi.com																				
Phone 808 635-2968 Fax Sampler Carl Berg # samples in shipment 25 lbs, 4 bottles						Date results needed End of August																				
Item no.	Client sample ID	Multi Incremental	Composite	Grab	Matrix								Preservation method	Sampling		No. of containers									Laboratory ID no.	
					Water	Soil	Wastewater	Drinking water	Sludge	Liquid	Solid	Oil		Other	Date		Time									
1	Well			X									Chill	8/10/14		1										HNAH034-01
2	Well			X									acid	8/10/14		1									-02	
3	Stream			X									Chill	8/10/14		1									-03	
4	Stream			X									acid	8/11/14		1									-04	
5																										
6																										
7																										
8																										
9																										
10																										
Released by (print / sign)		Date / time released		Delivery method		Received by (print / sign)		Company / Agency affiliation		Date / time received		Condition noted														
Carl Berg		8/13/14 1900		FedEx		Jen Jhu		TAMU		8/14/14 1115		River 1702														
		/								/																
		/								/																

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Rush TAT Confirmation (Initial/Date) \_\_\_\_\_

**Sample Receipt Checklist**Client Name: Surfider Foundation Date/ Time Received: 8/2/14 1115Received By: hMatrices: AirCarrier: Fedex

Airbill# :

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of Custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody Signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Type: <u>Wet</u>
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA Vials have Zero Headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials present: <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Checked: <input checked="" type="checkbox"/>
	pH Adjusted? Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Final pH: _____
Encores / MI-VOC / 5035 Vials Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Location: _____
Sample Filtration Needed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Filtered in Field: <input type="checkbox"/>
Dry Weight Corrected Results?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Take Action: <input type="checkbox"/>
DODQSM / QAPP Project?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Type: _____
	Temperature Blank Present? Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
	Sample Container Temperature: _____ °C		

**Comments/ Sampling Handling Notes:**

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Honolulu

4429 Malaai St. #104

Honolulu, HI 96818

Tel: 808-486-5227

TestAmerica Job ID: HXI0033

Client Project/Site: Mahaulepu-3

Client Project Description: Water Quality

Revision: 1

For:

Surfrider Foundation, Kauai Chapter

2637 Apapane St.

Lihue, HI 96766

Attn: Carl J. Berg



Authorized for release by:

10/15/2014 8:47:45 AM

Craig O. Pilialoha, Project Manager

808-486-5227

[Craig.Pilialoha@testamericainc.com](mailto:Craig.Pilialoha@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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## Definitions/Glossary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Qualifiers

#### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery exceeds the control limits
U	Indicates the analyte was analyzed for but not detected.

### Glossary

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

## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

**Job ID: HXI0033**

**Laboratory: TestAmerica Honolulu**

### Narrative

Revision 1: This report includes data analyzed at TestAmerica Savannah. Samples were subcontracted to Savannah for the lower limits we have been historically reporting to the client for this particular project. Data from this report supercedes the data from the previous report.

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

### LABORATORY REPORT

At sample receipt, the cooler/sample was 8 degrees C.

TestAmerica has determined that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

**Laboratory: TestAmerica Irvine**

### Narrative

**Job Narrative**  
**440-88424-1**

### Comments

No additional comments.

### Receipt

The samples were received on 9/18/2014 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

### General Chemistry

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

**Laboratory: TestAmerica Savannah**

### Narrative

## CASE NARRATIVE

**Client: TestAmerica Laboratories, Inc**

**Project: Surfrider Found., Kauai Chapt./HXI0033**

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## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Job ID: HXI0033 (Continued)

Laboratory: TestAmerica Savannah (Continued)

### Report Number: 680-106142-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

#### RECEIPT

The samples were received on 10/10/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.4 C.

#### AMMONIA

Samples HXI0033-01 (680-106142-1) and HXI0033-02 (680-106142-2) were analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 10/10/2014.

Ammonia recovered outside the recovery criteria for the MS/MSD of sample HXI0033-01 (680-106142-1) in batch 680-353057.

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

#### TOTAL KJELDAHL NITROGEN (TKN)

Samples HXI0033-01 (680-106142-1) and HXI0033-02 (680-106142-2) were analyzed for total kjeldahl nitrogen (TKN) in accordance with EPA Method 351.2. The samples were prepared on 10/10/2014 and analyzed on 10/11/2014.

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

#### NITRATE-NITRITE AS NITROGEN

Samples HXI0033-01 (680-106142-1) and HXI0033-02 (680-106142-2) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 10/10/2014.

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

#### TOTAL NITROGEN BY CALCULATION

Samples HXI0033-01 (680-106142-1) and HXI0033-02 (680-106142-2) were analyzed for total nitrogen by calculation in accordance with a calculated method. The samples were analyzed on 10/15/2014.

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

## Sample Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HXI0033-01	Well	Water - NonPotable	09/14/14 09:08	09/16/14 11:38
HXI0033-02	STREAM	Water - NonPotable	09/14/14 09:40	09/16/14 11:38



## Detection Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Client Sample ID: Well

Lab Sample ID: HXI0033-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	0.14		0.050	0.026	mg/L	1			350.1	Total/NA
Nitrogen, Kjeldahl	0.27		0.20	0.15	mg/L	1			351.2	Total/NA
Nitrate Nitrite as N	0.062		0.050	0.010	mg/L	1			353.2	Total/NA
Phosphorus, Total	0.15		0.050	0.020	mg/L	1			365.3	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Nitrogen, Total	0.33		0.25	0.25	mg/L	1			Total Nitrogen	Total/NA

### Client Sample ID: STREAM

Lab Sample ID: HXI0033-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Ammonia	0.097		0.050	0.026	mg/L	1			350.1	Total/NA
Nitrogen, Kjeldahl	0.44		0.20	0.15	mg/L	1			351.2	Total/NA
Nitrate Nitrite as N	0.052		0.050	0.010	mg/L	1			353.2	Total/NA
Phosphorus, Total	0.089		0.050	0.020	mg/L	1			365.3	Total/NA
Total Suspended Solids	32		2.5	1.3	mg/L	1			SM 2540D	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
Nitrogen, Total	0.49		0.25	0.25	mg/L	1			Total Nitrogen	Total/NA

This Detection Summary does not include radiochemical test results.

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TestAmerica Honolulu

## Client Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Client Sample ID: Well

Date Collected: 09/14/14 09:08

Date Received: 09/16/14 11:38

### Lab Sample ID: HXI0033-01

Matrix: Water - NonPotable

#### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.14		0.050	0.026	mg/L			10/10/14 12:36	1
Nitrogen, Kjeldahl	0.27		0.20	0.15	mg/L		10/10/14 14:01	10/11/14 16:57	1
Nitrate Nitrite as N	0.062		0.050	0.010	mg/L			10/10/14 11:49	1
Phosphorus, Total	0.15		0.050	0.020	mg/L		09/22/14 18:02	09/22/14 19:51	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	0.33		0.25	0.25	mg/L			10/15/14 09:01	1

### Client Sample ID: STREAM

Date Collected: 09/14/14 09:40

Date Received: 09/16/14 11:38

### Lab Sample ID: HXI0033-02

Matrix: Water - NonPotable

#### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.097		0.050	0.026	mg/L			10/10/14 12:43	1
Nitrogen, Kjeldahl	0.44		0.20	0.15	mg/L		10/10/14 14:01	10/11/14 16:58	1
Nitrate Nitrite as N	0.052		0.050	0.010	mg/L			10/10/14 11:55	1
Phosphorus, Total	0.089		0.050	0.020	mg/L		09/22/14 18:02	09/22/14 19:51	1
Total Suspended Solids	32		2.5	1.3	mg/L			09/18/14 19:47	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	0.49		0.25	0.25	mg/L			10/15/14 09:01	1

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-353057/2

Matrix: Water

Analysis Batch: 353057

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.050	U	0.050	0.026	mg/L			10/09/14 20:00	1

Lab Sample ID: LCS 680-353057/10

Matrix: Water

Analysis Batch: 353057

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

Lab Sample ID: 680-106142-1 MS

Matrix: Water

Analysis Batch: 353057

Client Sample ID: HXI0033-01

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.14		1.00	1.28	F1	mg/L		114	90 - 110

Lab Sample ID: 680-106142-1 MSD

Matrix: Water

Analysis Batch: 353057

Client Sample ID: HXI0033-01

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	0.14		1.00	1.30	F1	mg/L		116	90 - 110	2	30

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 680-353046/2-A

Matrix: Water

Analysis Batch: 353190

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 353046

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.20	U	0.20	0.15	mg/L		10/10/14 14:01	10/11/14 16:52	1

Lab Sample ID: LCS 680-353046/1-A

Matrix: Water

Analysis Batch: 353190

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 353046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	2.02		mg/L		101	75 - 125

Lab Sample ID: 460-83737-F-1-B MS

Matrix: Water

Analysis Batch: 353190

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 353046

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	1.3		2.00	3.02		mg/L		88	75 - 125

## QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 460-83737-F-1-C MSD

Matrix: Water

Analysis Batch: 353190

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 353046

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	1.3		2.00	3.17		mg/L		95	75 - 125	5	40

### Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-353034/17

Matrix: Water

Analysis Batch: 353034

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.050	U	0.050	0.010	mg/L			10/10/14 11:48	1

Lab Sample ID: LCS 680-353034/14

Matrix: Water

Analysis Batch: 353034

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.00	1.04		mg/L		104	90 - 110

Lab Sample ID: 160-8746-D-1 MS

Matrix: Water

Analysis Batch: 353034

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.10		1.00	0.992		mg/L		99	90 - 110

Lab Sample ID: 160-8746-D-1 MSD

Matrix: Water

Analysis Batch: 353034

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.10		1.00	1.00		mg/L		100	90 - 110	1	10

Lab Sample ID: 680-106142-1 DU

Matrix: Water

Analysis Batch: 353034

Client Sample ID: HXI0033-01

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate Nitrite as N	0.062		0.0612		mg/L		1	10

### Method: 365.3 - Phosphorus, Total

Lab Sample ID: MB 440-207326/1-A

Matrix: Water

Analysis Batch: 207356

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 207326

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus, Total	ND		0.050	0.020	mg/L		09/22/14 18:02	09/22/14 19:50	1

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TestAmerica Honolulu



## QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Method: 365.3 - Phosphorus, Total (Continued)

Lab Sample ID: LCS 440-207326/2-A

Matrix: Water

Analysis Batch: 207356

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 207326

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus, Total	0.500	0.492		mg/L		98	80 - 120

Lab Sample ID: 440-88424-1 MS

Matrix: Water

Analysis Batch: 207356

Client Sample ID: HXI0033-01

Prep Type: Total/NA

Prep Batch: 207326

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus, Total	0.15		0.500	0.588		mg/L		87	75 - 125

Lab Sample ID: 440-88424-1 MSD

Matrix: Water

Analysis Batch: 207356

Client Sample ID: HXI0033-01

Prep Type: Total/NA

Prep Batch: 207326

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus, Total	0.15		0.500	0.582		mg/L		86	75 - 125	1	20

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

Lab Sample ID: MB 440-206773/2

Matrix: Water

Analysis Batch: 206773

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L			09/18/14 19:47	1

Lab Sample ID: LCS 440-206773/1

Matrix: Water

Analysis Batch: 206773

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	991		mg/L		99	85 - 115

Lab Sample ID: 440-88381-B-1 DU

Matrix: Water

Analysis Batch: 206773

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	23		23.5		mg/L		4	10

## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### General Chemistry

#### Analysis Batch: 206773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-88381-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	
HXI0033-02	STREAM	Total/NA	Water - NonPotable	SM 2540D	
LCS 440-206773/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-206773/2	Method Blank	Total/NA	Water	SM 2540D	

#### Prep Batch: 207326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-88424-1 MS	HXI0033-01	Total/NA	Water	365.2/365.3/365	
440-88424-1 MSD	HXI0033-01	Total/NA	Water	365.2/365.3/365	
HXI0033-01	Well	Total/NA	Water - NonPotable	365.2/365.3/365	
HXI0033-02	STREAM	Total/NA	Water - NonPotable	365.2/365.3/365	
LCS 440-207326/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	
MB 440-207326/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	

#### Analysis Batch: 207356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-88424-1 MS	HXI0033-01	Total/NA	Water	365.3	207326
440-88424-1 MSD	HXI0033-01	Total/NA	Water	365.3	207326
HXI0033-01	Well	Total/NA	Water - NonPotable	365.3	207326
HXI0033-02	STREAM	Total/NA	Water - NonPotable	365.3	207326
LCS 440-207326/2-A	Lab Control Sample	Total/NA	Water	365.3	207326
MB 440-207326/1-A	Method Blank	Total/NA	Water	365.3	207326

#### Analysis Batch: 353034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8746-D-1 MS	Matrix Spike	Total/NA	Water	353.2	
160-8746-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	353.2	
680-106142-1 DU	HXI0033-01	Total/NA	Water	353.2	
HXI0033-01	Well	Total/NA	Water - NonPotable	353.2	
HXI0033-02	STREAM	Total/NA	Water - NonPotable	353.2	
LCS 680-353034/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-353034/17	Method Blank	Total/NA	Water	353.2	

#### Prep Batch: 353046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-83737-F-1-B MS	Matrix Spike	Total/NA	Water	Digestion	
460-83737-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Digestion	
HXI0033-01	Well	Total/NA	Water - NonPotable	Digestion	
HXI0033-02	STREAM	Total/NA	Water - NonPotable	Digestion	
LCS 680-353046/1-A	Lab Control Sample	Total/NA	Water	Digestion	
MB 680-353046/2-A	Method Blank	Total/NA	Water	Digestion	

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TestAmerica Honolulu

## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### General Chemistry (Continued)

#### Analysis Batch: 353057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-106142-1 MS	HXI0033-01	Total/NA	Water	350.1	
680-106142-1 MSD	HXI0033-01	Total/NA	Water	350.1	
HXI0033-01	Well	Total/NA	Water - NonPotable	350.1	
HXI0033-02	STREAM	Total/NA	Water - NonPotable	350.1	
LCS 680-353057/10	Lab Control Sample	Total/NA	Water	350.1	
MB 680-353057/2	Method Blank	Total/NA	Water	350.1	

#### Analysis Batch: 353190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-83737-F-1-B MS	Matrix Spike	Total/NA	Water	351.2	353046
460-83737-F-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	351.2	353046
HXI0033-01	Well	Total/NA	Water - NonPotable	351.2	353046
HXI0033-02	STREAM	Total/NA	Water - NonPotable	351.2	353046
LCS 680-353046/1-A	Lab Control Sample	Total/NA	Water	351.2	353046
MB 680-353046/2-A	Method Blank	Total/NA	Water	351.2	353046

#### Analysis Batch: 353641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HXI0033-01	Well	Total/NA	Water - NonPotable	Total Nitrogen	
HXI0033-02	STREAM	Total/NA	Water - NonPotable	Total Nitrogen	

## Lab Chronicle

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Client Sample ID: Well

Date Collected: 09/14/14 09:08

Date Received: 09/16/14 11:38

### Lab Sample ID: HXI0033-01

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	353057	10/10/14 12:36	JME	TAL SAV
Total/NA	Prep	Digestion			353046	10/10/14 14:01	ASH	TAL SAV
Total/NA	Analysis	351.2		1	353190	10/11/14 16:57	AJO	TAL SAV
Total/NA	Analysis	353.2		1	353034	10/10/14 11:49	GRX	TAL SAV
Total/NA	Prep	365.2/365.3/365			207326	09/22/14 18:02	BS	TAL IRV
Total/NA	Analysis	365.3		1	207356	09/22/14 19:51	BS	TAL IRV
Total/NA	Analysis	Total Nitrogen		1	353641	10/15/14 09:01	JER	TAL SAV

### Client Sample ID: STREAM

Date Collected: 09/14/14 09:40

Date Received: 09/16/14 11:38

### Lab Sample ID: HXI0033-02

Matrix: Water - NonPotable

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	353057	10/10/14 12:43	JME	TAL SAV
Total/NA	Prep	Digestion			353046	10/10/14 14:01	ASH	TAL SAV
Total/NA	Analysis	351.2		1	353190	10/11/14 16:58	AJO	TAL SAV
Total/NA	Analysis	353.2		1	353034	10/10/14 11:55	GRX	TAL SAV
Total/NA	Prep	365.2/365.3/365			207326	09/22/14 18:02	BS	TAL IRV
Total/NA	Analysis	365.3		1	207356	09/22/14 19:51	BS	TAL IRV
Total/NA	Analysis	SM 2540D		1	206773	09/18/14 19:47	NTN	TAL IRV
Total/NA	Analysis	Total Nitrogen		1	353641	10/15/14 09:01	JER	TAL SAV

#### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

### Laboratory: TestAmerica Honolulu

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

Authority	Program	EPA Region	Certification ID	Expiration Date
USDA	Federal		HON-S-206	01-31-15

### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-14 *
California	LA Cty Sanitation Districts	9	10256	01-31-15
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15
Northern Mariana Islands	State Program	9	MP0002	01-29-15
Oregon	NELAP	10	4005	01-29-15
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

### Laboratory: TestAmerica Savannah

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Hawaii	State Program	9	N/A	06-30-15

\* Certification renewal pending - certification considered valid.

Attachment B, page 62  
TestAmerica Honolulu

## Method Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu-3

TestAmerica Job ID: HXI0033

Method	Method Description	Protocol	Laboratory
350.1	Nitrogen, Ammonia	MCAWW	TAL SAV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
365.3	Phosphorus, Total	EPA	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
Total Nitrogen	Nitrogen, Total	EPA	TAL SAV

### Protocol References:

EPA = US Environmental Protection Agency

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

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

### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

# Chain of Custody / Analysis Request Form

[illegible]

well under not acid fixed and collected

**Please check one:**

☐ Dispose by lab

☐ Return to client

☐ Archive (fee may apply)

Sample Receipt Checklist

Client Name: SURFRIDER FOUNDATION - KAUAI Date/ Time Received: 09/16/14 11:38 AM

Received By: ELOH NUIKAM

Matrices:

Carrier:

Airbill# :

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of Custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<input type="checkbox"/>
Chain of Custody Signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Type: <u>wet ice</u>
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA Vials have Zero Headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials present: <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Checked: <input checked="" type="checkbox"/> 9/17/14
	pH Adjusted? Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Final pH: _____
Encores / MI-VOC / 5035 Vials Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Location: _____
Sample Filtration Needed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Filtered in Field: <input type="checkbox"/>
Dry Weight Corrected Results?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Take Action: <input type="checkbox"/>
DODQSM / QAPP Project?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Type: _____
Temperature Blank Present? Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	
Sample Container Temperature: <u>8.0</u> °C			

Comments/ Sampling Handling Notes:

Per Client TSS incorrectly checked on -01. TSS removed, TP added instead.  
Sample received unpressured, H2SO4 added at TA HNL. on 9/17/14



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Honolulu

4429 Malaai St. #104

Honolulu, HI 96818

Tel: 808-486-5227

TestAmerica Job ID: HXK0009

Client Project/Site: Mahaulepu, Mahaulepu-4

Client Project Description: Water Quality

For:

Surfrider Foundation, Kauai Chapter

2637 Apapane St.

Lihue, HI 96766

Attn: Carl J. Berg



Authorized for release by:

11/13/2014 4:41:57 PM

Craig O. Pilialoha, Project Manager

808-486-5227

[Craig.Pilialoha@testamericainc.com](mailto:Craig.Pilialoha@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*





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## Definitions/Glossary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

### Qualifiers

#### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

### Glossary

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

## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

**Job ID: HXK0009**

**Laboratory: TestAmerica Honolulu**

### Narrative

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

### LABORATORY REPORT

At sample receipt, the cooler/sample was 21.2 degrees C.

TestAmerica has determined that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

Samples were received already outside of the method specific holding time.

**Laboratory: TestAmerica Irvine**

### Narrative

**Job Narrative**  
**440-92489-1**

### Comments

No additional comments.

### Receipt

The samples were received on 11/6/2014 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

Except:

The following samples were received out of hold for TSS analysis. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: HXK0009-01 (440-92489-1), HXK0009-02 (440-92489-2).

