



# EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION

2030 Wright Avenue

Richmond, California 94804-3849

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Toll Free (800) 841-5487

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

July 26, 2011

Mr. Adam Teekell  
State of Hawaii – Department of Health  
591 Ala Moana Blvd.  
Honolulu, HI 96813

**Ref: Water Sampling**  
**Eberline Analytical S107104-8264**

Dear Mr. Teekell:

Enclosed are results from the analyses of four water samples received at Eberline Analytical on July 19, 2011. The samples were analyzed for gamma emitting radionuclides. A "U" in the results column indicates that the nuclide was not detected greater than the indicated minimum detectable activity (MDA). No problems were encountered during the processing of the samples.

Regards,

Joseph Verville  
Client Services Manager

*NJV/ljb*  
*Enclosure: Report*

# Eberline Analytical

## ANALYSIS RESULTS

SDG <u>8264</u> Work Order <u>S107104-01</u> Received Date <u>07/19/11</u>	Client <u>STATE HAWAII</u> Contract <u>CREDIT CARD</u> Matrix <u>WATER</u>
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Client	Lab						
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results ± 2σ</u>	<u>Units</u>	<u>MDA</u>
SAMPLE #1	8264-001	07/14/11	07/21/11	Na-22	U	pCi/L	7.79
			07/21/11	K-40	U	pCi/L	182
			07/21/11	Mn-54	U	pCi/L	8.36
			07/21/11	Co-57	U	pCi/L	7.06
			07/21/11	Co-58	U	pCi/L	9.58
			07/21/11	Co-60	U	pCi/L	10.2
			07/21/11	I-131	U	pCi/L	15.5
			07/21/11	Ba-133	U	pCi/L	11.7
			07/21/11	Cs-134	U	pCi/L	11.7
			07/21/11	Cs-137	U	pCi/L	9.64
			07/21/11	Eu-152	U	pCi/L	27.1
			07/21/11	Eu-154	U	pCi/L	23.1
			07/21/11	Ra-226	U	pCi/L	21.5
			07/21/11	Ra-228	U	pCi/L	45.2
			07/21/11	Th-228	U	pCi/L	19.4
			07/21/11	Th-232	U	pCi/L	45.2
			07/21/11	U-238	U	pCi/L	1020
			07/21/11	Am-241	U	pCi/L	37.4
07/21/11	Am-243	U	pCi/L	15.2			
SAMPLE #2	8264-002	07/14/11	07/22/11	Na-22	U	pCi/L	6.10
			07/22/11	K-40	U	pCi/L	77.2
			07/22/11	Mn-54	U	pCi/L	5.45
			07/22/11	Co-57	U	pCi/L	3.70
			07/22/11	Co-58	U	pCi/L	5.91
			07/22/11	Co-60	U	pCi/L	6.31
			07/22/11	I-131	U	pCi/L	10.1
			07/22/11	Ba-133	U	pCi/L	6.94
			07/22/11	Cs-134	U	pCi/L	7.44
			07/22/11	Cs-137	U	pCi/L	6.01
			07/22/11	Eu-152	U	pCi/L	17.3
			07/22/11	Eu-154	U	pCi/L	18.1
			07/22/11	Ra-226	U	pCi/L	14.1
			07/22/11	Ra-228	U	pCi/L	31.0
			07/22/11	Th-228	U	pCi/L	10.9
			07/22/11	Th-232	U	pCi/L	28.4
			07/22/11	U-238	U	pCi/L	682
			07/22/11	Am-241	U	pCi/L	39.9
07/22/11	Am-243	U	pCi/L	10.6			

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Report Date <u>07/26/11</u>
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# Eberline Analytical