### General Chemistry

Method(s) SM 2540D: The following samples were received outside of holding time: HXK0009-01 (440-92489-1), HXK0009-02 (440-92489-2).

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

Attachment B, page 69

## Sample Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HXK0009-01	WAIOPILI STREAM SITE 2	Water - NonPotable	10/07/14 11:15	11/04/14 16:43
HXK0009-02	WAIOPILI STREAM SITE 2	Water - NonPotable	10/20/14 13:48	11/04/14 16:43



## Detection Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

### Client Sample ID: WAIOPILI STREAM SITE 2

### Lab Sample ID: HXK0009-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	230	H	18		mg/L	1		SM 2540D	Total/NA

### Client Sample ID: WAIOPILI STREAM SITE 2

### Lab Sample ID: HXK0009-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	100	H	7.1		mg/L	1		SM 2540D	Total/NA

## Client Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

**Client Sample ID: WAIOPILI STREAM SITE 2**

**Lab Sample ID: HXK0009-01**

**Date Collected: 10/07/14 11:15**

**Matrix: Water - NonPotable**

**Date Received: 11/04/14 16:43**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	230	H	18		mg/L			11/06/14 18:20	1

**Client Sample ID: WAIOPILI STREAM SITE 2**

**Lab Sample ID: HXK0009-02**

**Date Collected: 10/20/14 13:48**

**Matrix: Water - NonPotable**

**Date Received: 11/04/14 16:43**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	100	H	7.1		mg/L			11/06/14 18:20	1

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

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

Lab Sample ID: MB 440-216850/2

Matrix: Water

Analysis Batch: 216850

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0		mg/L			11/06/14 15:44	1

Lab Sample ID: LCS 440-216850/1

Matrix: Water

Analysis Batch: 216850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	976		mg/L		98	85 - 115

Lab Sample ID: 440-91975-A-1 DU

Matrix: Water

Analysis Batch: 216850

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	76		76.0		mg/L		0	10

## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

### General Chemistry

#### Analysis Batch: 216850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-91975-A-1 DU	Duplicate	Total/NA	Water	SM 2540D	
HXK0009-01	WAIOPILI STREAM SITE 2	Total/NA	Water - NonPotable	SM 2540D	
HXK0009-02	WAIOPILI STREAM SITE 2	Total/NA	Water - NonPotable	SM 2540D	
LCS 440-216850/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-216850/2	Method Blank	Total/NA	Water	SM 2540D	

## Lab Chronicle

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

**Client Sample ID: WAIOPILI STREAM SITE 2**

**Date Collected: 10/07/14 11:15**

**Date Received: 11/04/14 16:43**

**Lab Sample ID: HXK0009-01**

**Matrix: Water - NonPotable**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	216850	11/06/14 18:20	NTN	TAL IRV

**Client Sample ID: WAIOPILI STREAM SITE 2**

**Date Collected: 10/20/14 13:48**

**Date Received: 11/04/14 16:43**

**Lab Sample ID: HXK0009-02**

**Matrix: Water - NonPotable**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	216850	11/06/14 18:20	NTN	TAL IRV

### Laboratory References:

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



## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

### Laboratory: TestAmerica Honolulu

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

Authority	Program	EPA Region	Certification ID	Expiration Date
USDA	Federal		HON-S-206	01-31-15

### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-15
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15
Northern Mariana Islands	State Program	9	MP0002	01-29-15
Oregon	NELAP	10	4005	01-29-15
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

\* Certification renewal pending - certification considered valid.

## Method Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Mahaulepu, Mahaulepu-4

TestAmerica Job ID: HXK0009

Method	Method Description	Protocol	Laboratory
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV

**Protocol References:**

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

**Laboratory References:**

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

☐ DOD QSM Required?  
☐ Report to MDL with J Flag values?

## Chain of Custody / Analysis Request Form

Report to:										Indicate analyses requested		Laboratory ID no.
Project identification												
Company name												
Address												
City												
State												
ZIP												
Phone												
Fax												
# samples in shipment												
Sampler												
Contact email address												
Date results needed												
Matrix												
Preservation method												
Sampling												
Date												
Time												
No. of containers												
Grab												
Composite												
Multi Incremental												
Client sample ID												
Date / time released												
Date / time received												
Received by (print / sign)												
Delivery method												
Company / Agency affiliation												
Condition noted												
1	Waiohiki Stream Site 2	11/3/14 1030	Fed Ex	D. Buchli / D. Buchli	TA HNL	11/4/14 1643	Intact	no ice	2120			HXK0009-01
2	Waiohiki Stream Site 2											-02
3												
4												
5												
6												
7												
8												
9												
10												

**Please check one:**  
☒ Dispose by lab  
☐ Return to client  
☐ Archive (fee may apply)



Rush TAT Confirmation (Initial/Date) \_\_\_\_\_

## Sample Receipt Checklist

Client Name: Surfrider Foundation-Kauai Date/ Time Received: 11/4/14 1643Received By: David BuchliMatrices: AQCarrier: Fed ExAirbill#: 854108371956

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of Custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody Signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers on ice?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Type: _____
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>	
Water - VOA Vials have Zero Headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials present: <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Checked: <input checked="" type="checkbox"/>
	pH Adjusted? Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Final pH: _____
Encores / MI-VOC / 5035 Vials Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Location: _____
Sample Filtration Needed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Filtered in Field: <input type="checkbox"/>
Dry Weight Corrected Results?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Take Action: <input type="checkbox"/>
DODQSM / QAPP Project?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Type: _____

Temperature Blank Present? Yes ☐ No ☒Sample Container Temperature: 21.2 °C

## Comments/ Sampling Handling Notes:

TSS has a hold time of 7-days. Samples received in lab  
already outside of hold time. cp 11-514



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Honolulu

4429 Malaai St. #104

Honolulu, HI 96818

Tel: 808-486-5227

TestAmerica Job ID: HYA0059

Client Project/Site: MAHAULEPU-5

Client Project Description: Water Quality

For:

Surfrider Foundation, Kauai Chapter

2637 Apapane St.

Lihue, HI 96766

Attn: Carl J. Berg



Authorized for release by:

2/6/2015 1:21:08 PM

Craig O. Pilialoha, Project Manager

808-486-5227

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*Results relate only to the items tested and the sample(s) as received by the laboratory.*





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## Definitions/Glossary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### Glossary

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

## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

**Job ID: HYA0059**

**Laboratory: TestAmerica Honolulu**

### Narrative

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

### LABORATORY REPORT

At sample receipt, the cooler/sample was 15.2 degrees C.

TestAmerica has determined that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

**Laboratory: TestAmerica Savannah**

**Narrative**

### CASE NARRATIVE

**Client: TestAmerica Laboratories, Inc**  
**Project: Surfrider Foundation, Kauai Chapter**  
**Report Number: 680-109333-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

### RECEIPT

The samples were received on 01/24/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.1 C.

### AMMONIA

Sample HYA0059-02 (680-109333-1) was analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 01/26/2015.

Ammonia recovered outside the recovery criteria high for the MS/MSD of sample HYA0059-02 (680-109333-1) in batch 680-368449.

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

### TOTAL KJELDAHL NITROGEN (TKN)

Sample HYA0059-02 (680-109333-1) was analyzed for total kjeldahl nitrogen (TKN) in accordance with EPA Method 351.2. The samples were prepared on 01/28/2015 and analyzed on 01/29/2015.

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## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### Job ID: HYA0059 (Continued)

#### Laboratory: TestAmerica Honolulu (Continued)

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

#### NITRATE-NITRITE AS NITROGEN

Sample HYA0059-02 (680-109333-1) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 01/27/2015.

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

#### TOTAL PHOSPHORUS

Sample HYA0059-02 (680-109333-1) was analyzed for total phosphorus in accordance with EPA Method 365.4. The samples were prepared on 01/28/2015 and analyzed on 01/29/2015.

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

#### TOTAL NITROGEN BY CALCULATION

Sample HYA0059-02 (680-109333-1) was analyzed for total nitrogen by calculation in accordance with a calculated method. The samples were analyzed on 01/29/2015.

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

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative  
440-99725-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 1/23/2015 10:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5° C.

#### General Chemistry

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

## Sample Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HYA0059-01	STREAM	Water - NonPotable	01/20/15 08:31	01/21/15 14:35
HYA0059-02	STREAM	Water - NonPotable	01/20/15 08:30	01/21/15 14:35



## Detection Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### Client Sample ID: STREAM

### Lab Sample ID: HYA0059-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	15		1.8		mg/L	1		SM 2540D	Total/NA

### Client Sample ID: STREAM

### Lab Sample ID: HYA0059-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ammonia	0.13		0.050	0.026	mg/L	1		350.1	Total
Nitrogen, Kjeldahl	0.30		0.20	0.10	mg/L	1		351.2	Total
Nitrate Nitrite as N	0.10		0.050	0.010	mg/L	1		353.2	Total
Nitrogen, Total	0.40		0.25	0.25	mg/L	1		Total Nitrogen	Total

## Client Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

**Client Sample ID: STREAM**

**Date Collected: 01/20/15 08:31**

**Date Received: 01/21/15 14:35**

**Lab Sample ID: HYA0059-01**

**Matrix: Water - NonPotable**

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	15		1.8		mg/L			01/27/15 14:10	1

**Client Sample ID: STREAM**

**Date Collected: 01/20/15 08:30**

**Date Received: 01/21/15 14:35**

**Lab Sample ID: HYA0059-02**

**Matrix: Water - NonPotable**

### Method: 350.1 - Nitrogen, Ammonia

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.13		0.050	0.026	mg/L		01/26/15 17:08	01/26/15 17:08	1

### Method: 351.2 - Nitrogen, Total Kjeldahl

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.30		0.20	0.10	mg/L		01/28/15 15:07	01/29/15 11:12	1

### Method: 353.2 - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.10		0.050	0.010	mg/L		01/27/15 16:10	01/27/15 16:10	1

### Method: 365.4 - Phosphorus, Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		0.10	0.041	mg/L		01/28/15 15:07	01/29/15 11:12	1

### Method: Total Nitrogen - Nitrogen, Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Total	0.40		0.25	0.25	mg/L		01/29/15 10:12	01/29/15 10:12	1

## QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

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

Lab Sample ID: MB 440-232308/2

Matrix: Water

Analysis Batch: 232308

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0		mg/L			01/27/15 14:10	1

Lab Sample ID: LCS 440-232308/1

Matrix: Water

Analysis Batch: 232308

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	989		mg/L		99	85 - 115

Lab Sample ID: 440-99622-B-1 DU

Matrix: Water

Analysis Batch: 232308

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	52		53.3		mg/L		2	10

### Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: 368449-20

Matrix: Water

Analysis Batch: 368449

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 368449\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.050	0.026	mg/L		01/26/15 17:31	01/26/15 17:31	1

Lab Sample ID: 368449-24

Matrix: Water

Analysis Batch: 368449

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 368449\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.994		mg/L		99	90 - 110

### Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: 368846-14

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		0.20	0.10	mg/L		01/28/15 15:07	01/29/15 11:11	1

Lab Sample ID: 368846-13

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	2.06		mg/L		103	75 - 125

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TestAmerica Honolulu

## QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 1093331D

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	0.30		2.00	2.19		mg/L		95	75 - 125	6	40

Lab Sample ID: 1093331S

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Matrix Spike

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	0.30		2.00	2.32		mg/L		101	75 - 125		

Lab Sample ID: 368846-19

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Duplicate

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Kjeldahl			1.84		mg/L		13	40

### Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: 368542-13

Matrix: Water

Analysis Batch: 368542

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 368542\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.050	0.010	mg/L		01/27/15 16:01	01/27/15 16:01	1

Lab Sample ID: 368542-16

Matrix: Water

Analysis Batch: 368542

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 368542\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	1.00	1.05		mg/L		105	90 - 110		

### Method: 365.4 - Phosphorus, Total

Lab Sample ID: 368845-14

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Method Blank

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		0.10	0.041	mg/L		01/28/15 15:07	01/29/15 11:11	1

Lab Sample ID: 368845-13

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Lab Control Sample

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	2.00	2.03		mg/L		101	60 - 140		

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TestAmerica Honolulu

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

## Method: 365.4 - Phosphorus, Total (Continued)

Lab Sample ID: 1093331D

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	ND		2.00	1.93		mg/L		96	60 - 140	1	40

Lab Sample ID: 1093331S

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Matrix Spike

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	ND		2.00	1.94		mg/L		97	60 - 140		

Lab Sample ID: 368845-19

Matrix: Water

Analysis Batch: 368695

Client Sample ID: Duplicate

Prep Type: Total

Prep Batch: 368695\_P

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus			0.993		mg/L				3	40



## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### General Chemistry

#### Analysis Batch: 232308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-99622-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	
HYA0059-01	STREAM	Total/NA	Water - NonPotable	SM 2540D	
LCS 440-232308/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-232308/2	Method Blank	Total/NA	Water	SM 2540D	

### TSAV

#### Analysis Batch: 368449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
368449-20	Method Blank	Total	Water	350.1	368449_P
368449-24	Lab Control Sample	Total	Water	350.1	368449_P
HYA0059-02	STREAM	Total	Water - NonPotable	350.1	368449_P

#### Analysis Batch: 368542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
368542-13	Method Blank	Total	Water	353.2	368542_P
368542-16	Lab Control Sample	Total	Water	353.2	368542_P
HYA0059-02	STREAM	Total	Water - NonPotable	353.2	368542_P

#### Analysis Batch: 368695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
1093331D	Matrix Spike Duplicate	Total	Water	351.2	368695_P
1093331D	Matrix Spike Duplicate	Total	Water	365.4	368695_P
1093331S	Matrix Spike	Total	Water	351.2	368695_P
1093331S	Matrix Spike	Total	Water	365.4	368695_P
368845-13	Lab Control Sample	Total	Water	365.4	368695_P
368845-14	Method Blank	Total	Water	365.4	368695_P
368845-19	Duplicate	Total	Water	365.4	368695_P
368846-13	Lab Control Sample	Total	Water	351.2	368695_P
368846-14	Method Blank	Total	Water	351.2	368695_P
368846-19	Duplicate	Total	Water	351.2	368695_P
HYA0059-02	STREAM	Total	Water - NonPotable	351.2	368695_P
HYA0059-02	STREAM	Total	Water - NonPotable	365.4	368695_P

#### Analysis Batch: 368784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HYA0059-02	STREAM	Total	Water - NonPotable	Total Nitrogen	368784_P

#### Prep Batch: 368449\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
368449-20	Method Blank	Total	Water	NA	
368449-24	Lab Control Sample	Total	Water	NA	
HYA0059-02	STREAM	Total	Water - NonPotable	NA	

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TestAmerica Honolulu

## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### TSAV (Continued)

#### Prep Batch: 368542\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
368542-13	Method Blank	Total	Water	NA	
368542-16	Lab Control Sample	Total	Water	NA	
HYA0059-02	STREAM	Total	Water - NonPotable	NA	

#### Prep Batch: 368695\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
1093331D	Matrix Spike Duplicate	Total	Water	Digestion	
1093331S	Matrix Spike	Total	Water	Digestion	
368845-13	Lab Control Sample	Total	Water	Digestion	
368845-14	Method Blank	Total	Water	Digestion	
368845-19	Duplicate	Total	Water	Digestion	
368846-13	Lab Control Sample	Total	Water	Digestion	
368846-14	Method Blank	Total	Water	Digestion	
368846-19	Duplicate	Total	Water	Digestion	
HYA0059-02	STREAM	Total	Water - NonPotable	Digestion	

#### Prep Batch: 368784\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
HYA0059-02	STREAM	Total	Water - NonPotable	NA	

## Lab Chronicle

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

**Client Sample ID: STREAM**

**Date Collected: 01/20/15 08:31**

**Date Received: 01/21/15 14:35**

**Lab Sample ID: HYA0059-01**

**Matrix: Water - NonPotable**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	232308	01/27/15 14:10	NTN	TAL IRV

**Client Sample ID: STREAM**

**Date Collected: 01/20/15 08:30**

**Date Received: 01/21/15 14:35**

**Lab Sample ID: HYA0059-02**

**Matrix: Water - NonPotable**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	350.1		1	368449	01/26/15 17:08	JME	TAL SAV
Total	Prep	NA			368449_P	01/26/15 17:08		TAL SAV
Total	Prep	Digestion			368695_P	01/28/15 15:07		TAL SAV
Total	Analysis	351.2		1	368695	01/29/15 11:12	VAS	TAL SAV
Total	Analysis	353.2		1	368542	01/27/15 16:10	GRX	TAL SAV
Total	Prep	NA			368542_P	01/27/15 16:10		TAL SAV
Total	Prep	Digestion			368695_P	01/28/15 15:07		TAL SAV
Total	Analysis	365.4		1	368695	01/29/15 11:12	VAS	TAL SAV
Total	Analysis	Total Nitrogen		1	368784	01/29/15 10:12	JER	TAL SAV
Total	Prep	NA			368784_P	01/29/15 10:12		TAL SAV

### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL 912.354.7858

## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### Laboratory: TestAmerica Honolulu

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

Authority	Program	EPA Region	Certification ID	Expiration Date
USDA	Federal		HON-S-206	01-31-18

### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-15 *
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15
USEPA UCMR	Federal	1	CA01531	01-31-15

### Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15

\* Certification renewal pending - certification considered valid.

Attachment B, page 94

TestAmerica Honolulu

## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

### Laboratory: TestAmerica Savannah (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15



## Method Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: MAHAULEPU-5

TestAmerica Job ID: HYA0059

Method	Method Description	Protocol	Laboratory
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
350.1	Nitrogen, Ammonia		TAL SAV
351.2	Nitrogen, Total Kjeldahl		TAL SAV
353.2	Nitrogen, Nitrate-Nitrite		TAL SAV
365.4	Phosphorus, Total		TAL SAV
Total Nitrogen	Nitrogen, Total		TAL SAV

### Protocol References:

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

### Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL 912.354.7858

THE LEADER IN ENVIRONMENTAL TESTING

☐ DOD QSM Required?

## Chain of Custody / Analysis Request Form

Report to:

Dr. Carl Berg

Company name

Surfrider Foundation Kona

Address

2637 Haganue St.

City

Lihue

State

HI

ZIP

96766

Phone

808 639-2965

Fax

Sampler

Carl Berg

# samples in shipment

2

Contact email address

cb@pixi.com

Date results needed

2/20/15

Project identification

Mahaulepu

Job name

Mahaulepu

Job number

PO number

Chain of Custody / Analysis Request Form

Item no.

1

Client sample ID

Stream

Multi Incremental

Composite

Grab

X

Matrix

Water

Soil

Wastewater

Drinking water

Sludge

Liquid

Solid

Oil

Other

Preservation method

Chill

Date

1/20/14

Time

8:31

No. of containers

1

Ammonia EPA 350.3

Nitrate-Nitrite EPA 353.2

Nitrogen Total SW 450.2

Phosphorus EPA 363.4

TKN

TSS

Indicate analyses requested

Laboratory ID no.

HYA0059-01

Released by (print / sign)

Carl Berg

Date / time released

1/20/15 12:00

Delivery method

FedEx

Received by (print / sign)

David Buchli

Date / time received

1/21/15 1435

Company / Agency affiliation

TA HUL

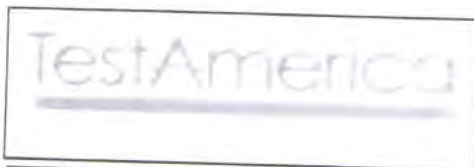
Condition noted

intact gel 15.20C

Attachment B, page 1

**Please check one:**

☒ Dispose by lab  
☐ Return to client  
☐ Archive (fee may apply)



Rush TAT Confirmation (Initial/Date) \_\_\_\_\_

## Sample Receipt Checklist

Client Name: SurfRider Foundation Kawai Date/ Time Received: 1/21/15 1435Received By: David BuchliMatrices: AQCarrier: Fed ExAirbill#: 828454235852

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of Custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody Signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of Custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Type: <u>gel</u>
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA Vials have Zero Headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials present: <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Checked: <input checked="" type="checkbox"/>
Encores / MI-VOC / 5035 Vials Present?	pH Adjusted? Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Final pH: _____
Sample Filtration Needed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Location: _____
Dry Weight Corrected Results?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Filtered in Field: <input type="checkbox"/>
DODQSM / QAPP Project?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Take Action: <input type="checkbox"/>
			Type: _____
Temperature Blank Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Sample Container Temperature: <u>15.2</u> °C			

Comments/ Sampling Handling Notes:



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Irvine

17461 Derian Ave

Suite 100

Irvine, CA 92614-5817

Tel: (949)261-1022

TestAmerica Job ID: 440-104319-1

Client Project/Site: Waipili Stream

For:

Surfrider Foundation, Kauai Chapter

2637 Apapane St

Lihue, Hawaii 96766

Attn: Dr. Carl Berg



Authorized for release by:

3/20/2015 6:37:42 PM

Craig Piliialoha, Project Manager I

(808)486-5227

[craig.piliialoha@testamericainc.com](mailto:craig.piliialoha@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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## Sample Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-104319-1	Waiopili Stream	Water	03/09/15 08:20	03/12/15 10:20
440-104319-2	Waiopili Stream	Water	03/09/15 08:19	03/12/15 10:20
440-104319-3	Waiopili Stream	Water	03/09/15 08:22	03/12/15 10:20

## Case Narrative

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

**Job ID: 440-104319-1**

**Laboratory: TestAmerica Irvine**

### Narrative

#### Job Narrative 440-104319-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/12/2015 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.1° C, 3.5° C and 3.8° C.

Except:

Had to split into (x2) 40ml Amber Voas w/ SOTH, from a 1lt Amber unpreserved to analysis.

PM's email note:

Surfrider Foundation - use project 44012663. The malathion request will be sent to Denver. The Glyphosate request will be done in Irvine (547). The client is located on Kauai and he did not have the proper containers for the latter two. Please note this on the NCM. For glyphosate please leave a note to preserve at the lab in the appropriate 60mL VOA.

#### GC/MS Semi VOA

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

#### GC Semi VOA

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

#### General Chemistry

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

#### Organic Prep

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 268230

Method: 3510C

Analysis: 8141A/B

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

# Client Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

## Client Sample ID: Waiopili Stream

Date Collected: 03/09/15 08:20

Date Received: 03/12/15 10:20

## Lab Sample ID: 440-104319-1

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	8.6		1.3	0.63	mg/L			03/13/15 16:35	1

## Client Sample ID: Waiopili Stream

Date Collected: 03/09/15 08:19

Date Received: 03/12/15 10:20

## Lab Sample ID: 440-104319-2

Matrix: Water

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.25	0.10	mg/L		03/17/15 15:30	03/17/15 16:36	1
Nitrogen, Kjeldahl	0.40		0.20	0.10	mg/L		03/17/15 12:03	03/18/15 11:22	1
Nitrate Nitrite as N	0.069		0.050	0.010	mg/L			03/14/15 13:46	1
Phosphorus	0.062	J	0.10	0.041	mg/L		03/17/15 12:03	03/18/15 11:22	1
Nitrogen, Total	0.47		0.25	0.25	mg/L			03/17/15 09:30	1

## Client Sample ID: Waiopili Stream

Date Collected: 03/09/15 08:22

Date Received: 03/12/15 10:20

## Lab Sample ID: 440-104319-3

Matrix: Water

### Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Malathion	ND		2.1	0.14	ug/L		03/16/15 17:55	03/18/15 22:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Chlormefos	58		49 - 171				03/16/15 17:55	03/18/15 22:12	1
Triphenylphosphate	68		60 - 154				03/16/15 17:55	03/18/15 22:12	1

### Method: 547 - Glyphosate (DAI HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0	3.0	ug/L			03/18/15 14:40	1

## Method Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

Method	Method Description	Protocol	Laboratory
8141B	Organophosphorous Compounds by Gas Chromatography, Capillary Column Technique	SW846	TAL DEN
547	Glyphosate (DAI HPLC)	EPA	TAL IRV
350.1	Nitrogen, Ammonia	MCAWW	TAL SAV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
365.4	Phosphorus, Total	EPA	TAL SAV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL IRV
Total Nitrogen	Nitrogen, Total	EPA	TAL SAV

### Protocol References:

EPA = US Environmental Protection Agency

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

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

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

### Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Lab Chronicle

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### Client Sample ID: Waiopili Stream

Date Collected: 03/09/15 08:20

Date Received: 03/12/15 10:20

### Lab Sample ID: 440-104319-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	800 mL	1000 mL	242621	03/13/15 16:35	NTN	TAL IRV

### Client Sample ID: Waiopili Stream

Date Collected: 03/09/15 08:19

Date Received: 03/12/15 10:20

### Lab Sample ID: 440-104319-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/Ammonia			6 mL	6 mL	375028	03/17/15 15:30	JME	TAL SAV
Total/NA	Analysis	350.1		1	6 mL	6 mL	375073	03/17/15 16:36	JME	TAL SAV
Total/NA	Prep	Digestion			20 mL	20 mL	374959	03/17/15 12:03	JER	TAL SAV
Total/NA	Analysis	351.2		1	20 mL	20 mL	375136	03/18/15 11:22	JER	TAL SAV
Total/NA	Analysis	353.2		1	2 mL	2 mL	374669	03/14/15 13:46	GRX	TAL SAV
Total/NA	Prep	Digestion			20 mL	20 mL	374959	03/17/15 12:03	JER	TAL SAV
Total/NA	Analysis	365.4		1	20 mL	20 mL	375135	03/18/15 11:22	JER	TAL SAV
Total/NA	Analysis	Total Nitrogen		1			374910	03/17/15 09:30	JER	TAL SAV

### Client Sample ID: Waiopili Stream

Date Collected: 03/09/15 08:22

Date Received: 03/12/15 10:20

### Lab Sample ID: 440-104319-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			972.5 mL	2 mL	268230	03/16/15 17:55	AH1	TAL DEN
Total/NA	Analysis	8141B		1	972.5 mL	2 mL	268487	03/18/15 22:12	AMP	TAL DEN
Total/NA	Analysis	547		1	1 mL		243578	03/18/15 14:40	DD	TAL IRV

#### Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

## Method: 8141B - Organophosphorous Compounds by Gas Chromatography, Capillary Column

### Technique

Lab Sample ID: MB 280-268230/1-A

Matrix: Water

Analysis Batch: 268487

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 268230

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Malathion	ND		2.0	0.13	ug/L		03/16/15 17:55	03/19/15 01:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Chlormefos	67		49 - 171				03/16/15 17:55	03/19/15 01:02	1
Triphenylphosphate	81		60 - 154				03/16/15 17:55	03/19/15 01:02	1

Lab Sample ID: LCS 280-268230/2-A

Matrix: Water

Analysis Batch: 268487

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 268230

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Malathion	4.00	2.87		ug/L		72	39 - 117
Surrogate	%Recovery	Qualifier	Limits				
Chlormefos	85		49 - 171				
Triphenylphosphate	84		60 - 154				

Lab Sample ID: LCSD 280-268230/3-A

Matrix: Water

Analysis Batch: 268487

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 268230

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Malathion	4.00	2.69		ug/L		67	39 - 117	6	25
Surrogate	%Recovery	Qualifier	Limits						
Chlormefos	72		49 - 171						
Triphenylphosphate	80		60 - 154						

## Method: 547 - Glyphosate (DAI HPLC)

Lab Sample ID: MB 440-243578/8

Matrix: Water

Analysis Batch: 243578

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Glyphosate	ND		6.0	3.0	ug/L			03/18/15 13:04	1

Lab Sample ID: LCS 440-243578/1005

Matrix: Water

Analysis Batch: 243578

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Glyphosate	25.0	26.8		ug/L		107	70 - 130

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

## Method: 547 - Glyphosate (DAI HPLC) (Continued)

Lab Sample ID: LCSD 440-243578/6

Matrix: Water

Analysis Batch: 243578

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Glyphosate	25.0	24.7		ug/L		99	70 - 130	8	30

Lab Sample ID: 550-41160-K-1 MS

Matrix: Water

Analysis Batch: 243578

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Glyphosate	ND		25.0	25.4		ug/L		102	70 - 130

## Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-375028/1-A

Matrix: Water

Analysis Batch: 375073

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 375028

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.25	0.10	mg/L		03/17/15 15:30	03/17/15 17:12	1

Lab Sample ID: LCS 680-375028/2-A

Matrix: Water

Analysis Batch: 375073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 375028

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.948		mg/L		95	90 - 110

Lab Sample ID: LCSD 680-375028/3-A

Matrix: Water

Analysis Batch: 375073

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 375028

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	1.00	1.00		mg/L		100	90 - 110	5	30

Lab Sample ID: 680-110635-J-1-B MS

Matrix: Water

Analysis Batch: 375073

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 375028

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	ND		1.00	1.04		mg/L		104	90 - 110

Lab Sample ID: 680-110635-J-1-C MSD

Matrix: Water

Analysis Batch: 375073

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 375028

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	ND		1.00	1.02		mg/L		102	90 - 110	2	30

Attachment B, page 107

TestAmerica Irvine

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

## Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 680-110707-N-1-B DU

Matrix: Water

Analysis Batch: 375073

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 375028

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Ammonia	ND		ND		mg/L		NC	30

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 680-374959/1-A

Matrix: Water

Analysis Batch: 375136

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 374959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		0.20	0.10	mg/L		03/17/15 12:03	03/18/15 11:20	1

Lab Sample ID: LCS 680-374959/2-A

Matrix: Water

Analysis Batch: 375136

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	2.00	2.11		mg/L		105	75 - 125

Lab Sample ID: 440-104319-2 MS

Matrix: Water

Analysis Batch: 375136

Client Sample ID: Waiopili Stream

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	0.40		2.00	2.54		mg/L		107	75 - 125

Lab Sample ID: 440-104319-2 MSD

Matrix: Water

Analysis Batch: 375136

Client Sample ID: Waiopili Stream

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Nitrogen, Kjeldahl	0.40		2.00	2.39		mg/L		99	75 - 125	6	40

Lab Sample ID: 660-65862-C-1-B DU

Matrix: Water

Analysis Batch: 375136

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrogen, Kjeldahl	0.40		0.385		mg/L		3	40

## Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-374669/13

Matrix: Water

Analysis Batch: 374669

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.050	0.010	mg/L			03/14/15 13:38	1

# QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

## Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-374669/16

Matrix: Water

Analysis Batch: 374669

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	1.00	1.04		mg/L		104	90 - 110

Lab Sample ID: 680-110682-I-1 MS

Matrix: Water

Analysis Batch: 374669

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.011	J	1.00	0.969		mg/L		96	90 - 110

Lab Sample ID: 680-110682-I-1 MSD

Matrix: Water

Analysis Batch: 374669

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	0.011	J	1.00	0.967		mg/L		96	90 - 110	0	10

## Method: 365.4 - Phosphorus, Total

Lab Sample ID: MB 680-374959/1-A

Matrix: Water

Analysis Batch: 375135

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 374959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		0.10	0.041	mg/L		03/17/15 12:03	03/18/15 11:20	1

Lab Sample ID: LCS 680-374959/2-A

Matrix: Water

Analysis Batch: 375135

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	2.00	2.09		mg/L		104	60 - 140

Lab Sample ID: 440-104319-2 MS

Matrix: Water

Analysis Batch: 375135

Client Sample ID: Waiopili Stream

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	0.062	J	2.00	2.13		mg/L		103	60 - 140

Lab Sample ID: 440-104319-2 MSD

Matrix: Water

Analysis Batch: 375135

Client Sample ID: Waiopili Stream

Prep Type: Total/NA

Prep Batch: 374959

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	0.062	J	2.00	2.11		mg/L		102	60 - 140	1	40

## QC Sample Results

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### Method: 365.4 - Phosphorus, Total (Continued)

Lab Sample ID: 660-65862-C-1-B DU  
Matrix: Water  
Analysis Batch: 375135

Client Sample ID: Duplicate  
Prep Type: Total/NA  
Prep Batch: 374959

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Phosphorus	0.35		0.352		mg/L	-	1	40

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

Lab Sample ID: MB 440-242621/2  
Matrix: Water  
Analysis Batch: 242621

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.50	mg/L	-		03/13/15 16:35	1

Lab Sample ID: LCS 440-242621/1  
Matrix: Water  
Analysis Batch: 242621

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	1000	1020		mg/L	-	102	85 - 115

Lab Sample ID: 440-104399-B-1 DU  
Matrix: Water  
Analysis Batch: 242621

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Suspended Solids	220		234		mg/L	-	4	10

## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### GC Semi VOA

#### Prep Batch: 268230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-3	Waiopili Stream	Total/NA	Water	3510C	
LCS 280-268230/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-268230/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 280-268230/1-A	Method Blank	Total/NA	Water	3510C	

#### Analysis Batch: 268487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-3	Waiopili Stream	Total/NA	Water	8141B	268230
LCS 280-268230/2-A	Lab Control Sample	Total/NA	Water	8141B	268230
LCSD 280-268230/3-A	Lab Control Sample Dup	Total/NA	Water	8141B	268230
MB 280-268230/1-A	Method Blank	Total/NA	Water	8141B	268230

### HPLC/IC

#### Analysis Batch: 243578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-3	Waiopili Stream	Total/NA	Water	547	
550-41160-K-1 MS	Matrix Spike	Total/NA	Water	547	
LCS 440-243578/1005	Lab Control Sample	Total/NA	Water	547	
LCSD 440-243578/6	Lab Control Sample Dup	Total/NA	Water	547	
MB 440-243578/8	Method Blank	Total/NA	Water	547	

### General Chemistry

#### Analysis Batch: 242621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-1	Waiopili Stream	Total/NA	Water	SM 2540D	
440-104399-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	
LCS 440-242621/1	Lab Control Sample	Total/NA	Water	SM 2540D	
MB 440-242621/2	Method Blank	Total/NA	Water	SM 2540D	

#### Analysis Batch: 374669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	353.2	
680-110682-I-1 MS	Matrix Spike	Total/NA	Water	353.2	
680-110682-I-1 MSD	Matrix Spike Duplicate	Total/NA	Water	353.2	
LCS 680-374669/16	Lab Control Sample	Total/NA	Water	353.2	
MB 680-374669/13	Method Blank	Total/NA	Water	353.2	

#### Analysis Batch: 374910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	Total Nitrogen	

#### Prep Batch: 374959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	Digestion	
440-104319-2 MS	Waiopili Stream	Total/NA	Water	Digestion	
440-104319-2 MSD	Waiopili Stream	Total/NA	Water	Digestion	
660-65862-C-1-B DU	Duplicate	Total/NA	Water	Digestion	
LCS 680-374959/2-A	Lab Control Sample	Total/NA	Water	Digestion	

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TestAmerica Irvine



## QC Association Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### General Chemistry (Continued)

#### Prep Batch: 374959 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-374959/1-A	Method Blank	Total/NA	Water	Digestion	

#### Prep Batch: 375028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	Distill/Ammonia	
680-110635-J-1-B MS	Matrix Spike	Total/NA	Water	Distill/Ammonia	
680-110635-J-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	Distill/Ammonia	
680-110707-N-1-B DU	Duplicate	Total/NA	Water	Distill/Ammonia	
LCS 680-375028/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	
LCSD 680-375028/3-A	Lab Control Sample Dup	Total/NA	Water	Distill/Ammonia	
MB 680-375028/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	

#### Analysis Batch: 375073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	350.1	375028
680-110635-J-1-B MS	Matrix Spike	Total/NA	Water	350.1	375028
680-110635-J-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	350.1	375028
680-110707-N-1-B DU	Duplicate	Total/NA	Water	350.1	375028
LCS 680-375028/2-A	Lab Control Sample	Total/NA	Water	350.1	375028
LCSD 680-375028/3-A	Lab Control Sample Dup	Total/NA	Water	350.1	375028
MB 680-375028/1-A	Method Blank	Total/NA	Water	350.1	375028

#### Analysis Batch: 375135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	365.4	374959
440-104319-2 MS	Waiopili Stream	Total/NA	Water	365.4	374959
440-104319-2 MSD	Waiopili Stream	Total/NA	Water	365.4	374959
660-65862-C-1-B DU	Duplicate	Total/NA	Water	365.4	374959
LCS 680-374959/2-A	Lab Control Sample	Total/NA	Water	365.4	374959
MB 680-374959/1-A	Method Blank	Total/NA	Water	365.4	374959

#### Analysis Batch: 375136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-104319-2	Waiopili Stream	Total/NA	Water	351.2	374959
440-104319-2 MS	Waiopili Stream	Total/NA	Water	351.2	374959
440-104319-2 MSD	Waiopili Stream	Total/NA	Water	351.2	374959
660-65862-C-1-B DU	Duplicate	Total/NA	Water	351.2	374959
LCS 680-374959/2-A	Lab Control Sample	Total/NA	Water	351.2	374959
MB 680-374959/1-A	Method Blank	Total/NA	Water	351.2	374959

## Definitions/Glossary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### Qualifiers

#### General Chemistry

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

### Glossary

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

## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-15
Arizona	State Program	9	AZ0671	10-13-15
California	LA Cty Sanitation Districts	9	10256	01-31-16 *
California	State Program	9	2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-16
Hawaii	State Program	9	N/A	01-29-16
Nevada	State Program	9	CA015312007A	07-31-15
New Mexico	State Program	6	N/A	01-29-15 *
Northern Mariana Islands	State Program	9	MP0002	01-29-15 *
Oregon	NELAP	10	4005	01-29-16
USDA	Federal		P330-09-00080	06-06-15

### Laboratory: TestAmerica Denver

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-15
A2LA	ISO/IEC 17025		2907.01	10-31-15
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	04-05-15 *
Arizona	State Program	9	AZ0713	12-19-15
Arkansas DEQ	State Program	6	88-0687	06-01-15
California	State Program	9	2513	08-31-16
Connecticut	State Program	1	PH-0686	09-30-16
Florida	NELAP	4	E87667	06-30-15
Georgia	State Program	4	N/A	01-09-15 *
Illinois	NELAP	5	200017	04-30-15 *
Iowa	State Program	7	370	11-30-16
Kansas	NELAP	7	E-10166	04-30-15 *
Louisiana	NELAP	6	02096	06-30-15
Maine	State Program	1	CO0002	03-03-17
Minnesota	NELAP	5	8-999-405	12-31-15
Nevada	State Program	9	CO0026	07-31-15
New Hampshire	NELAP	1	205310	04-28-15
New Jersey	NELAP	2	CO004	06-30-15
New York	NELAP	2	11964	03-31-15 *
North Carolina (VW/SW)	State Program	4	358	12-31-15
North Dakota	State Program	8	R-034	01-09-16
Oklahoma	State Program	6	8614	08-31-15
Oregon	NELAP	10	4025	01-09-16
Pennsylvania	NELAP	3	68-00664	07-30-15
South Carolina	State Program	4	72002001	06-30-15
Texas	NELAP	6	T104704183-13-8	09-30-15
USDA	Federal		P330-13-00202	07-02-16
Utah	NELAP	8	CO00026	07-31-15
Virginia	NELAP	3	460232	06-14-15
Washington	State Program	10	C583	08-03-15
West Virginia DEP	State Program	3	354	11-30-15
Wisconsin	State Program	5	999615430	08-31-15
Wyoming (UST)	A2LA	8	2907.01	10-31-15

\* Certification renewal pending - certification considered valid.