## ANALYSIS RESULTS

SDG <u>8264</u> Work Order <u>S107104-01</u> Received Date <u>07/19/11</u>	Client <u>STATE HAWAII</u> Contract <u>CREDIT CARD</u> Matrix <u>WATER</u>
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Client	Lab						
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results + 2σ</u>	<u>Units</u>	<u>MDA</u>
SAMPLE #3	8264-003	07/15/11	07/21/11	Na-22	U	pCi/L	4.97
			07/21/11	K-40	U	pCi/L	66.2
			07/21/11	Mn-54	U	pCi/L	4.09
			07/21/11	Co-57	U	pCi/L	2.45
			07/21/11	Co-58	U	pCi/L	4.37
			07/21/11	Co-60	U	pCi/L	5.43
			07/21/11	I-131	U	pCi/L	6.18
			07/21/11	Ba-133	U	pCi/L	4.27
			07/21/11	Cs-134	U	pCi/L	6.06
			07/21/11	Cs-137	U	pCi/L	5.02
			07/21/11	Eu-152	U	pCi/L	12.4
			07/21/11	Eu-154	U	pCi/L	14.7
			07/21/11	Ra-226	U	pCi/L	19.5
			07/21/11	Ra-228	U	pCi/L	20.3
			07/21/11	Th-228	U	pCi/L	6.67
			07/21/11	Th-232	U	pCi/L	20.3
			07/21/11	U-238	U	pCi/L	604
			07/21/11	Am-241	U	pCi/L	14.8
			07/21/11	Am-243	U	pCi/L	8.89
			SAMPLE #4	8264-004	07/14/11	07/21/11	Na-22
07/21/11	K-40	U				pCi/L	319
07/21/11	Mn-54	U				pCi/L	15.3
07/21/11	Co-57	U				pCi/L	11.4
07/21/11	Co-58	U				pCi/L	15.7
07/21/11	Co-60	U				pCi/L	19.8
07/21/11	I-131	U				pCi/L	30.1
07/21/11	Ba-133	U				pCi/L	17.1
07/21/11	Cs-134	U				pCi/L	17.3
07/21/11	Cs-137	U				pCi/L	16.7
07/21/11	Eu-152	U				pCi/L	41.6
07/21/11	Eu-154	U				pCi/L	59.5
07/21/11	Ra-226	U				pCi/L	36.4
07/21/11	Ra-228	U				pCi/L	75.6
07/21/11	Th-228	U				pCi/L	25.8
07/21/11	Th-232	U				pCi/L	75.6
07/21/11	U-238	U				pCi/L	1950
07/21/11	Am-241	U				pCi/L	138
07/21/11	Am-243	U				pCi/L	28.9

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# Eberline Analytical

SDG <u>8264</u> Work Order <u>S107104-01</u> Received Date <u>07/19/11</u>	Client <u>STATE HAWAII</u> Contract <u>CREDIT CARD</u> Matrix <u>WATER</u>
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LCS

8264-005	Co-60	235.8 ± 6.8	pCi/Smpl	239	3.06	99% recovery
	Cs-137	263.2 ± 6.5	pCi/Smpl	249	4.21	106% recovery

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8264-006	Na-22	U	pCi/Smpl	NA	4.00	<MDA
	K-40	U	pCi/Smpl	NA	141	<MDA
	Mn-54	U	pCi/Smpl	NA	3.79	<MDA
	Co-57	U	pCi/Smpl	NA	2.93	<MDA
	Co-58	U	pCi/Smpl	NA	3.82	<MDA
	Co-60	U	pCi/Smpl	NA	3.64	<MDA
	I-131	U	pCi/Smpl	NA	3.66	<MDA
	Ba-133	U	pCi/Smpl	NA	4.78	<MDA
	Cs-134	U	pCi/Smpl	NA	7.78	<MDA
	Cs-137	U	pCi/Smpl	NA	4.40	<MDA
	Eu-152	U	pCi/Smpl	NA	12.0	<MDA
	Eu-154	U	pCi/Smpl	NA	11.9	<MDA
	PB210	U	pCi/Smpl	NA	153	<MDA
	Ra-226	U	pCi/Smpl	NA	10.0	<MDA
	Ra-228	U	pCi/Smpl	NA	20.6	<MDA
	Th-228	U	pCi/Smpl	NA	7.31	<MDA
	Th-232	U	pCi/Smpl	NA	20.6	<MDA
	U-238	U	pCi/Smpl	NA	491	<MDA
	Am-241	U	pCi/Smpl	NA	5.95	<MDA
	Am-243	U	pCi/Smpl	NA	92.1	<MDA