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TestAmerica Irvine

## Certification Summary

Client: Surfrider Foundation, Kauai Chapter  
Project/Site: Waiopili Stream

TestAmerica Job ID: 440-104319-1

### Laboratory: TestAmerica Savannah

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

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-17
A2LA	ISO/IEC 17025		399.01	02-28-17
Alabama	State Program	4	41450	06-30-15
Arkansas DEQ	State Program	6	88-0692	01-31-16
California	State Program	9	2939	07-31-15
Colorado	State Program	8	N/A	12-31-15
Connecticut	State Program	1	PH-0161	03-31-15 *
Florida	NELAP	4	E87052	06-30-15
GA Dept. of Agriculture	State Program	4	N/A	06-12-17
Georgia	State Program	4	N/A	06-30-15
Georgia	State Program	4	803	06-30-15
Guam	State Program	9	14-004r	04-16-15 *
Hawaii	State Program	9	N/A	06-30-15
Illinois	NELAP	5	200022	11-30-15
Indiana	State Program	5	N/A	06-30-15
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-15
Kentucky (UST)	State Program	4	18	06-30-15
Kentucky (WW)	State Program	4	90084	12-31-15
Louisiana	NELAP	6	30690	06-30-15
Louisiana (DW)	NELAP	6	LA150014	12-31-15
Maine	State Program	1	GA00006	09-24-16
Maryland	State Program	3	250	12-31-15
Massachusetts	State Program	1	M-GA006	06-30-15
Michigan	State Program	5	9925	06-30-15
Mississippi	State Program	4	N/A	06-30-15
Montana	State Program	8	CERT0081	12-31-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-15
New Jersey	NELAP	2	GA769	06-30-15
New Mexico	State Program	6	N/A	06-30-15
New York	NELAP	2	10842	03-31-15 *
North Carolina (DW)	State Program	4	13701	07-31-15
North Carolina (WW/SW)	State Program	4	269	12-31-15
Oklahoma	State Program	6	9984	08-31-15
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-15
South Carolina	State Program	4	98001	06-30-15
Tennessee	State Program	4	TN02961	06-30-15
Texas	NELAP	6	T104704185-14-7	11-30-15
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia (DW)	State Program	3	9950C	12-31-15
West Virginia DEP	State Program	3	094	06-30-15
Wisconsin	State Program	5	999819810	08-31-15
Wyoming	State Program	8	8TMS-L	06-30-15

\* Certification renewal pending - certification considered valid.

Attachment B, page 115  
TestAmerica Irvine



440-494300 Chain of Custody

Job # 313115

Honolulu  
4429 Malaai Street, #104 • Honolulu, HI 96818  
808-486-LABS (5227) • Fax 808-486-2456

LABORATORY USE ONLY

LAB JOB NO. \_\_\_\_\_

- ☐ DOD QSM Required?  
☐ Report to MDL with J Flag values?

## Chain of Custody / Analysis Request Form

Report to:		Project identification		Indicate analyses requested		Laboratory ID no.				
Company name	Job name	Job number	Date results needed	Ammonia EPA 350.3	Nitrate-Nitrite EPA 353.2	Nitrogen Total EPA 350.4	Phosphorus EPA 350.4	TKN EPA 351.2	TSS EPA 160.2	Melatonin + Residue
Address	Job number	PO number	Contact email address	Grab	Matrix	Preservation method	Sampling	No. of containers		
City	State	ZIP		Water	Soil	Wastewater	Drinking water	Liquid	Solid	Other
Phone	Fax	# samples in shipment								
Sampler										
1	Waipili Stream			X			Chill	24/15 820	1	
2	Waipili Stream			X			Chill	3/9/15 819	1	
3	Waipili Stream			X			Chill	3/4/15 822	2	
4										
5										
6										
7										
8										
9										
10										

Released by (print / sign)	Date / time released	Delivery method	Received by (print / sign)	Company / Agency affiliation	Date / time received	Condition noted
David Buchta / N.D.	3/10/15 11:51	Fed Ex	David Buchta / N.D.	TA HNL	3/10/15 11:57	Intact wet 20C
David Buchta / N.D.	3/11/15 11:35	Fed Ex	David Buchta / N.D.	TAI	3/11/15 10:20	

Comments: Fed. 773106812229

- Please check one:  
☐ Dispose by lab  
☐ Return to client  
☐ Archive (fee may apply)

Yellow - Client

White - TestAmerica

COC REV 09/2014

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## Login Sample Receipt Checklist

Client: Surfrider Foundation, Kauai Chapter

Job Number: 440-104319-1

**Login Number: 104319**

**List Source: TestAmerica Irvine**

**List Number: 1**

**Creator: Soderblom, Tim**

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

Attachment B, page 117



## Login Sample Receipt Checklist

Client: Surfrider Foundation, Kauai Chapter

Job Number: 440-104319-1

Login Number: 104319

List Number: 3

Creator: Conquest, Tyler W

List Source: TestAmerica Denver

List Creation: 03/14/15 01:38 PM

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

Attachment B, page 118

## Login Sample Receipt Checklist

Client: Surfrider Foundation, Kauai Chapter

Job Number: 440-104319-1

Login Number: 104319

List Number: 2

Creator: Elliot, William J

List Source: TestAmerica Savannah

List Creation: 03/14/15 10:22 AM

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

Attachment B, page 119

## **DECLARATION OF DR. CARL J. BERG, Ph.D.**

I, Carl J. Berg, hereby declare under penalty of perjury as follows:

1. I am over the age of eighteen and am competent to make this Declaration. All topics discussed herein are based on my personal knowledge and experience. I submit this Declaration in support of the Friends of Maha'lepu's Petition to have the Waiopili Stream listed as an impaired waterway pursuant to Section 303(d) of the Clean Water Act, as well as to have the Stream immediately posted as dangerous for human health.
2. I am a professional ecologist and environmental educator. In 1971 I was awarded a Ph.D in zoology from the University of Hawaii. After receiving my doctorate, I taught as a professor at the City College of New York. I was also a research scientist at Harvard University, Marine Biological Laboratory in Woods Hole, and at the Florida Marine Research Institute. I returned to Hawaii in 1990. I was Chief Scientist for the Hanalei Watershed Hui, which was awarded an Environmental Achievement Award from the U.S. Environmental Protection Agency, received a Certificate of Recognition for its contribution to sustainably manage coral reefs by the U.S. Coral Reef Task Force and received DLNR's Hawaii's Living Reef Award for 2006. The National Resource Defense Council named me the national "Beach Hero" of the year in 2007 for outstanding efforts and leadership in combating beachwater contamination and improving beachwater monitoring in Kauai. The Kauai Group of the Sierra Club awarded me the Environmentalist of the Year for 2010. The Surfrider Foundation presented me with their 2011 Waverider Award for Distinguished Service.
3. A short biography and my resume are attached hereto.
4. I began water quality monitoring as a graduate student in Tomales Bay, CA back in 1966 and tried to correlate it to lack of reproductive success of oysters. Most of my scientific research has been on reproductive strategies of marine animals. I moved to Kauai and in 1991 found employment as an Environmental Scientist IV with the Clean Water Branch of the Hawaii Department of Health. I monitored water quality in the streams and ocean around Kauai following the protocols established by CWB. I was assigned special investigative projects dealing with submarine groundwater discharge on Maui but most of my efforts were focused on documenting water quality on Kauai. I left that position in 1993 and did not resume water testing until 1999, setting up a volunteer monitoring program in Hanalei Bay. I became the Chief Scientist of the Hanalei Watershed Hui and managed a collaborative research and monitoring program until 2007. I then began the Blue Water Task Force (BWTF) of the Kauai Chapter of the Surfrider Foundation, monitoring water quality of beaches, surfbreaks and streams around the island. I was also employed under contract from the CWB to assist in sampling beach water quality along the north shore. In addition I have advised other Surfrider chapters and community groups on how to set up water quality monitoring programs. CWB hired us in 2013-2014 to study the estuarine discharge into Hanalei Bay. I have had a long and close association with the CWB.

5. I am presently Chair of the Executive Committee of the Kaua'i Chapter of the Surfrider Foundation and head of its BWTF. In my role at Surfrider, I have been obtaining monthly water quality samples from the Waiopili Stream as part of our "Blue Water Task Force" or "BWTF," as well as additional samples with summer student interns. The purpose of this sampling is, in part, to illuminate some of the serious water quality issues that need to be addressed on the Island.
6. The BWTF includes a team of volunteers that are specially trained in water quality sampling procedures. I teach each volunteer how to obtain water samples using commonly accepted QA/QC techniques as described on the Surfrider website, <http://www.surfrider.org/blue-water-task-force>.
7. These volunteers – myself included – obtain water samples from waters across Kaua'i, typically on the second Saturday of each month. Samples are collected, immediately put on ice, and then delivered to one of two "runners," who deliver the sampling packages to my home.
8. Once samples arrive at my home, they are immediately placed into an ice chest. Once they arrive at my home, which also doubles as my laboratory, I record salinity values and process the samples following techniques described in the BWTF webpage and by IDEXX. Samples are placed into IDEXX Quanti-Tray 2000; after 24 hours of incubation, I remove the samples and record the number of large and small cells that grow. I then record the MNP derived from the IDEXX table, and enter that data into the BWTF QA/QC spreadsheets. I can also derive the geometric mean values for each site. All data entry is completed within two hours of recording counts.
9. After data is recorded and compiled, it is entered into the national Surfrider Foundation BWTF secure website and the Kaua'i Chapter's website. Data is usually available to the public the day after sampling.
10. The BWTF has been sampling in and near the Waiopili Stream since 2014 and reporting the data to the CWB. Based on the data that I collected and recorded, and will attest to for accuracy, the beach waters at Mahaulepu (DOH Site #847) and Waiopili Stream are both impaired. CWB stream samples confirmed that the waters were polluted, and yet CWB failed to regularly monitor the stream at the beach and, importantly, the beach waters themselves. Thus, we continued sampling throughout the year.
11. The Clean Water Branch of DOH lacks the resources or the will to collect data on impaired stream and estuarine waters, and must rely on sampling data collected by groups like the BWTF. With its limited funding and personnel, the CWB just samples the ocean water at the most popular beaches.
12. I provide monthly e-mails to DOH Clean Water Branch personnel containing the enterococcus results and, sometimes, other results obtained from the Waiopili Stream. These personnel are also aware that results are also posted on the publically available Surfrider websites. [www.kauai.surfrider.org](http://www.kauai.surfrider.org)

13. Yearly summary results of the BWTF data and the CWB data for Kauai are published in Kauai's local newspaper "The Garden Island" so that the whole community can be aware of the water quality problems on Kauai. The CWB is aware of these summaries.

14. I am appalled at the water quality in Waiopili Stream. The enterococcus results we have obtained over the past year puts the Stream as by far the most contaminated water on Kauai. The results are two orders of magnitude greater than the water quality standards promulgated by the DOH for enterococcus.

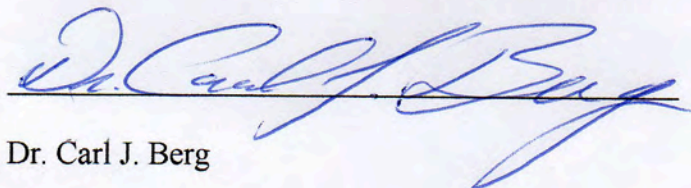
15. I suffered a serious leg infection which I believe was caused by exposure to this contaminated water during a sampling event.

16. In addition to the enterococcus results, I have also obtained some nutrient and TSS concentration data from samples provided to TestAmerica. That data was previously submitted to DOH as well.

17. I have previously requested that this stream be posted as dangerous to human health, as well as listed on the State's 303(d) impaired waters list. I frequently witness families, including small children, recreating in and near this Stream where it discharges into the ocean near Gillin's House. Absent immediate posting, DOH is putting human health at risk by continuing to allow individuals to come into contact with this highly polluted waterway. BWTF has offered to purchase and post signs for the CWB.

I DECLARE UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE  
AND CORRECT TO THE BEST OF MY KNOWLEDGE.

DATED THIS 27<sup>th</sup> DAY OF APRIL, 2015, IN LIHUE, HAWAII.



Dr. Carl J. Berg



## **Dr. Carl J. Berg, Jr.**

Dr. Carl J. Berg, Jr. is a professional ecologist, environmental educator and wildlife tour leader. He was awarded a Ph.D. in zoology from the University of Hawaii (1971) and was a university professor (City College of New York) and research scientist (Harvard University, Marine Biological Laboratory in Woods Hole, and Florida Marine Research Inst.) before returning to Hawaii in 1990. He worked for the Hawaii Dept. of Health, monitoring water quality in the ocean and streams from 1991 to 1993, before establishing Hawaiian Wildlife Tours. In addition to tours, the company does research, environmental education projects (e.g., website development, computerized bibliographies, videos), classroom teaching, water quality monitoring, and contract bird surveys.

He was Chief Scientist for the Hanalei Watershed Hui, which was awarded an Environmental Achievement Award from the U.S. Environmental Protection Agency, received a Certificate of Recognition for its contribution to sustainably manage coral reefs by the U.S. Coral Reef Task Force and received DLNR's Hawaii's Living Reef Award for 2006. The Hanalei Watershed Hui was a recipient of an E.P.A. Targeted Watershed Initiative grant to implement changes in the watershed to improve water quality in the streams, estuaries and on the coral reefs. It was a recipient of an American Heritage Rivers Initiative grant from the U. S. Forest Service for work in the forested upper watershed and a grant from the National Oceanographic Atmospheric Administration for a community based fisheries habitat restoration grant to improve stream habitat for endemic Hawaiian fishes and to rebuild an estuarine Hawaiian fishpond as nursery habitat for coastal fishes. The National Fish and Wildlife Foundation funded a Watershed Approach to Pollution Mitigation in Hanalei Bay. The Okolehao Trail Restoration Program was funded by the Hawaii Tourism Authority, NOAA, EPA Environmental Education Program, and Kilauea Point Natural History Association. He has numerous scientific publications resulting from all of this work.

His work on coral reef protection through taro field discharge management was initially funded by NOAA, NRCS, Castle Foundation, and Tesoro Hawaii Corp., through a National Fish and Wildlife Foundation grant. It was later funded by NOAA through the Coral Reef Local Action Strategy Program. He participated in the 2008 NOAA national workshop "Responding to Climate Change: A workshop for Coral Reef Managers".

He is currently involved in a USFWS grant for fish habitat restoration, a grant from Hawaii Community Foundation for mangrove removal in Niumalu, an EPA/DOH grant to monitor pollution discharge from all streams entering Hanalei Bay and a DOH/NOAA/DLNR grant to monitor and remove Japanese tsunami marine debris. Through Surfrider Foundation's Blue Water Task Force volunteers he monitors water quality at beaches and streams throughout Kauai.

He has been a volunteer officer on the board of directors of Kilauea Point Natural History Association, Kilauea Neighborhood Association, 1000 Friends of Kauai, Surfrider Foundation-Kauai Chapter, and Princeville Agricultural Community Association. He has over 500 hours as a volunteer at Kilauea Pt. National Wildlife Refuge. He was a founding member of the Hawaiian Island Humpback Whale Sanctuary Advisory Council. He is a member of professional organizations (Ecological Society of America, The Explorers Club), birding associations (American Birding Assoc., National Audubon Society) and local organizations (Hawaii Audubon Society, Hui o Laka, and KAHEA).

He was nominated for Hawaii's Governor Cayetano's Kilohana Award for Outstanding Volunteerism, and Mayor Baptiste's Pu'uwai Aloha. Gov. Lingle twice appointed him to the state's Legacy Land Conservation Commission (2007-2009, 2009-2013). The National Resource Defense Council named him the national "Beach Hero" of the year in 2007 for his outstanding efforts and leadership in combating beachwater contamination and improving beachwater monitoring in Kauai. The Kauai Group of the Sierra Club awarded him the Environmentalist of the Year for 2010. The Surfrider Foundation presented him with their 2011 Waverider Award for Distinguished Service.



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** FWD email correspondence with DOH #1  
**Date:** April 20, 2015 6:15:23 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

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----- Original Message -----

**Subject:**FW: Koloa Dairy Farm  
**Date:**Wed, 5 Mar 2014 13:47:19 -1000  
**From:**Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>  
**To:**<[cberg@pixi.com](mailto:cberg@pixi.com)>  
**CC:**Ueunten, Gary R. <[gary.ueunten@doh.hawaii.gov](mailto:gary.ueunten@doh.hawaii.gov)>

Carl,

We cannot force someone to take an NPDES permit when there is no discharge but if a discharge occurs then the person is facing enforcement action. So it would be smart to get a permit to cover his ass. But this has not happened. This will be interesting.

Watson

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**From:** Ueunten, Gary R.  
**Sent:** Wednesday, March 05, 2014 12:15 PM  
**To:** Okubo, Watson T  
**Subject:** FW: Koloa Dairy Farm

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**From:** Robert Zelkovsky [<mailto:Robert@bamboomoonvideo.com>]  
**Sent:** Tuesday, March 04, 2014 5:18 PM  
**To:** Gill, Gary L.  
**Cc:** Ueunten, Gary R.  
**Subject:** Koloa Dairy Farm

Aloha Gary -

Two members of the Executive Committee of the Kaua'i Chapter of The Surfrider Foundation, Dr. Carl Berg and myself, attended the recent presentation by the Hawai'i Dairy Farm at the Kaua'i Community College organized by Kaua'i Planning and Action Alliance. Both of us came away with more questions than were answered and both of us saw the potential for severe environmental damage due to the large nature of this project and the poor planning that has gone into this project.

The dairy will consist of 1800 "small" cows on over 500 acres at Maha`ulepu, the most pristine accessible area on Kaua`i and possibly in the State. It is based on dairy farm techniques currently being done in New Zealand.

It has been estimated that this type of cow will produce 80lbs of manure and 6-8 gallons of urine per day which results in 144,000 pounds of manure and around 11,000 gallons of urine every day deposited on the 500 acres. Hawai`i Dairy says that 8% will be deposited on their cemented area while the cows are being milked. This will be washed into holding pens which they say are built to withstand 25 year rain events. They don't know the rain! The remaining 92% onto the fields. When asked by Carl what is the soil percolation and permeability and the groundwater flow direction they said they did not know. They have worked on this project as "farmers" for 5 years and they do not know their own soil! They showed a map of the area with an arrow marking the prevailing winds. They showed the wind coming from the north with the smells going straight out to sea. The prevailing wind comes from the east-north-east blowing smells towards Maha`ulepu Beach, the Hyatt and residential areas. They don't know their wind!

This mono-crop model for agriculture is not environmentally friendly. The last dairy on Kaua`i was at Moloa`a. It closed several years ago for several reasons. One reason, and the straw that broke the cows back, was the constant urine and fecal smells that were present in the stream on a neighboring estate property (two miles away). The New Zealand Parliament recently said about dairy farms and their environment:

*"There are now numerous reports over a long period of time by government agencies and regional statutory bodies that have identified the adverse environmental effects of agriculture, and especially intensive dairy farming. These reports all point to the fact that agriculture in general, and dairy farming in particular, has failed to meet the intent of Parliament as established by the requirements of ss.15 and 17 of the RMA. The issue has now progressed to the point where public opinion surveys have established that water quality is now perceived as New Zealand's most significant environmental issue and that intensive agriculture is perceived to be the primary cause of the problem".*

The Executive Committee of the Surfrider Foundation Kaua`i Chapter is asking The State to require a NPDES permit with public hearings before the dairy farm is allowed to operate. We believe there is great potential here environmental damage to the ground water and close by ocean, coral, reef and marine life.

Sincerely,

Dr Robert A. Zelkovsky  
Surfrider Kauai Chair

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #2  
**Date:** April 20, 2015 6:15:52 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

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----- Original Message -----

**Subject:** Re: FW: Koloa Dairy Farm  
**Date:** Wed, 05 Mar 2014 18:32:40 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>

I am strongly advising their consultants that they have the Dairy come in and apply for an NPDES, with public meetings.

On 3/5/2014 1:47 PM, Okubo, Watson T wrote:

Carl,

We cannot force someone to take an NPDES permit when there is no discharge but if a discharge occurs then the person is facing enforcement action. So it would be smart to get a permit to cover his ass. But this has not happened. This will be interesting.

Watson

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**From:** Ueunten, Gary R.  
**Sent:** Wednesday, March 05, 2014 12:15 PM  
**To:** Okubo, Watson T  
**Subject:** FW: Koloa Dairy Farm

---

**From:** Robert Zelkovsky [<mailto:Robert@bamboomoonvideo.com>]  
**Sent:** Tuesday, March 04, 2014 5:18 PM  
**To:** Gill, Gary L.  
**Cc:** Ueunten, Gary R.  
**Subject:** Koloa Dairy Farm

Aloha Gary -

Two members of the Executive Committee of the Kaua'i Chapter of The Surfrider Foundation, Dr. Carl Berg and myself, attended the recent presentation by the Hawai'i Dairy Farm at the Kaua'i Community College organized by Kaua'i Planning and Action Alliance. Both of us came away with more questions than were answered and both of us saw the

potential for severe environmental damage due to the large nature of this project and the poor planning that has gone into this project.

The dairy will consist of 1800 "small" cows on over 500 acres at Maha`ulepu, the most pristine accessible area on Kaua`i and possibly in the State. It is based on dairy farm techniques currently being done in New Zealand.

It has been estimated that this type of cow will produce 80lbs of manure and 6-8 gallons of urine per day which results in 144,000 pounds of manure and around 11,000 gallons of urine every day deposited on the 500 acres. Hawai`i Dairy says that 8% will be deposited on their cemented area while the cows are being milked. This will be washed into holding pens which they say are built to withstand 25 year rain events. They don't know the rain! The remaining 92% onto the fields. When asked by Carl what is the soil percolation and permeability and the groundwater flow direction they said they did not know. They have worked on this project as "farmers" for 5 years and they do not know their own soil! They showed a map of the area with an arrow marking the prevailing winds. They showed the wind coming from the north with the smells going straight out to sea. The prevailing wind comes from the east-north-east blowing smells towards Maha`ulepu Beach, the Hyatt and residential areas. They don't know their wind!


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*"There are now numerous reports over a long period of time by government agencies and regional statutory bodies that have identified the adverse environmental effects of agriculture, and especially intensive dairy farming. These reports all point to the fact that agriculture in general, and dairy farming in particular, has failed to meet the intent of Parliament as established by the requirements of ss.15 and 17 of the RMA. The issue has now progressed to the point where public opinion surveys have established that water quality is now perceived as New Zealand's most significant environmental issue and that intensive agriculture is perceived to be the primary cause of the problem".*

The Executive Committee of the Surfrider Foundation Kaua`i Chapter is asking The State to require a NPDES permit with public hearings before the dairy farm is allowed to operate. We believe there is great potential here environmental damage to the ground water and close by ocean, coral, reef and marine life.

Sincerely,

Dr Robert A. Zelkovsky  
Surfrider Kauai Chair

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #42 repeat?  
**Date:** April 20, 2015 8:50:53 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 26 KB

----- Original Message -----

**Subject:** Surfrider results

**Date:** Sun, 09 Mar 2014 13:34:55 -1000

**From:** Carl Berg <cberg@pixi.com>

**To:** Watson <watson.okubo@doh.hawaii.gov>, Gary Ueunten <gary.ueunten@doh.hawaii.gov>

It had been raining quite a bit and the influence of stream runoff was quite obvious.

Remember, if there is brown runoff, it is polluted.

Special thanks to new samplers Kim Exon and John Strom for getting Kaha Lani and Hanamaulu samples, respectively.

Thanks also for Phil, for going out to Mahaulepu to get a sample near Gillin's house, before the dairy goes in. Counts were way high by the stream!

Surfrider Kauai Blue Water Task Force				
March 8, 2013				
Enterococcus bacterial concentration per 100 ml				
Site			Single day	Last 5 month's
			results	geomean
Waiohai			<10	2.3
PK's			<10	3.1
Salt Pond			<10	9.0
Waikoko			<10	15.7
Kalihiwai			<10	23.2
Kealia			10	5.2
Anahola			10	17.3
Kapa'a County Beach Park			10	19
Bowl			10	29.8
Kaha Lani			20	na
Pinetrees			31	26.0
Kalapaki Bay			52	46.1

Middles			63	56.4
Rock Quarry			110	46.2
Moloa'a			110	74.4
Wainiha Stream			364	224.9
Nawiliwili Stream			1043	781.9
Hanamaulu Stream			1043	922.4
Waimea River			1211	1046.3
Pakalas - stream area			1455	448.3
Niumalu County Beach Park			1670	3134.7
Koloa Landing			3076	1719.8
Mahalulepu - Gillin's			3255	na
Single day sample should be <104				
Geomean of samples should be <35				



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #3  
**Date:** April 20, 2015 6:20:22 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

## Note Mahaulepu stream and Gillins beach sample mention and # given

----- Original Message -----

**Subject:** BWTF results

**Date:** Sun, 13 Apr 2014 12:14:46 -1000

**From:** Carl Berg <cberg@pixi.com>

**To:** Watson <watson.okubo@doh.hawaii.gov>, Gary Ueunten <gary.ueunten@doh.hawaii.gov>

Little rain, high wind, and some surf made for clean ocean water in most places.  
Streams still filthy, including the one out at Mahaulepu.  
Remember to wash off after coming out of the water!  
Mahalo to everyone for going out and getting the samples!

Surfrider Kauai Blue Water Task Force

April 12, 2013

Enterococcus bacterial concentration per 100 ml

Site	Single day results	Last 5 month's geomean
Waikoko	nt	15.7
Kalapaki Bay	nt	46.1
Middles	nt	56.4
Waiohai	<10	2.3
PK's	<10	2.9
Kealia	<10	4.5
Kaha Lani	<10	6.8
Salt Pond	<10	7.2
Anahola	<10	10.5
Kapa'a County Beach Park	<10	13.4
Rock Quarry	<10	25.3
Moloa'a	<10	31.2
Kalihiwai	10	20.2

Pinetrees	20	24.9
Waimea River	20	541.6
Bowl	52	33.3
Wainiha Stream	63	181.9
Nawiliwili Stream	315	671.9
Pakalas - stream area	465	451.1
Niumalu County Beach Park	520	2323.6
Mahalulepu - Gillin's Beach	520	1301.0
Hanamaulu Stream	738	888.7
Koloa Landing	910	1546.7
Mahalulepu Stream	5794	
Single day sample should be <104		
Geomean of samples should be <35		

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #4  
**Date:** April 20, 2015 6:34:17 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Mahaulepu samples?  
**Date:** Thu, 10 Jul 2014 16:35:34 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Gary Ueunten <[gary.ueunten@doh.hawaii.gov](mailto:gary.ueunten@doh.hawaii.gov)>

Surfrider is sampling weekly in front of the Gillin's house and at the little bridge over the stream at the Cave Reserve. Geometric mean count for Enterococcus at bridge is 9074 and in front of Gillin's it is 679. Gillin's is a vacation rental and they have a very shallow (10') cesspool just mauka of the house.

If I collect a sample from each location can you have the Lihue lab run tests for Entero and Clostridium? I will sample whatever day is most convenient for the lab.

Or, you are invited to come out and sample.

Carl

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #5  
**Date:** April 20, 2015 6:35:42 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Mahaulepu sampling  
**Date:** Wed, 23 Jul 2014 14:16:31 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Gary Ueunten <[gary.ueunten@doh.hawaii.gov](mailto:gary.ueunten@doh.hawaii.gov)>, Watson <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>, Jan Ishibashi <[Jan.Ishibashi@doh.hawaii.gov](mailto:Jan.Ishibashi@doh.hawaii.gov)>

Aloha everyone,  
My enterococcus counts for Waiopili stream at Mahulepu on Sunday were 24,196 and >24,196. This is at the bridge at the Makauwahi cave reserve. My counts for in front of Gillin's DOH Site# 847 was 2613. The geomean for the past 8 samples is 695

Can Jan to Entero and Clostridium on samples from those 2 sites? I can collect and deliver whichever day is most convenient, or Gary can go out there.

Mahalo, Carl

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #6  
**Date:** April 20, 2015 6:36:20 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: Mahaulepu sampling  
**Date:** Wed, 23 Jul 2014 14:52:12 -1000  
**From:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>, Ueunten, Gary R. <[gary.ueunten@doh.hawaii.gov](mailto:gary.ueunten@doh.hawaii.gov)>, Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>

Carl,

Can you collect the samples and drop off?

Watson

-----Original Message-----

From: Carl Berg [<mailto:cberg@pixi.com>]  
Sent: Wednesday, July 23, 2014 2:17 PM  
To: Ueunten, Gary R.; Okubo, Watson T; Ishibashi, Jan M.  
Subject: Mahaulepu sampling

Aloha everyone,

My enterococcus counts for Waiopili stream at Mahulepu on Sunday were 24,196 and >24,196. This is at the bridge at the Makauwahi cave reserve.

My counts for in front of Gillin's DOH Site# 847 was 2613. The geomean for the past 8 samples is 695

Can Jan to Entero and Clostridium on samples from those 2 sites? I can collect and deliver whichever day is most convenient, or Gary can go out there.

Mahalo, Carl

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #7  
**Date:** April 20, 2015 6:36:53 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Re: Mahaulepu sampling  
**Date:** Wed, 23 Jul 2014 15:00:44 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>

Definitely, Jan and I just wanted to make sure of your approval to do so. I will coordinate with her for day.

I am afraid the cesspool, which is shallow and just 100 yds back from water, and is used for vacation rental, may be contaminating the water right in front. Probably all of the Enterococcus is coming from the stream, but not positive.

On 7/23/2014 2:52 PM, Okubo, Watson T wrote:

> Carl,  
>  
> Can you collect the samples and drop off?  
>  
> Watson  
>  
>  
> -----Original Message-----  
> From: Carl Berg [<mailto:cberg@pixi.com>]  
> Sent: Wednesday, July 23, 2014 2:17 PM  
> To: Ueunten, Gary R.; Okubo, Watson T; Ishibashi, Jan M.  
> Subject: Mahaulepu sampling  
>  
> Aloha everyone,  
> My enterococcus counts for Waipili stream at Mahulepu on Sunday were  
> 24,196 and 24,196. This is at the bridge at the Makauwahi cave  
> reserve.  
> My counts for in front of Gillin's DOH Site# 847 was 2613. The geometric  
> for the past 8 samples is 695  
>  
> Can Jan do Enterococcus and Clostridium on samples from those 2 sites? I can  
> collect and deliver whichever day is most convenient, or Gary can go out  
> there.  
> Mahalo, Carl  
>  
>



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #7  
**Date:** April 20, 2015 6:37:39 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: Mahaulepu  
**Date:** Mon, 28 Jul 2014 06:56:37 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

Hi Carl,

How about this Wednesday, 7/30/14.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

-----Original Message-----

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Friday, July 25, 2014 6:34 AM  
**To:** Ishibashi, Jan M.  
**Subject:** Mahaulepu

Which day next week would be best to bring you 2 samples from Mahaulepu for Ent and Cp testing ?  
Carl

Sent from my iPad

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #8  
**Date:** April 20, 2015 8:23:58 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

On 7/28/2014 1:11 PM, Carl Berg wrote:

Thanks Jan,  
Some other stuff has come up so I can't do this Wed., so how about  
next Monday or Wed.?  
Carl

On 7/28/2014 6:56 AM, Ishibashi, Jan M. wrote:

Hi Carl,

How about this Wednesday, 7/30/14.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

-----Original Message-----

From: Carl Berg [mailto:cberg@pixi.com]  
Sent: Friday, July 25, 2014 6:34 AM  
To: Ishibashi, Jan M.  
Subject: Mahaulepu

Which day next week would be best to bring you 2 samples from Mahaulepu  
for Ent and Cp testing ?

Carl

Sent from my iPad

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #10  
**Date:** April 20, 2015 6:38:40 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Re: Mahaulepu  
**Date:** Mon, 28 Jul 2014 14:56:11 -1000  
**From:** Carl Berg <cberg@pixi.com>  
**To:** Ishibashi, Jan M. <jan.ishibashi@doh.hawaii.gov>

Yes, thank you. I will stop by and get bottles beforehand. I will get the 2 samples to you, with TB, TE, early

On 7/28/2014 2:11 PM, Ishibashi, Jan M. wrote:

> How about next week Wednesday, August 6th.  
>  
> Jan Ishibashi  
> Hawaii Department of Health  
> Kauai District Health Laboratory  
> 3040 Umi Street  
> Lihue, HI 96766  
> (808) 241-3353 (Phone) (808) 241-3480 (Fax)  
>

> -----Original Message-----

> From: Carl Berg [mailto:cberg@pixi.com]  
> Sent: Monday, July 28, 2014 1:12 PM  
> To: Ishibashi, Jan M.  
> Subject: Re: Mahaulepu  
>

> Thanks Jan,  
> Some other stuff has come up so I can't do this Wed., so how about next  
> Monday or Wed.?  
> Carl  
>

> On 7/28/2014 6:56 AM, Ishibashi, Jan M. wrote:

>  
>> Hi Carl,  
>>  
>> How about this Wednesday, 7/30/14.  
>>  
>> Jan Ishibashi  
>> Hawaii Department of Health  
>> Kauai District Health Laboratory

>> 3040 Umi Street  
>> Lihue, HI 96766  
>> (808) 241-3353 (Phone) (808) 241-3480 (Fax)  
>>  
>>  
>> -----Original Message-----  
>> From: Carl Berg [<mailto:cberg@pixi.com>]  
>> Sent: Friday, July 25, 2014 6:34 AM  
>> To: Ishibashi, Jan M.  
>> Subject: Mahaulepu  
>>  
>> Which day next week would be best to bring you 2 samples from  
>>  
> Mahaulepu  
>  
>> for Ent and Cp testing ?  
>> Carl  
>>  
>> Sent from my iPad  
>>  
>>  
>>  
>  
>  
>

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #11  
**Date:** April 20, 2015 8:24:38 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

On 8/5/2014 5:51 PM, Carl Berg wrote:

Thanks for reminding me.

On 8/5/2014 2:49 PM, Ishibashi, Jan M. wrote:

Hi Carl,

If you remember, please bring two of your quanti-trays.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #12  
**Date:** April 20, 2015 6:41:13 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

Mistake it is #12

----- Original Message -----

**Subject:** Quanti-tray insert snf MPN Table  
**Date:** Wed, 6 Aug 2014 11:24:08 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

Hi Carl,

Please bring the Quanti-tray insert and MPN Table.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #13  
**Date:** April 20, 2015 6:42:06 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Re: Quanti-tray insert snf MPN Table  
**Date:** Wed, 06 Aug 2014 20:37:19 -1000  
**From:** Carl Berg <cberg@pixi.com>  
**To:** Ishibashi, Jan M. <jan.ishibashi@doh.hawaii.gov>

Was out in the field all day and just got your message. Were you able to seal the tray ?  
What time will the samples be finished? I can come by with the MPN tables.

On 8/6/2014 11:24 AM, Ishibashi, Jan M. wrote:

Hi Carl,

Please bring the Quanti-tray insert and MPN Table.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #14  
**Date:** April 20, 2015 6:42:29 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Non potable results  
**Date:** Thu, 7 Aug 2014 11:43:55 -1000  
**From:** Oshiro, Carlene K. <[carlene.oshiro@doh.hawaii.gov](mailto:carlene.oshiro@doh.hawaii.gov)>  
**To:** <[cberg@pixi.com](mailto:cberg@pixi.com)>

Hi Carl,

Following are the results for waters collected 8/6/14

	Clostridium perfringens MF/100
mLs	Enterococcus/100 mL
Stream	> 50 3,320
Gillin's 14	100

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #15  
**Date:** April 20, 2015 6:42:48 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu  
**Date:** Thu, 7 Aug 2014 14:46:41 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

The Clostridia count is 105/100mL.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Thursday, August 07, 2014 1:53 PM  
**To:** Ishibashi, Jan M.  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu

You have a more accurate Cp count than >50? How bad is it?

----- Original Message -----

**Subject:** Non potable results  
**Date:** Thu, 7 Aug 2014 11:43:55 -1000  
**From:** Oshiro, Carlene K. <[carlene.oshiro@doh.hawaii.gov](mailto:carlene.oshiro@doh.hawaii.gov)>  
**To:** <[cberg@pixi.com](mailto:cberg@pixi.com)>

Hi Carl,

Following are the results for waters collected 8/6/14

	Clostridium perfringens MF/100
mLs	Enterococcus/100 mL

Stream

> 50

3,320

Gillin's

14

100

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #16  
**Date:** April 20, 2015 6:43:09 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:**Re: \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu  
**Date:**Thu, 07 Aug 2014 15:37:38 -1000  
**From:**Carl Berg <cberg@pixi.com>  
**To:**Ishibashi, Jan M. <jan.ishibashi@doh.hawaii.gov>

Thought you were out sick! Thanks

On 8/7/2014 2:46 PM, Ishibashi, Jan M. wrote:

The Clostridia count is 105/100mL.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Thursday, August 07, 2014 1:53 PM  
**To:** Ishibashi, Jan M.  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu

You have a more accurate Cp count than >50? How bad is it?

----- Original Message -----

**Subject:**Non potable results  
**Date:**Thu, 7 Aug 2014 11:43:55 -1000  
**From:**Oshiro, Carlene K. <carlene.oshiro@doh.hawaii.gov>  
**To:**<cberg@pixi.com>

Hi Carl,

Following are the results for waters collected 8/6/14

mLs	Clostridium perfringens MF/100
	Enterococcus/100 mL
Stream	> 50
	3,320
Gilllin's	
14	100



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #17  
**Date:** April 20, 2015 6:43:29 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: \*\*\*\*\*SPAM\*\*\*\*\* Re: \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu  
**Date:** Thu, 7 Aug 2014 16:23:50 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

Hey,

I was. I am , but too much is happening in preparation for the storms, so I dragged myself in.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Thursday, August 07, 2014 3:38 PM  
**To:** Ishibashi, Jan M.  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Re: \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu

Thought you were out sick! Thanks

On 8/7/2014 2:46 PM, Ishibashi, Jan M. wrote:  
The Clostridia count is 105/100mL.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Thursday, August 07, 2014 1:53 PM  
**To:** Ishibashi, Jan M.  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu

You have a more accurate Cp count than >50? How bad is it?


----- Original Message -----

**Subject:**Non potable results  
**Date:**Thu, 7 Aug 2014 11:43:55 -1000  
**From:**Oshiro, Carlene K. <[carlene.oshiro@doh.hawaii.gov](mailto:carlene.oshiro@doh.hawaii.gov)>  
**To:**<[cberg@pixi.com](mailto:cberg@pixi.com)>

Hi Carl,

Following are the results for waters collected 8/6/14

mLs	Clostridium perfringens MF/100	
	Enterococcus/100 mL	
Stream	> 50	3,320
Gillin's		
14		100

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #18  
**Date:** April 20, 2015 6:45:50 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

2 Attachments, 2.4 MB

---

----- Original Message -----

**Subject:** Nutrient results

**Date:** Wed, 27 Aug 2014 19:06:33 -1000

**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

**To:** Watson <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>, [sina.pruder@doh.hawaii.gov](mailto:sina.pruder@doh.hawaii.gov)


Attached are the results of testing the stream water (Waipili Stream)  
and well water at the Gillin's House in Mahaulepu.



[Mahaulepu...s.pdf \(1.1 MB\)](#)



[Mahaulepu...s.pdf \(1.3 MB\)](#)

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #18  
**Date:** April 20, 2015 6:48:35 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 26 KB

----- Original Message -----

**Subject:** Surfrider results

**Date:** Mon, 15 Sep 2014 13:32:57 -1000

**From:** Carl Berg <cberg@pixi.com>

**To:** Watson <watson.okubo@doh.hawaii.gov>, Gary Ueunten <gary.ueunten@doh.hawaii.gov>

Everything in ocean real clear and clean. Streams are yucky. Still no warning signs. Remember to rinse off after coming out of the water!