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8264

CLIENT <u>State of Hawaii - Dept. of Health</u> ADDRESS <u>591 Ala Moana Blvd</u> <u>Honolulu, HI 96813</u> PROJECT <u>Water Sampling</u> SAMPLERS SIGNATURE: <u>[Signature]</u>	Purchase Order No. <u>Credit Card</u> PARAMETERS	# CONTAINERS <u>21</u> TAT (in days) <u>21</u> OBSERVATIONS, COMMENTS, VOLUMES, SPECIAL OR ADDITIONAL TEST
SAMPLE NO <u>1</u> DATE <u>7/14</u> TIME <u>1100hrs</u> LOCATION <u>Volcano, HI</u>	Gama Spec	SAMPLE TYPE OR MATRIX <u>Cadmium Water</u>
1) RELINQUISHED BY / DATE: <u>[Signature] 7/18/2011</u> COMPANY: <u>DOH - RADIOLOGY SEC</u>	2) RECEIVED BY / DATE: <u>[Signature] 07/19/11</u> COMPANY: <u>EBERLINE</u>	3) RELINQUISHED BY / DATE: <u>    </u> COMPANY: <u>    </u>
5) RELINQUISHED BY / DATE: <u>    </u> COMPANY: <u>    </u>	6) RECEIVED BY / DATE: <u>    </u> COMPANY: <u>    </u>	4) RECEIVED BY / DATE: <u>    </u> COMPANY: <u>    </u>
7) RELINQUISHED BY / DATE: <u>    </u> COMPANY: <u>    </u>	8) RECEIVED BY / DATE: <u>    </u> COMPANY: <u>    </u>	Total No. of Containers: <u>1</u> Method of Shipment: <u>Fed Ex</u> SPECIAL SHIPMENT, HANDLING, STORAGE REQUIREMENTS, OR POSSIBLE HAZARDS

Water Sampling Report  
State of Hawaii - Department of Health  
Indoor and Radiological Health Branch  
591 Ala Moana Boulevard  
Honolulu, HI 96813  
Telephone: (808) 586-4700  
Facsimile: (808) 586-5838

1. Date of Collection: 7/14/11
2. Quarter: (CIRCLE ONE) Jan-Mar Apr-Jun Jul-Sep Oct-Dec Year: 2011
3. Station (City, State): Volcano, HI
4. Tap Location: Hawaii Volcanoes National Park
5. Name of Collector: Theresa McGeehan - Tative
6. Office Address: 591 Ala Moana Blvd.  
Honolulu, HI 96813
7. Shipping Address: \_\_\_\_\_
8. Telephone: (808) 586-4700 9. Fascimile: (808) 586-5838
10. Comments: Big Island Rainwater catchment

Please check here if reporting change of address or collector.

(CIRCLE ONE)

82104

CLIENT <u>State of Hawaii - Dept. of Health</u> ADDRESS <u>591 Ala Moana Blvd.</u> <u>Honolulu, HI 96813</u> PROJECT <u>Water Sampling</u>	Purchase Order No. <u>Credit Card</u> PARAMETERS	# CONTAINERS TAT (in days) <u>21</u>	OBSERVATIONS, COMMENTS, VOLUMES, SPECIAL OR ADDITIONAL TEST
SAMPLERS SIGNATURE:			
SAMPLE NO	DATE	TIME	LOCATION
2	7/14	1100hrs	Waimoa, HI
Gama Spec			
Drinking Water			
1			
1) RELINQUISHED BY / DATE: <u>7/18/2011</u> COMPANY: <u>DOH - LABORATORY SEC</u>			
2) RECEIVED BY / DATE: <u>7/19/11</u> COMPANY: <u>EMERLINE</u>			
3) RELINQUISHED BY / DATE: _____ COMPANY: _____			
4) RECEIVED BY / DATE: _____ COMPANY: _____			
5) RELINQUISHED BY / DATE: _____ COMPANY: _____			
6) RECEIVED BY / DATE: _____ COMPANY: _____			
7) RELINQUISHED BY / DATE: _____ COMPANY: _____			
8) RECEIVED BY / DATE: _____ COMPANY: _____			
Total No. of Containers: <u>1</u>		Method of Shipment: <u>FEDEX</u>	
SPECIAL SHIPMENT, HANDLING, STORAGE REQUIREMENTS, OR POSSIBLE HAZARDS			

Eberline Services, Inc. - Richmond, CA Laboratory 2030 Wright Avenue P. O. Box 4040 Richmond, CA 94804-0040 Tel (510) 235-2633 Fax (510) 235-0438

Water Sampling Report  
State of Hawaii - Department of Health  
Indoor and Radiological Health Branch  
591 Ala Moana Boulevard  
Honolulu, HI 96813  
Telephone: (808) 586-4700  
Facsimile: (808) 586-5838

- 1. Date of Collection: 7/14/11
- 2. Quarter: (CIRCLE ONE) ~~Jan-Mar~~ ~~Apr-Jun~~ Jul-Sep ~~Oct-Dec~~ Year: 2011
- 3. Station (City,State): Waimea, HI
- 4. Tap Location: Waimea Water Treatment Plant
- 5. Name of Collector: Adam Teekell
- 6. Office Address: 591 Ala Moana Blvd.  
Honolulu, HI 96813
- 7. Shipping Address: \_\_\_\_\_
- 8. Telephone: (808) 586-4700
- 9. Fascimile: (808) 586-5838
- 10. Comments: Big Island

Please check here if reporting change of address or collector.