Surfrider Kauai Blue Water Task Force				
September 13, 2014				
Enterococcus bacterial concentration per 100 ml				
Site			Single day	Site Year
			results	geomean
Waikoko			na	20.0
Moloa'a			na	28.2
Waiohai			<10	2.8
PK's			<10	2.8
Kealia			<10	3.9
Salt Pond			<10	4.5
Kapa'a County Beach Park			<10	5.2
Kaha Lani			<10	5.4
Rock Quarry			<10	6.1
Kalihiwai			<10	6.5
Pinetrees			<10	6.6
Anahola			<10	7.6
Horner's			<10	na

Bowl			10	19.2
Waimea River			10	236.4
Middles			20	23.8
Kalapaki Bay			20	33.3
Wainiha Stream			31	88.6
Pakalas - stream area			292	513.6
Nawiliwili Stream			294	290.2
Koloa Landing			496	1565.3
Hanamaulu Stream			771	650.6
Niumalu County Beach Park			836	1063.0
Single day sample should be <104				
Geomean of samples should be <35				

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #19  
**Date:** April 20, 2015 6:49:28 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** FW: 7/23/2014  
**Date:** Wed, 17 Sep 2014 13:48:17 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

Hi Carl,  
Here's Gary's explanation.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Ueunten, Gary R.  
**Sent:** Wednesday, September 17, 2014 11:35 AM  
**To:** Ishibashi, Jan M.  
**Subject:** RE: 7/23/2014

Two samples, one in the stream upstream of Gillin's House (Waiopili Stream) and the other near Gillin's House on the beach. The sample at Gillin's House was taken from the stream as it flowed on the beach. Since the sample was taken close to Gillin's House the site was called Gillin's House Storet Number 847.

---

**From:** Ishibashi, Jan M.  
**Sent:** Wednesday, September 17, 2014 11:11 AM  
**To:** Ueunten, Gary R.  
**Subject:** FW: 7/23/2014

Hi Gary,

Two samples, two different sites, one the stream and the other the beach?  
The both results are Clostridia per 100 mL.

Jan Ishibashi



Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Wednesday, September 17, 2014 9:22 AM  
**To:** Ishibashi, Jan M.  
**Subject:** Re: 7/23/2014

I am confused.

On DOH website there is a record for 7/23/14 that says Gillin's Beach in Stream .  
So are your two readings of Cp for the same stream sample at the beach, at different dilutions?  
They both at 100 ml. Salinity says that beach sample must have been stream sample.

On 9/17/2014 8:56 AM, Ishibashi, Jan M. wrote:  
Hi Carl,

On 7/23/14 Clostridia Counts for:

Waiopili Stream 62/100mL Salinity=0.07

Gillin's Beach 111/10mL Salinity=0.07

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** Fwd: RE: FW: 7/23/2014  
**Date:** April 20, 2015 6:49:46 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

#20

----- Original Message -----

**Subject:** RE: FW: 7/23/2014  
**Date:** Thu, 18 Sep 2014 06:35:16 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

That is correct.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Wednesday, September 17, 2014 6:37 PM  
**To:** Ishibashi, Jan M.  
**Subject:** Re: FW: 7/23/2014

Thanks and both had Ent >2005/100 ml ?

On 9/17/2014 1:48 PM, Ishibashi, Jan M. wrote:  
Hi Carl,  
Here's Gary's explanation.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Ueunten, Gary R.  
**Sent:** Wednesday, September 17, 2014 11:35 AM  
**To:** Ishibashi, Jan M.  
**Subject:** RE: 7/23/2014

Two samples, one in the stream upstream of Gillin's House (Waiopili Stream) and the other near Gillin's House on the beach. The sample at Gillin's House was taken from the stream as it flowed on the beach. Since the sample was taken close to Gillin's House the site was called Gillin's House Storet Number 847.

---

**From:** Ishibashi, Jan M.  
**Sent:** Wednesday, September 17, 2014 11:11 AM  
**To:** Ueunten, Gary R.  
**Subject:** FW: 7/23/2014

Hi Gary,

Two samples, two different sites, one the stream and the other the beach?  
The both results are Clostridia per 100 mL.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Wednesday, September 17, 2014 9:22 AM  
**To:** Ishibashi, Jan M.  
**Subject:** Re: 7/23/2014

I am confused.  
On DOH website there is a record for 7/23/14 that says Gillin's Beach in Stream .  
So are your two readings of Cp for the same stream sample at the beach, at different dilutions?  
They both at 100 ml. Salinity says that beach sample must have been stream sample.


On 9/17/2014 8:56 AM, Ishibashi, Jan M. wrote:  
Hi Carl,

On 7/23/14 Clostridia Counts for:

Waiopili Stream 62/100mL Salinity=0.07

Gillin's Beach 111/10mL Salinity=0.07

Jan Ishibashi

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #21  
**Date:** April 20, 2015 6:51:06 PM PDT  
**To:** Daniel Snyder <Dan@tebuttllaw.com>

1 Attachment, 38 KB

---

----- Original Message -----

**Subject:**FW: summary of results from last samples sent  
**Date:**Tue, 23 Sep 2014 07:09:28 -1000  
**From:**Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>  
**To:**<[cberg@pixi.com](mailto:cberg@pixi.com)>

Carl,

We had two samples taken at Mahaulepu and they showed human and ruminant feces. See below. Do not share at this time.

Watson

-----Original Message-----

**From:** [ali.boehm@gmail.com](mailto:ali.boehm@gmail.com) [<mailto:ali.boehm@gmail.com>] On Behalf Of Alexandria Boehm  
**Sent:** Thursday, September 11, 2014 9:00 AM  
**To:** Okubo, Watson T; Kevan Yamahara  
**Subject:** summary of results from last samples sent

Hi Watson -

The samples from Maui were run for enterococci by QPCR as well as two human markers \*Bachum\* and \*HF183\*. The human markers were negative (not detected). The enterococci by QPCR was detected as follows (the first number is the measurement and the second is the standard deviation). Units are cell equivalents per filter and can be changed to cell equivalents per volume by dividing by the volume filtered:

RA06091415 Black Rock 5708 239

RA06091416 Wahikuli 945 1005

RA06091405 North Seep 252 436

RA06091408 South Seep ND NA

RA060914FB ND NA

No enterococci was found in the south seep or the field blanks.

For the two samples from CO (names below), we ran them for enterococci by QPCR the two human markers, as well as two ruminant markers.

The blank (7/23/14 Blank CO) was negative for everything which is good. The results for the other samples is attached. Both had high levels of ENT by QPCR. sample 1 had high levels of 1 human marker (HF183) and low levels of the other (BacHum); the other sample had low, but detectable levels of both human markers. One sample had low but detectable levels of both ruminant markers (Rum2Bac and BacR), while the other sample had low but detectable levels BacR but no detectable Rum2Bac. SO I would say these samples had both human and ruminant feces present in them.

Let me know if you have any questions,

Ali

--

Alexandria Boehm, PhD

Associate Professor

Dept. of Civil & Environmental Engineering Jerry Yang & Akiko Yamazaki Environment & Energy Building  
473 Via Ortega

Room 189 MC: 4020

Stanford, CA 94305

tel: 650 724-9128

fax: 650 723-7058

<http://www.stanford.edu/~aboehm>



[CO-Samples...xlsx \(38 KB\)](#)

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #22  
**Date:** April 20, 2015 6:51:49 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Mahaulepu  
**Date:** Thu, 25 Sep 2014 15:26:08 -1000  
**From:** Stoddard, Lillian (Libby) <lillian.stoddard@doh.hawaii.gov>  
**To:** Berg, Carl <cberg@pixi.com>  
**CC:** Pruder, Sina L <sina.pruder@doh.hawaii.gov>, Tomomitsu, Mark S <mark.tomomitsu@doh.hawaii.gov>, Vetter, Lori <lori.vetter@doh.hawaii.gov>, Okubo, Watson T <watson.okubo@doh.hawaii.gov>

Aloha Dr. Berg;

Your complaint was forwarded to me because I oversee the sludge treatment facilities. I can confirm that Poipu Kai Resort WWTP (WWM Permit No. HI07WWIP424) is currently sending their Class B biosolids to the Mahaulepu land application site. This is a legal, permitted activity which is not considered "dumping sewage sludge." Nationwide, over half of the sludge from wastewater treatment plants is applied to agricultural land to improve soil quality and productivity. Both the WWTP and the Mahaulepu land application site are operated by Aqua Engineers.

I have sludge hauling reports from Poipu Kai Resort WWTP which show how much sludge was taken to the Mahaulepu land application site and who hauled it.

I have not received any data or reports of land applying untreated sewage.

I have not received reports of any other companies which may be involved.

The Department of Health (Wastewater and Clean Water Branches) are investigating the source of the apparent high bacteria counts in the Waiopili Stream samples

Sincerely,  
Libby Stoddard  
Sludge Program Manager  
Wastewater Branch  
State of Hawaii Department of Health  
Phone: (808) 586-4294

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**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #23  
**Date:** April 20, 2015 6:52:22 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: Mahaulepu  
**Date:** Tue, 30 Sep 2014 01:41:41 -1000  
**From:** Wong, Alec Y <[alec.wong@doh.hawaii.gov](mailto:alec.wong@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**CC:** Lum, Darryl C <[darryl.lum@doh.hawaii.gov](mailto:darryl.lum@doh.hawaii.gov)>, Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>

Hi Carl,

I am out of state and will return to work on October 3, 2014. You may talk to Watson Okubo or Darryl Lum during my absence.

Thanks.


Alec Wong  
Clean Water Branch  
State of Hawaii Department of Health  
Phone: (808) 586 - 4309  
Fax: (808) 586-4352

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-----Original Message-----

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Mon 9/29/2014 5:19 PM  
**To:** Wong, Alec Y  
**Subject:** Mahaulepu

Aloha Alec,  
Will you be able to participate in the meeting about sewage sludge disposal, cow manure, and public health risk in the waters of Mahaulepu on October 1, 2014?  
I am particularly interested in seeing the data that CWB has collected on bacteria in Waipili Stream and hearing about what progress CWB has made in identifying the source of the pollutants and in posting warning signs on that highly polluted stream.  
As always, I look forward to seeing you and CWB friends again.  
Carl

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #24 IMPORTANT  
**Date:** April 20, 2015 6:54:12 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 69 KB

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----- Original Message -----

**Subject:**Fwd: Urgent pollution problem at Mahaulepu  
**Date:**Wed, 01 Oct 2014 06:58:43 -1000  
**From:**Carl Berg <cberg@pixi.com>  
**To:**Watson <watson.okubo@doh.hawaii.gov>

FYI sent Monday


----- Original Message -----

**Subject:**Urgent pollution problem at Mahaulepu  
**Date:**Mon, 29 Sep 2014 08:41:21 -1000  
**From:**Carl Berg <cberg@pixi.com>  
**To:**Gary Gill <gary.gill@doh.hawaii.gov>

Aloha Gary,  
Please see attached letter concerning pollution in Waipili stream and a  
nearby biosolids dumping facility.  
Carl



[Letter Gary....docx \(69 KB\)](#)

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #25  
**Date:** April 20, 2015 6:55:07 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 36 KB

----- Original Message -----

**Subject:** RE: Mahaulepu

**Date:** Wed, 8 Oct 2014 11:03:40 -1000

**From:** Stoddard, Lilian (Libby) <lilian.stoddard@doh.hawaii.gov>

**To:** Berg, Carl <cberg@pixi.com>

**CC:** Tomomitsu, Mark S <mark.tomomitsu@doh.hawaii.gov>, Vetter, Lori <lori.vetter@doh.hawaii.gov>, Okubo, Watson T <watson.okubo@doh.hawaii.gov>, Pruder, Sina L <sina.pruder@doh.hawaii.gov>

Aloha Dr. Berg;

The national standard unit for wastewater sludge is "dry metric tons (DMT)": All sludge generation, reuse, and disposal is reported in dry metric tons. The four wastewater treatment plants that sent wastewater sludge to Aqua Engineer's Mahaulepu land application site during 2012 and 2013 are Poipu Kai Resort WWTP, Poipu Water Reclamation Facility, Princeville Resort WWTP, and Lihue-Puhi WWTP. The four plants together sent an average of 260 DMT/year to the Mahaulepu land application site (2012-13).

In response to your 9/28/14 email:

"Aloha,

Attached is the report on the concentrations of pesticides and metals in mud collected from Waiopili Stream.

No pesticide residues were detected. Metals were detected and reported in PPB concentrations.

How do these compare to allowable levels in biosolids?

Carl"

I compared the stream sediment analytical test results to our state pollutant ceiling concentration limits. These values are in Table IV of HAR 11-62, Appendix F (attached). The limits are expressed in mg/kg on a dry weight basis. mg/kg is equivalent to ppm. The National Science Laboratories "Report of Analytical Test Results" reported the metals in ppb rather than ppm. It is not clear whether these values were expressed on a dry weight basis. If not, the result must be divided by the % solids (expressed decimally) to calculate the value on a dry weight basis.

Comparing the test results to the ceiling concentration limits (all values in ppm):

Pollutant	Limit	Result
As	20	<0.28
Cd	15	<0.02
Cr	200	215
Cu	1,500	52
Ni	100	198
Pb	300	<120
Se	25	<200
Zn	2,000	48

The results with "<" indicate that the lab was not able to detect the pollutant because it was below their limit of detection (LOD). I don't know why they use ND for non-detect on some parameters and "<LOD" for others.

Sincerely,  
Libby Stoddard  
Sludge Program Manager  
Wastewater Branch  
State of Hawaii Department of Health  
Phone: (808) 586-4294

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Attachment D, page 39

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---

**From:** Carl Berg [<mailto:cberg@pixi.com>]

**Sent:** Thu 9/25/2014 5:18 PM

**To:** Stoddard, Lilian (Libby)

**Cc:** Pruder, Sina L; Tomomitsu, Mark S; Vetter, Lori; Okubo, Watson T; [diann.hartman@hyatt.com](mailto:diann.hartman@hyatt.com); Bridget Hammerquist; [greg@malama-mahaulepu.org](mailto:greg@malama-mahaulepu.org)

**Subject:** Re: Mahaulepu

Mahalo Lilian, for your very quick and detailed response to the community's concerns.

Can you please tell me the amount (tons or cubic feet, etc) of biosolids that are applied annually to the soils at the Mahaulepu site?

Also, which companies, besides Aqua Enginners, are allowed to haul sludge to that site?

I will pass the information on to the community and see how it relates to what they are seeing.

I personally do not believe that biosolids legally applied at that site are responsible for the chronic extremely high bacteria counts in Waiopili Stream, but waste management and ground water hydrology are not my areas of expertise.

Sincerely,

Carl J. Berg, Ph.D.

Blue Water Task Force

The Surfrider Foundation - Kauai Chapter

Phone (808) 639-2968

On 9/25/2014 3:26 PM, Stoddard, Lilian (Libby) wrote:

Aloha Dr. Berg;

Your complaint was forwarded to me because I oversee the sludge treatment facilities. I can confirm that Poipu Kai Resort WWTP (WWM Permit No. HI07WWIP424) is currently sending their Class B biosolids to the Mahaulepu land application site. This is a legal, permitted activity which is not considered "dumping sewage sludge." Nationwide, over half of the sludge from wastewater treatment plants is applied to agricultural land to improve soil quality and productivity. Both the WWTP and the Mahaulepu land application site are operated by Aqua Engineers.

I have sludge hauling reports from Poipu Kai Resort WWTP which show how much sludge was taken to the Mahaulepu land application site and who hauled it.

I have not received any data or reports of land applying untreated sewage.

I have not received reports of any other companies which may be involved.

The Department of Health (Wastewater and Clean Water Branches) are investigating the source of the apparent high bacteria counts in the Waiopili Stream samples

Sincerely,

Libby Stoddard

Sludge Program Manager

Wastewater Branch

State of Hawaii Department of Health

Phone: (808) 586-4294

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CHAPTER 11-62 APPENDIX F

TABLE IV  
April 15, 1997

Pollutant	Pollutant Ceiling Concentration Limit (dry weight basis, mg/kg)
Arsenic	20
Cadmium	15
Chromium	200
Copper	1500
Lead	300
Mercury	10
Molybdenum	15
Nickel	100
Selenium	25
Zinc	2000

TABLE V  
April 15, 1997

Amount of Wastewater Sludge (Metric Ton per 365 day period, dry weight basis)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1500	Once per quarter
Equal to or greater than 1500 but less than 15,000	Once per 60 days
Equal to or greater than 15,000	Once per month
Amount of Wastewater Sludge (English Ton per 365 day period, dry weight basis)	Frequency
Greater than zero but less than 320	Once per year
Equal to or greater than 320 but less than 1650	Once per quarter
Equal to or greater than 1650 but less than 16,500	Once per 60 days
Equal to or greater than 16,500	Once per month

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #26  
**Date:** April 20, 2015 6:56:04 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 28 KB

----- Original Message -----

**Subject:** Surfrider BWTF results

**Date:** Sun, 12 Oct 2014 14:52:49 -1000

**From:** Carl Berg <cberg@pixi.com>

**To:** Watson <watson.okubo@doh.hawaii.gov>, Gary Ueunten <gary.ueunten@doh.hawaii.gov>

All of the stream sites are really bad again.

I added here Waiopili Stream, which is the stream that enters the ocean near Gillin House and Cave Reserve down in Mahaulepu. That value is the geometric mean of 14 samples taken since April 2014. It is always about 250 TIMES the State standard. Doesn't know what the source is, but the stream comes from Grove Farm properties, including Hawaii Dairy Farm. Dept. of Health also did a sampling and found similar high value, plus indications that it was human sewage. I got a bad leg infection after sampling there. It has more than 2x all the other places combined!!! There must be a "caution sign" at the stream mouth so that families and tourists stay out. Need signs at least on the worst 5-6 places!

Surfrider Kauai Blue Water Task Force				
October 11, 2014				
Enterococcus bacterial concentration per 100 ml				
Site			Single day results	Site Year geomean
Salt Pond			na	2.7
Kaha Lani			na	5.4
Bowl			na	19.2
Waikoko			na	20.0
Moloa'a			na	26.2
Wainiha Stream			na	88.6
PK's			<10	2.7
Waiohai			<10	2.8
Kealia			<10	3.6
Dinetree			<10	5.0



Pinetrees			<10	3.8
Anahola			<10	8.7
Kalihiwai			10	6.8
Kapa'a County Beach Park			20	6.1
Kalapaki Bay			20	31.2
Rock Quarry			31	7.5
Middles			63	26.6
Waimea River			145	223.9
Pakalas - stream area			197	461.7
Koloa Landing			910	1473.8
Hanamaulu Stream			1010	683.2
Niumalu County Beach Park			1314	1088.3
Nawiliwili Stream			2382	366.6
Waiopili Stream - Mahaulepu				8806.0
Single day sample should be <104				
Geomean of samples should be <35				

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #27 IMPORTANT  
**Date:** April 20, 2015 6:58:01 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu  
**Date:** Tue, 21 Oct 2014 09:31:47 -1000  
**From:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>, Hudson <[Slay.Hudson@epamail.epa.gov](mailto:Slay.Hudson@epamail.epa.gov)>, Wendy Wiltse <[Wiltse.Wendy@epamail.epa.gov](mailto:Wiltse.Wendy@epamail.epa.gov)>

Carl,

Simply put, if we post signs and someone asks us what we posted signs for and we say that the entero and clostridium were elevated. Then we are asked why is it elevated? I don't know. What is the source of the elevated numbers? I think background. Is there a smoking gun? I see no smoking gun. So Why did we post when there is no human fecal concerns? Let us do the sanitary survey to answer the unanswerable questions. If we post here, then we will have to post most streams in the State just because entero and clostridium numbers were elevated due to background numbers. Sorry Carl, we will do the sanitary survey first. We have received permission go onto Grove Farm lands. Checking our dates.

Watson

-----Original Message-----

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Tuesday, October 21, 2014 8:05 AM  
**To:** Okubo, Watson T; Hudson; Wendy Wiltse  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Mahaulepu


[http://thegardenisland.com/news/local/pollution-in-mahaulepu/article\\_9f69f058-58dd-11e4-8350-cb213541d22e.html](http://thegardenisland.com/news/local/pollution-in-mahaulepu/article_9f69f058-58dd-11e4-8350-cb213541d22e.html)

I have a meeting with Grove Farm today at 10:00. I already spoke with the CEO, Mike Tresler, asking him to put up signs at the mouth of the river. He asked to see my data and talk to his lawyers. I will show him all of the Enterococcus data that I have collected on the stream. I will provide signs similar to those at Hanalei River.

I went out yesterday and measured stream flow and turbidity because of the recent light rain we had (Ana). Turbidity was 149, flow 21.2 cfs (10x summer average). From a few TSS and NTU measurements for that stream I calculated 90.7 mg/L TSS.

This estimates 10, 367 lbs of sediment from that stream for 24 hour period on day after the heavier rainfall.  
Significant erosion and soil runoff is occurring from HDF.

Carl

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #28  
**Date:** April 20, 2015 7:00:58 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 26 KB

----- Original Message -----

**Subject:** Surfrider results  
**Date:** Sun, 09 Nov 2014 13:19:22 -0800  
**From:** Carl Berg <cberg@pixi.com>  
**To:** Okubo, Watson T <watson.okubo@doh.hawaii.gov>

Thanks everyone for going out and getting the samples.

Heavy rains in the mountains the night before caused muddy river water flowing into the ocean on the north and east sides, especially in Hanalei. This is why the Department of Health issues Brown Water Advisories!! This is the first winter storm that we caught on our monthly sampling, so all of the mean values are going to be high. Remember to stay out of the brown water or rinse off well when you get in.

Niumalu, Koloa Landing, and Hanamaulu are still badly polluted, with no warning signs. No signs at Mahaulepu either, even though Grove Farms knows how badly polluted the stream is there!

Surfrider Kauai Blue Water Task Force				
November 8, 2014				
Enterococcus bacterial concentration per 100 ml				
Site			Single day	Site Year
			results	geomean
PK's			<10	2.7
Waiohai			<10	2.8
Salt Pond			<10	4.2
Kealia			<10	4.5
Anahola			<10	7.4
Kapa'a County Beach Park			10	6.4
Moloa'a			20	24.8
Waimea River			30	183.1
Rock Quarry			63	9.5
Nawiliwili Stream			108	324.5

Waikoko			350	32.2
Pakalas - stream area			480	463.5
Kalapaki Bay			512	42.6
Pinetrees			520	9.1
Middles			529	38.6
Kalihiwai			644	10.7
Hanamaulu Stream			1334	730.5
Wainiha Stream			1989	130.7
Koloa Landing			2143	1530
Niumalu County Beach Park			9804	1355.9
Bowl			12997	48.7
Single day sample should be <104				
Geomean of samples should be <35				

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #29  
**Date:** April 20, 2015 7:02:34 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:**testing  
**Date:**Wed, 19 Nov 2014 08:29:26 -1000  
**From:**Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:**Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>

What a mess I dragged everyone in to! You still there? I thought last day was first of December.

I am offering you more of the large QuantiTrays so that with 1:10 dilution you can get entero counts >24,000 for Mahaulepu.

Also I will suggest to Watson that you give to me a split of the sample to be taken on Monday. But since I have concerns of the toxicity of your repeatedly sterilized plastic sample bottles, I would like a sample in our clear plastic ones. Not sure Watson wants me anywhere near this however.

Carl



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #30  
**Date:** April 20, 2015 7:02:57 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** 51-well Quantitrays  
**Date:** Wed, 19 Nov 2014 14:16:59 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

Carl,

I would like to use your trays side by side our trays using a 1:10 dilution. Can you spare 13 trays? A retirement gift, please.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #31  
**Date:** April 20, 2015 7:03:14 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: \*\*\*\*\*SPAM\*\*\*\*\* Re: 51-well Quantitrays  
**Date:** Wed, 19 Nov 2014 14:30:32 -1000  
**From:** Ishibashi, Jan M. <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

Ok, around 9am.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Wednesday, November 19, 2014 2:24 PM  
**To:** Ishibashi, Jan M.  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Re: 51-well Quantitrays

Yup, will bring over tomorrow.  
What time is your coffee break?

Sent from my iPad

On Nov 19, 2014, at 2:16 PM, "Ishibashi, Jan M." <[jan.ishibashi@doh.hawaii.gov](mailto:jan.ishibashi@doh.hawaii.gov)> wrote:

Carl,

I would like to use your trays side by side our trays using a 1:10 dilution. Can you spare 13 trays? A retirement gift, please.

Jan Ishibashi  
Hawaii Department of Health  
Kauai District Health Laboratory  
3040 Umi Street  
Lihue, HI 96766  
(808) 241-3353 (Phone) (808) 241-3480 (Fax)

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** Fwd: cows  
**Date:** April 20, 2015 7:03:53 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

#32

----- Original Message -----

**Subject:** cows  
**Date:** Sat, 22 Nov 2014 16:35:11 -1000  
**From:** Carl Berg <cberg@pixi.com>  
**To:** McIntyre, Laura <Laura.McIntyre@doh.hawaii.gov>

The latest in my efforts to get the stream at Mahaulepu posted and the dairy to get an NPDES permit for past pollution and do an EIS.  
They have not done anything yet according to the AG office.

--

See if this link allows you to download a study by Jeff Soller. If not, I can send it as an attachment.

[http://scholar.google.com/scholar\\_url?hl=en&q=http://www.researchgate.net/publication/45287240\\_Estimated\\_human\\_health\\_risks\\_from\\_exposure\\_to\\_recreational\\_waters\\_impacted\\_by\\_human\\_and\\_non-human\\_sources\\_of\\_faecal\\_contamination/file/9fcfd50a281475e739.pdf&sa=X&scisig=AAGBfm1g-JVbYbtJudhFO0IHcq1K5\\_S9Gg&oi=scholar](http://scholar.google.com/scholar_url?hl=en&q=http://www.researchgate.net/publication/45287240_Estimated_human_health_risks_from_exposure_to_recreational_waters_impacted_by_human_and_non-human_sources_of_faecal_contamination/file/9fcfd50a281475e739.pdf&sa=X&scisig=AAGBfm1g-JVbYbtJudhFO0IHcq1K5_S9Gg&oi=scholar)

They evaluated the relative pathogenicity of non-human sources of FIB and concluded that FIB from cattle feces had comparable risk to FIB from human feces, but the health from gull, chicken and pig fecal matter had less risk (at least two orders of magnitude lower). Here are the discussion and conclusion sections of the paper:

**"Our analysis indicates that the GI illness risks associated with human exposure to recreational waters impacted by fresh cattle manure may not be substantially different from those impacted by human sources: the distributions of risk effectively span the same range.** This finding is in part due to the unknown proportion of human-infectious species/strains in cattle manure-impacted waters. In the absence of effective management practices that would significantly reduce these risks or new knowledge on infectivity, less stringent or alternative water quality standards for cattle-impacted waters do not seem appropriate at this time. Moreover, a suite of pathogens appears to be present in cattle-impacted waters (*C. jejuni*, *Cryptosporidium* and *Giardia* spp., in addition to *E. coli* O157:H7), any one of which may be present at a level that could be of concern. Within this context, *E. coli* O157:H7 and similar Shiga-toxin-producing strains are of particular concern because several are known to cause adverse health outcomes that are substantially more serious than self-limiting GI illness (Bettelheim, 2007). Furthermore, this situation is more complex than presented

here, as some strains of *E. coli* O157:H7 are not human pathogens (Bettelheim, 2007) and adult cattle largely excrete oocysts (of *Cryptosporidium brevis* and *Cryptosporidium andersoni*) that are much less likely to be human pathogens than from calves (excreting *C. parvum*) (Chalmers and Giles, 2010).

**In contrast, the water-related risks associated with gull, chicken, and pig faeces are estimated to be substantially lower than those impacted from human faecal sources at the indicator densities assessed; median risks from these sources are at least two orders of magnitude lower than the human-based benchmark. Based on these results, the potential for developing alternative water quality standards (or guidelines) for gull, chicken, and pig-impacted waters should not be ruled out.**

One caveat however, is the emerging risk from pig hepatitis E virus genogroup C in human disease (Rutjes et al., 2009).

There are a number of important considerations to the work presented here. First, the analysis relied on a review of the readily available scientific literature. Additional data may refine the relative risk estimates presented here. Second, super shedding exposure scenarios were not considered in this analysis (Arthur et al., 2009; Chase-Topping et al., 2008). Risks to human health would increase if super shedding cattle (or calves) were present due to the increased levels of pathogens in faeces (Bryan et al., 2009; Chase-Topping et al., 2008). Third, chicken pathogen data are based on fresh faeces, whereas the FIB data are from chicken litter. This causes an additional level of uncertainty which could result in over or underestimated levels of risk due to potential differential dieoff of indicator bacteria as compared to pathogens. Fourth, the analyses presented here are based on the assumption that the contamination is recent and from relatively fresh faeces. As the contamination becomes less fresh, both FIB and pathogens will decay, however they may not decay at the same rate (Anderson et al., 2005). Thus, differential persistence over time could yield results that differ from those summarized here because many pathogens are more persistent than FIB while others are less persistent. These effects could be particularly important for chicken litter and pig faecal slurries, both of which are subject to widely variable storage times and handling practices. Our future work includes investigating the impacts of differential persistence on recreational water risks. Fifth, the analyses for pig-impacted waters were based on FIB and pathogens in pig manure. However, pig manure is commonly land-applied as slurry, yet, the literature review indicated that sufficient data were not available to conduct this analysis directly for pig manure slurry. The potential impact of differential persistence of FIB and pathogens in pig slurry relative to pig manure was not identified.

Finally, the occurrence of pathogens in recreational waters is a function of both spatial and temporal variability. Thus, the actual risks to human health present in any specific location at a particular time could vary substantially from the estimates presented here. This finding is particularly relevant to cattle, for which there are known and significant seasonal

variations in shedding rates for all of the representative pathogens, as well as in rain-induced run-off that may drive manure-related pathogens into waterbodies.

The analysis presented here is an initial step toward understanding whether or not the relative risks from exposure to recreational waters impacted by gulls, chickens, pigs, and/or cattle are substantially different from those associated with human (sewage)-impacted waters. **The QMRA results are consistent with the findings from epidemiology studies. In particular, illness risk associated with non-sewage impacted beaches appears to depend on the source of contamination, i.e. some animals show relatively lower risks than others, which could account for the conflicting epidemiology findings (Till et al., 2008).**

**The principal findings from this work are that the GI illness risks associated with exposure to recreational waters impacted by fresh cattle faeces may not be substantially different from those impacted by human sources, whereas the risks associated with exposure to recreational waters impacted by gull, chicken, and pig wastes appear to be substantially lower than those impacted by human sources.** There are a number of important limitations to the work presented here. Nevertheless, these results suggest that careful consideration may be needed in the future for the management of recreational waters not impacted by human sources."

Rick Wilson  
Senior Staff Scientist  
Surfrider Foundation  
949-581-0292

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #39  
**Date:** April 20, 2015 8:40:55 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Fwd: Re: animal sources of entero  
**Date:** Wed, 26 Nov 2014 10:28:15 -1000  
**From:** Carl Berg <cberg@pixi.com>  
**To:** Pruder, Sina L <sina.pruder@doh.hawaii.gov>  
**CC:** Okubo, Watson T <watson.okubo@doh.hawaii.gov>, Wiltse, Wendy <Wiltse.Wendy@epa.gov>, Slay, Hudson <SLAY.HUDSON@EPA.GOV>

Aloha Sina,

Thank you for all of your efforts with the Hawaii Dairy Farm. I am please that it only took 9 months for them to respond to our request for an EIS. In the meantime they continue to pollute state waters and the ocean. That is unacceptable.

Below is an email trail and scientific paper that was used as guidance for EPA that shows that cow manure is as much a public health risk as human manure. Manure from other animals is not as much of a risk, but at the extremely high FIB levels found in Waiopili stream the effective health risk is far greater than what the public should be exposed to. DOH should post streams with high concentrations of FIB.

This information will useful in DOH's review of the EIS.

Mahalo for all of your work in protecting public health and the environment.  
Carl

Carl J. Berg, Ph.D.  
Blue Water Task Force  
The Surfrider Foundation - Kauai

[http://scholar.google.com/scholar\\_url?hl=en&q=http://www.researchgate.net/publication/45287240\\_Estimated\\_human\\_health\\_risks\\_from\\_exposure\\_to\\_recreational\\_waters\\_impacted\\_by\\_human\\_and\\_non-human\\_sources\\_of\\_faecal\\_contamination/file/9fcfd50a281475e739.pdf&sa=X&scisig=AAGBfm1g-JVbYbtJudhFO0IHcg1K5\\_S9Gg&oi=scholar](http://scholar.google.com/scholar_url?hl=en&q=http://www.researchgate.net/publication/45287240_Estimated_human_health_risks_from_exposure_to_recreational_waters_impacted_by_human_and_non-human_sources_of_faecal_contamination/file/9fcfd50a281475e739.pdf&sa=X&scisig=AAGBfm1g-JVbYbtJudhFO0IHcg1K5_S9Gg&oi=scholar)

Here are the discussion and conclusion sections of the paper:

They evaluated the relative pathogenicity of non-human sources of FIB and concluded that FIB from cattle feces had comparable risk to FIB from human feces, but the health from gull, chicken and pig fecal matter had less risk (at least two orders of magnitude lower).

"Our analysis indicates that the GI illness risks associated

**with human exposure to recreational waters impacted by fresh cattle manure may not be substantially different from those impacted by human sources: the distributions of risk effectively span the same range.** This finding is in part due to the unknown proportion of human-infectious species/strains in cattle manure-impacted waters. In the absence of effective management practices that would significantly reduce these risks or new knowledge on infectivity, less stringent or alternative water quality standards for cattle-impacted waters do not seem appropriate at this time.

Moreover, a suite of pathogens appears to be present in cattle-impacted waters (*C. jejuni*, *Cryptosporidium* and *Giardia* spp., in addition to *E. coli* O157:H7), any one of which may be present at a level that could be of concern. Within this context, *E. coli* O157:H7 and similar Shiga-toxin-producing strains are of particular concern because several are known to cause adverse health outcomes that are substantially more serious than self-limiting GI illness (Bettelheim, 2007). Furthermore, this situation is more complex than presented here, as some strains of *E. coli* O157:H7 are not human pathogens (Bettelheim, 2007) and adult cattle largely excrete oocysts (of *Cryptosporidium brevis* and *Cryptosporidium andersoni*) that are much less likely to be human pathogens than from calves (excreting *C. parvum*) (Chalmers and Giles, 2010).

**In contrast, the water-related risks associated with gull, chicken, and pig faeces are estimated to be substantially lower than those impacted from human faecal sources at the indicator densities assessed; median risks from these sources are at least two orders of magnitude lower than the human-based benchmark. Based on these results, the potential for developing alternative water quality standards (or guidelines) for gull, chicken, and pig-impacted waters should not be ruled out.**

One caveat however, is the emerging risk from pig hepatitis E virus genogroup C in human disease (Rutjes et al., 2009). There are a number of important considerations to the work presented here. First, the analysis relied on a review of the readily available scientific literature. Additional data may refine the relative risk estimates presented here. Second, super shedding exposure scenarios were not considered in this analysis (Arthur et al., 2009; Chase-Topping et al., 2008). Risks to human health would increase if super shedding cattle (or calves) were present due to the increased levels of pathogens in faeces (Bryan et al., 2009; Chase-Topping et al., 2008). Third, chicken pathogen data are based on fresh faeces, whereas the FIB data are from chicken litter. This causes an additional level of uncertainty which could result in over or underestimated levels of risk due to potential differential die-off of indicator bacteria as compared to pathogens. Fourth, the analyses presented here are based on the assumption that the contamination is recent and from relatively fresh faeces. As the contamination becomes less fresh, both FIB and pathogens will decay, however they may not decay at the same rate (Anderson et al., 2005). Thus, differential persistence over time could yield results that differ from those summarized



here because many pathogens are more persistent than FIB while others are less persistent. These effects could be particularly important for chicken litter and pig faecal slurries, both of which are subject to widely variable storage times and handling practices. Our future work includes investigating the impacts of differential persistence on recreational water risks. Fifth, the analyses for pig-impacted waters were based on FIB and pathogens in pig manure. However, pig manure is commonly land-applied as slurry, yet, the literature review indicated that sufficient data were not available to conduct this analysis directly for pig manure slurry. The potential impact of differential persistence of FIB and pathogens in pig slurry relative to pig manure was not identified. Finally, the occurrence of pathogens in recreational waters is a function of both spatial and temporal variability. Thus, the actual risks to human health present in any specific location at a particular time could vary substantially from the estimates presented here. This finding is particularly relevant to cattle, for which there are known and significant seasonal variations in shedding rates for all of the representative pathogens, as well as in rain-induced run-off that may drive manure-related pathogens into waterbodies.

The analysis presented here is an initial step toward understanding whether or not the relative risks from exposure to recreational waters impacted by gulls, chickens, pigs, and/or cattle are substantially different from those associated with human (sewage)-impacted waters. **The QMRA results are consistent with the findings from epidemiology studies. In particular, illness risk associated with non-sewage impacted beaches appears to depend on the source of contamination, i.e. some animals show relatively lower risks than others, which could account for the conflicting epidemiology findings (Till et al., 2008).**

**The principal findings from this work are that the GI illness risks associated with exposure to recreational waters impacted by fresh cattle faeces may not be substantially different from those impacted by human sources, whereas the risks associated with exposure to recreational waters impacted by gull, chicken, and pig wastes appear to be substantially lower than those impacted by human sources.** There are a number of important limitations to the work presented here. Nevertheless, these results suggest that careful consideration may be needed in the future for the management of recreational waters not impacted by human sources."

Rick Wilson  
Senior Staff Scientist  
Surfrider Foundation  
949-581-0292

requirement for public notice. The new criteria and revised beach grant guidance docs do allow a state to conduct their own QMRA study to determine site-specific variability in health risk due to local sources, but if a state does not go through this process to determine an alternative criteria then the normal 35/104 or either of the new 30/110 or 35/130 criteria apply.

The revised beach guidance is available here: <http://www2.epa.gov/beach-tech/national-beach-guidance-and-required-performance-criteria-grants>

**To view the Criteria document and info on epi studies on animal sources go here:**

<http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/index.cfm>

Criteria documents tab: Criteria document

Excerpt below:

***Because there have been few epidemiological studies, with mixed findings, in waters impacted by nonhuman sources and QMRA shows that risks from some animals may be comparable to humans, EPA is not developing separate national criteria for nonhuman sources. However, since some studies have site-specifically shown less risk in waters impacted by nonhuman sources, states interested in addressing the potential human health risk differences from different sources of fecal contamination on a site-specific basis should refer to section 6.2.2 of this document for suggestions on approaches.***

Click on Research tab: for study report from epi study on animal sources conducted to support the criteria development and two related literature review.

1) Conduct QMRA (based on measurements of pathogenic organisms and indicators) to estimate illness at a freshwater beach impacted by agricultural animal sources of fecal contamination (location to be determined) (P4) Download full report above or Exec summary available here:

[http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/upload/CN-P4\\_FINAL.pdf](http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/upload/CN-P4_FINAL.pdf)

This epi study suggests cattle & pig sources of fecal bacteria present a lower health risk than human sources, but not on the order of 250 times lower that would be necessary to justify ignoring entero counts of 8,800. Chicken sources might actually be that much less harmful.

2) two literature reviews available that describe the existing knowledgebase available to characterize the relative risks of human illness from various sources of fecal contamination in recreational waters & provide a summary of information on waterborne zoonotic pathogens that come primarily from warm-blooded animals. Download above.

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #33  
**Date:** April 20, 2015 8:49:17 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** RE: \*\*\*\*\*SPAM\*\*\*\*\* Fwd: Re: animal sources of entero  
**Date:** Wed, 26 Nov 2014 11:12:48 -1000  
**From:** Pruder, Sina L <[sina.pruder@doh.hawaii.gov](mailto:sina.pruder@doh.hawaii.gov)>  
**To:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**CC:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>, Wiltse, Wendy <[Wiltse.Wendy@epa.gov](mailto:Wiltse.Wendy@epa.gov)>, Slay, Hudson <[SLAY.HUDSON@EPA.GOV](mailto:SLAY.HUDSON@EPA.GOV)>, Wong, Alec Y <[alec.wong@doh.hawaii.gov](mailto:alec.wong@doh.hawaii.gov)>

Hi Carl,

Thanks for the information.

Sina

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Wednesday, November 26, 2014 10:28 AM  
**To:** Pruder, Sina L  
**Cc:** Okubo, Watson T; Wiltse, Wendy; Slay, Hudson  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Fwd: Re: animal sources of entero

Aloha Sina,

Thank you for all of your efforts with the Hawaii Dairy Farm. I am please that it only took 9 months for them to respond to our request for an EIS. In the meantime they continue to pollute state waters and the ocean. That is unacceptable.

Below is an email trail and scientific paper that was used as guidance for EPA that shows that cow manure is as much a public health risk as human manure. Manure from other animals is not as much of a risk, but at the extremely high FIB levels found in Waiopili stream the effective health risk is far greater than what the public should be exposed to. DOH should post streams with high concentrations of FIB.

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Mahalo for all of your work in protecting public health and the environment.  
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[http://scholar.google.com/scholar\\_url?hl=en&q=http://www.researchgate.net/publication/45287240\\_Estimated\\_human\\_health\\_risks\\_from\\_exposure\\_to\\_recreational\\_waters\\_impacted\\_by\\_human\\_and\\_non-human\\_sources\\_of\\_faecal\\_contamination/file/9fcfd50a281475e739.pdf&sa=X&scisig=AAGBfm1g-JVbYbtJudhFO0IHcq1K5\\_S9Gg&oi=scholar](http://scholar.google.com/scholar_url?hl=en&q=http://www.researchgate.net/publication/45287240_Estimated_human_health_risks_from_exposure_to_recreational_waters_impacted_by_human_and_non-human_sources_of_faecal_contamination/file/9fcfd50a281475e739.pdf&sa=X&scisig=AAGBfm1g-JVbYbtJudhFO0IHcq1K5_S9Gg&oi=scholar)

Here are the discussion and conclusion sections of the paper:

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Moreover, a suite of pathogens appears to be present in cattle-impacted waters (*C. jejuni*, *Cryptosporidium* and *Giardia* spp., in addition to *E. coli* O157:H7), any one of which may be present at a level that could be of concern. Within this context, *E. coli* O157:H7 and similar Shiga-toxin-producing strains are of particular concern because several are known to cause adverse health outcomes that are substantially more serious than self-limiting GI illness (Bettelheim, 2007). Furthermore, this situation is more complex than presented

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Rick Wilson  
Senior Staff Scientist  
Surfrider Foundation

Officially EPA does not differentiate between sources when health criteria are surpassed. there is still a requirement for public notice. The new criteria and revised beach grant guidance docs do allow a state to conduct their own QMRA study to determine site-specific variability in health risk due to local sources, but if a state does not go through this process to determine an alternative criteria then the normal 35/104 or either of the new 30/110 or 35/130 criteria apply.

The revised beach guidance is available here: <http://www2.epa.gov/beach-tech/national-beach-guidance-and-required-performance-criteria-grants>

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Criteria documents tab: Criteria document

Excerpt below:

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Click on Research tab: for study report from epi study on animal sources



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[http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/upload/CN-P4\\_FINAL.pdf](http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/upload/CN-P4_FINAL.pdf)

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2) two literature reviews available that describe the existing knowledgebase available to characterize the relative risks of human illness from various sources of fecal contamination in recreational waters & provide a summary of information on waterborne zoonotic pathogens that come primarily from warm-blooded animals. Download above.

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #34  
**Date:** April 20, 2015 8:30:55 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Mahaulepu results from 11/24/14?  
**Date:** Tue, 02 Dec 2014 18:07:37 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>

What were the Ent and Cp counts for last week Mahaulepu? Mine were 14,136 stream on beach and 1850 ocean in front of Gillins. What were the ones at the cave site bridge?

Saw at Kahaluu really high Cp counts and fish present.  
Is anyone feeding the fish?? Way back I discovered that fish food is made up of chicken , guts and all, and was not pasteurized, so it had tons of bacteria.

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #35  
**Date:** April 20, 2015 8:31:30 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Re: \*\*\*\*\*SPAM\*\*\*\*\* Re: released results  
**Date:** Wed, 03 Dec 2014 13:20:14 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Oshiro, Carlene K. <[carlene.oshiro@doh.hawaii.gov](mailto:carlene.oshiro@doh.hawaii.gov)>

Please check, only sample sites 1-5a for 11/24/14 are one website when I sort for "special"

On 12/3/2014 8:37 AM, Oshiro, Carlene K. wrote:

Released results from 11/6 and 11/24, Eleven collection points each  
Good luck

---

**From:** Carl Berg [<mailto:cberg@pixi.com>]  
**Sent:** Tuesday, December 02, 2014 3:02 PM  
**To:** Oshiro, Carlene K.  
**Subject:** \*\*\*\*\*SPAM\*\*\*\*\* Re: released results

Not posted on web yet.  
can you tell me what you posted?

On 12/2/2014 2:43 PM, Oshiro, Carlene K. wrote:

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #36  
**Date:** April 20, 2015 8:32:26 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** please post special sampling #6-#12 on to DOH website  
**Date:** Thu, 04 Dec 2014 17:52:26 -1000  
**From:** Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>  
**To:** Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #40 Grove Farm  
**Date:** April 20, 2015 8:41:46 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Post Waiopili Stream? Right of Entry permit?

**Date:** Thu, 04 Dec 2014 13:55:27 -1000

**From:** Carl Berg <cberg@pixi.com>

**To:** Michael Tresler <mtresler@grovesfarm.com>, Arryl Kaneshiro <akaneshiro@grovesfarm.com>, Marissa Sandblom <msandblom@grovesfarm.com>

Aloha Mike, Arryl and Marissa,

In light of the Department of Health's repeated finding of fecal indicating bacteria at levels hundreds of times above those dictated by state law, and because of the suspicions of human contamination, I again ask that Grove Farm goes the high road and does the morally correct thing by posting the mouth of Waiopili Stream with warning signs. We have known of this contamination by animal wastes since March, yet the community has not been warned. I will provide you with the signs which are similar to the ones used by the DOH and posted on polluted waters on Oahu. They can be put on the trees on Grove Farm property at the mouth of the stream, where people who might potentially play in the waters will see them.

I also ask that Grove Farm provide Surfrider with right of entry so that we might easily sample from the mouth of the river and the beach. We are not trying to find the source of contamination and we are not doing microbial source tracking, that is DOH's responsibility. We are simply monitoring levels in state waters and at state beaches, as we do all around the island. You have had insurance papers from Surfrider since the first of November, so I hope that you can give us the right of entry permit as soon as possible.

Carl J. Berg, Ph.D.  
Blue Water Task Force  
Kauai Chapter - The Surfrider Foundation

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #41 Grove Farm  
**Date:** April 20, 2015 8:42:35 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:** Post Waiopili Stream? Right of Entry permit?

**Date:** Thu, 11 Dec 2014 07:50:12 -1000

**From:** Carl Berg <cberg@pixi.com>

**To:** Michael Tresler <mtresler@grovefarm.com>, Arryl Kaneshiro <akaneshiro@grovefarm.com>, Marissa Sandblom <msandblom@grovefarm.com>

Aloha,

I am re-sending the email of December 4, 2014 (below) as I have not gotten a response from any of you. I will be speaking at the meeting this evening at the Koloa Community Center and will be brining the community up to date on the pollution levels in Waiopili stream and Surfrider's efforts to get the stream posted.

You may call me at 639-2968.

Carl J. Berg, Ph.D.  
Blue Water Task Force  
Kauai Chapter - The Surfrider Foundation

12/4/2014

Aloha Mike, Arryl and Marissa,

In light of the Department of Health's repeated finding of fecal indicating bacteria at levels hundreds of times above those dictated by state law, and because of the suspicions of human contamination, I again ask that Grove Farm goes the high road and does the morally correct thing by posting the mouth of Waiopili Stream with warning signs. We have known of this contamination by animal wastes since March, yet the community has not been warned. I will provide you with the signs which are similar to the ones used by the DOH and posted on polluted waters on Oahu. They can be put on the trees on Grove Farm property at the mouth of the stream, where people who might potentially play in the waters will see them.

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Carl J. Berg, Ph.D.  
Blue Water Task Force  
Kauai Chapter - The Surfrider Foundation



**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #36  
**Date:** April 20, 2015 8:33:37 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----

**Subject:**Ent

**Date:**Tue, 16 Dec 2014 10:59:25 -1000

**From:**Carl Berg <[cberg@pixi.com](mailto:cberg@pixi.com)>

**To:**Ueunten, Gary R. <[gary.ueunten@doh.hawaii.gov](mailto:gary.ueunten@doh.hawaii.gov)>, Okubo, Watson T <[watson.okubo@doh.hawaii.gov](mailto:watson.okubo@doh.hawaii.gov)>

12/15/14

Gillin's Beach 480

Stream on beach 4884

**From:** Carl Berg <cberg@pixi.com>  
**Subject:** #37  
**Date:** April 20, 2015 8:36:06 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

---

----- Original Message -----


**Subject:** Can Surfing in Polluted Water Kill You? - MensJournal.com  
**Date:** Fri, 09 Jan 2015 15:08:26 -1000  
**From:** Carl Berg <cberg@pixi.com>  
**To:** Okubo, Watson T <watson.okubo@doh.hawaii.gov>, Ueunten, Gary R. <gary.ueunten@doh.hawaii.gov>

----- Original Message -----

**Subject:** Check out Can Surfing in Polluted Water Kill You? - MensJournal.com  
**Date:** Fri, 9 Jan 2015 19:51:37 -0500  
**From:** Rorajohn@aol.com  
**To:** backonisland@gmail.com  
**CC:** bridgethammerquist@hawaiiantel.net, cberg@pixi.com

F YI

[Click here: Can Surfing in Polluted Water Kill You? - MensJournal.com](#)

**From:** Carl Berg <cberg@pixi.com>   
**Subject:** #38  
**Date:** April 20, 2015 8:37:17 PM PDT  
**To:** Daniel Snyder <Dan@tebbuttlaw.com>

1 Attachment, 28 KB

----- Original Message -----

**Subject:**Fwd: Fwd: February BWTF results

**Date:**Sun, 15 Feb 2015 13:54:08 -1000

**From:**Carl Berg <cberg@pixi.com>

**To:**Okubo, Watson T <watson.okubo@doh.hawaii.gov>, Ueunten, Gary R. <gary.ueunten@doh.hawaii.gov>

Thanks everyone, especially those who swam out in that rough and windy surf!

Cold front came through overnight with rain and high winds. BWTF samplers went out anyway. Because of the rains we got some really high counts in the streams and at the mouth of the streams. Outrageously high concentrations of bacteria at Niumalu, Pakalas and Mahaulepu. Warning signs should be up. That is what Brown Water Advisories are all about.

Surfrider Kauai Blue Water Task Force				
February 14, 2015				
Enterococcus bacterial concentration per 100 ml				
Site			Single day results	Winter geomean
Kealia			nt	5.1
Rock Quarry			nt	19.6
The Bowl			<10	172.9
Moloaa			<10	4.7
Kapa'a County Beach Park			<10	3.3
Waiohai			<10	2.3
PK's			<10	2.3
Salt Pond			<10	8.1
Waikoko			10	11.7
Middles			10	72.7
Kalihiwai			10	19.6
Anahola Bay			20	5.7

Kaha Lani			20	7.7
Pinetrees			31	24.7
Horner's			73	7.3
Kalapaki Bay			226	110.1
Gillin's			512	1,269.7
Wainiha Stream			1,483	428.9
Waimea			2,481	139.3
Waia'kea Canal			2,481	1,266.2
Waikomo Stream			3,076	1,598.9
Hanamaulu Stream			5,172	2,298.7
Moiheha Canal			5,475	600.6
Nawiliwili Stream			6,867	574.1
Uhelekawawa Canal			6,867	1,367.7
Niumalu County Beach Park			15,531	4,137.0
Pakalas			17,329	1,046.5
Waiopili Stream			24,196	15,346.6
<10 = below detection limit of 10				
Single day sample should be <104				
Geomean of samples should be <35				























Location Identifier	Location Name	CP	CP Result	Ent	Ent Results	Sample No	Date	Time	Temperature	Salinity	Dissolved Oxygen	Dissolved Oxygen Saturation	pH	Turbidity	Comments
Special	Mahaulepu 01		2		697	GU11061401	11/6/14	8:25 AM	22.8	0.13	7.76	90.3	7.49	8.15	Special Run
Special	Mahaulepu 02	<	1		429	GU11061402	11/6/14	8:40 AM	22.8	0.08	7.98	93.7	7.48	2.45	Special Run
Special	Mahaulepu 03		58		164	GU11061403	11/6/14	8:58 AM	24.15	0.19	6.13	73.2	7.46	5.35	Special Run
Special	Mahaulepu 04		6		344	GU11061404	11/6/14	8:45 AM	23.62	0.12	7.44	88	7.37	5.17	Special Run, shallow, near well
Special	Mahaulepu 05		600		453	GU11061405	11/6/14	9:07 AM	23.7	0.17	3.77	44.7	7.28	580	Special Run, murky
Special	Mahaulepu 05a		32		429	GU11061406	11/6/14	9:43 AM	23.89	0.12	6.88	82	7.87	6.76	Special Run
Special	Mahaulepu 07		24		406	WK11061401	11/6/14	9:22 AM	24.12	0.06	7.91	94.3	7.52	17	Special Run, by Taro patch
Special	Mahaulepu 08		900		178	WK11061402	11/6/14	9:15 AM	24.37	0.11	2.95	35.4	7.33	295	Special Run
Special	Mahaulepu 09		90		560	WK11061403	11/6/14	9:30 AM	24.25	0.07	7.16	85.4	7.44	123	Special Run
Special	Mahaulepu 10		30		560	WK11061404	11/6/14	9:35 AM	23.77	0.13	6.95	82.4	7.43	12.3	Special Run
Special	Mahaulepu 11		80	>	2005	WK11061405	11/6/14	9:55 AM	23.97	0.1	7.26	86.3	7.69	36.5	Special Run, guard shack
Special	Mahaulepu 12		74		2005	WK11061406	11/6/14	10:10 AM	23.9	0.1	7.83	92.9	7.65	37.6	Special Run, cave reserve bridge
Special	Waita Ditch		8		406	GU11121403	11/12/14	9:30 AM	23.83	0.07	7.69	91.3	8.82	20.2	Special Run
Special	Waiopili Mouth		12		1652	GU11131402	11/13/14	8:30 AM	26	28.33	6.1	89.4	8.05	29	Special Run
Special	Waiopili Stream		30		2005	GU11131403	11/13/14	8:39 AM	23.47	0.08	7.67	90.3	9.21	10.4	Special Run

Location Identifier	Location Name	CP	CP Result	Ent	Ent Results	Sample No	Date	Time	Temperature	Salinity	Dissolved Oxygen	Dissolved Oxygen Saturation	pH	Turbidity	Comments
Special	Mahaulepu 01					GU11241401	11/24/14								No sample taken
Special	Mahaulepu 02	<	1		207	GU11241402	11/24/14	8:07 AM	21.06	0.12	7.19	80.8	7.75	2.36	Special Run, low flow
Special	Mahaulepu 4		2		111	GU11241403	11/24/14	8:16 AM	22.96	0.12	6.67	77.6	7.42	1.41	Special Run, low flow
Special	Mahaulepu 3		60		42	GU11241404	11/24/14	8:28 AM	21.72	0.19	5.72	65.1	7.71	7.81	Special Run
Special	Mahaulepu 5		240		207	GU11241405	11/24/14	8:45 AM	22.89	0.23	3.04	35.5	7.57	108	Special Run
Special	Mahaulepu 5a		40		782	GU11241406	11/24/14	9:23 AM	22.66	0.13	7.01	81.2	7.71	5.48	Special Run
Special	Mahaulepu 07		310		178	WK11241401	11/24/14	8:49 AM	22	0.09	4.95	56.6	7.71	2.07	Special Run. low flow
Special	Mahaulepu 08		48		478	WK11241402	11/24/14	9:00 AM	22.33	0.06	7.72	88.8	7.81	18.1	Special Run
Special	Mahaulepu 09		190		306	WK11241403	11/24/14	9:06 AM	22.29	0.07	7.21	82.9	7.67	75.7	Special Run
Special	Mahaulepu 10		46		1013	WK11241404	11/24/14	9:12 AM	22.31	0.13	7.65	88.2	7.58	8.78	Special Run
Special	Mahaulepu 11		340	>	2005	WK11241405	11/24/14	9:37 AM	22.41	0.09	7.43	85.6	7.98	28.5	Special Run
Special	Mahaulepu 12		175	>	2005	WK11241406	11/24/14	9:45 AM	22.34	0.09	7.77	89.3	8.01	22.1	Special Run
Special	Mahaulepu 01					GU12151401	12/15/14								No sample taken
Special	Mahaulepu 02					GU12151402	12/15/14								No sample taken
Special	Mahaulepu 04	<	1		429	GU12151403	12/15/14	7:42 AM	22.04	0.12	6.17	70.6	7.22	1.97	Special Run, springwater
Special	Mahaulepu 03					GU12151404	12/15/14								No sample taken

Location Identifier	Location Name	CP	CP Result	Ent	Ent Results	Sample No	Date	Time	Temperature	Salinity	Dissolved Oxygen	Dissolved Oxygen Saturation	pH	Turbidity	Comments
Special	Mahaulepu 05		380		831	GU12151405	12/15/14	8:07 AM	19.86	0.2	4.21	46.2	7.36	254	Special Run
Special	Mahaulepu 05a		36		591	GU12151406	12/15/14	8:47 AM	20.62	0.14	7.21	80.3	7.54	5.29	Special Run
Special	Mahaulepu 07		55		831	WK12151401	12/15/14	8:21 AM	19.73	0.06	8.27	90.5	7.54	27.8	Special Run
Special	Mahaulepu 08		230		137	WK12151402	12/15/14	8:16 AM	19.31	0.09	6.25	67.8	7.35	256	Special Run
Special	Mahaulepu 09		100		945	WK12151403	12/15/14	8:32 AM	19.72	0.07	7.82	85.6	7.54	71.3	Special Run
Special	Mahaulepu 10		66		478	WK12151404	12/15/14	8:39 AM	20.19	0.14	7.27	80.4	7.52	9.32	Special Run
Special	Mahaulepu 11		210	>	2005	WK12151405	12/15/14	8:59 AM	20.09	0.08	7.69	84.8	7.64	40.4	Special Run
Special	Mahaulepu 12		130		2005	WK12151406	12/15/14	9:12 AM	20	0.08	7.92	87.2	7.68	38.8	Special Run
Special	Mahaulepu 01					GU03031501	3/3/15								No sample taken
Special	Mahaulepu 02					GU03031502	3/3/15								No sample taken
Special	Mahaulepu 04					GU03031503	3/3/15								No sample taken
Special	Mahaulepu 03					GU03031504	3/3/15								No sample taken
Special	Mahaulepu 05		150		75	GU03031505	3/3/15	8:09 AM	22.4	0.09	5.28	61	7.83	131	Special Run
Special	Mahaulepu 5a		46		624	GU03031506	3/3/15	8:52 AM	22.18	0.07	7.53	86.5	7.42	22.8	Special Run
Special	Mahaulepu 08		400		1091	GU03031507	3/3/15	8:18 AM	22.21	0.08	5.16	59.4	7.38	88.5	Special Run, dead Cattle Egret
Special	Mahaulepu 07		28		591	GU03031508	3/3/15	8:24 AM	21.67	0.07	8	91	7.41	45.9	Special Run, Waita Reservoir

Location Identifier	Location Name	CP	CP Result	Ent	Ent Results	Sample No	Date	Time	Temperature	Salinity	Dissolved Oxygen	Dissolved Oxygen Saturation	pH	Turbidity	Comments
Special	Mahaulepu 09		210		1652	GU03031509	3/3/15	8:34 AM	22.01	0.07	6.52	74.7	7.26	58.4	Special Run
Special	Mahaulepu 10		54		591	GU03031510	3/3/15	8:42 AM	21.27	0.08	6.98	78.7	7.37	25.4	Special Run, sediment sample collected
Special	Mahaulepu 11		115		885	GU03031511	3/3/15	9:05 AM	21.75	0.07	7.51	85.5	7.36	38.8	Special Run
Special	Mahaulepu 12		110		1184	GU03031512	3/3/15	9:32 AM	21.86	0.07	7.72	88.1	7.4	43.7	Special Run, bridge