(CIRCLE ONE)

8264

CLIENT <u>State of Hawaii - Dept. of Health</u> ADDRESS <u>591 Ala Moana Blvd.</u> <u>Honolulu, HI 96813</u> PROJECT <u>Water Sampling</u>		Purchase Order No. <u>Credit card</u> PARAMETERS				# CONTAINERS TAT (in days) <u>21</u>	
SAMPLERS SIGNATURE: <u>[Signature]</u>		<u>Gama Spec</u>				OBSERVATIONS, COMMENTS, VOLUMES, SPECIAL OR ADDITIONAL TEST	
SAMPLE NO. <u>3</u>	DATE <u>7/15</u> TIME <u>1030 hrs</u>	LOCATION <u>Makawao, HI</u>			SAMPLE TYPE OR MATRIX <u>Drinking Water</u>	<u>1</u>	
1) RELINQUISHED BY / DATE: <u>[Signature] 7/18/2011</u>		2) RECEIVED BY / DATE: <u>[Signature] 7/19/11</u>		3) RELINQUISHED BY / DATE:		Total No. of Containers: <u>1</u>	
COMPANY: <u>DoH - Environmental Sci</u>		COMPANY: <u>Eberline</u>		COMPANY:		Method of Shipment: <u>Fed Ex</u>	
5) RELINQUISHED BY / DATE:		6) RECEIVED BY / DATE:		7) RELINQUISHED BY / DATE:		SPECIAL SHIPMENT, HANDLING, STORAGE REQUIREMENTS, OR POSSIBLE HAZARDS	
COMPANY:		COMPANY:		COMPANY:			

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Water Sampling Report  
 State of Hawaii - Department of Health  
 Indoor and Radiological Health Branch  
 591 Ala Moana Boulevard  
 Honolulu, HI 96813  
 Telephone: (808) 586-4700  
 Facsimile: (808) 586-5838

1. Date of Collection: 7/15/11
2. Quarter: (CIRCLE ONE) Jan-Mar Apr-Jun Jul-Sep Oct-Dec Year: 2011
3. Station (City, State): Makawao, Hawaii
4. Tap Location: Kamole Water Treatment Facility
5. Name of Collector: Geoffrey Lau
6. Office Address: 591 Ala Moana Blvd  
Honolulu, HI 96813
7. Shipping Address: \_\_\_\_\_
8. Telephone: (808) 586-4700
9. Fascimile: (808) 586-5838
10. Comments: Mau'i Island

Please check here if reporting change of address or collector.

(CIRCLE ONE)



**RICHMOND, CA LABORATORY**  
Chain of Custody

8264

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CLIENT <u>State of Hawaii - Dept. of Health</u>		ADDRESS <u>Sq/ Ala Moana Blvd.</u> <u>Honolulu, HI 96813</u>		PROJECT <u>Water Sampling</u>		Purchase Order No. <u>Credit Card</u>		PARAMETERS		# CONTAINERS		TAT (in days) <u>21</u>	
SAMPLERS SIGNATURE <u>[Signature]</u>		DATE <u>7/14</u>		TIME <u>14:00</u>		LOCATION <u>Hanamaulu, HI</u>		Gama Spec		SAMPLE TYPE OR MATRIX <u>Drinking Water</u>		OBSERVATIONS, COMMENTS, VOLUMES, SPECIAL OR ADDITIONAL TEST	
1) RELINQUISHED BY / DATE: <u>[Signature] 7/18/2011</u>		2) RECEIVED BY / DATE: <u>[Signature] 07/19/11</u>		3) RELINQUISHED BY / DATE:		4) RECEIVED BY / DATE:		5) RELINQUISHED BY / DATE:		6) RECEIVED BY / DATE:		Total No. of Containers: <u>1</u>	
COMPANY:		COMPANY:		COMPANY:		COMPANY:		COMPANY:		COMPANY:		Method of Shipment: <u>FED EX</u>	
7) RELINQUISHED BY / DATE:		8) RECEIVED BY / DATE:		9) RELINQUISHED BY / DATE:		10) RECEIVED BY / DATE:		11) RELINQUISHED BY / DATE:		12) RECEIVED BY / DATE:		SPECIAL SHIPMENT, HANDLING, STORAGE REQUIREMENTS, OR POSSIBLE HAZARDS	

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State of Hawaii - Department of Health  
Indoor and Radiological Health Branch  
591 Ala Moana Boulevard  
Honolulu, HI 96813  
Telephone: (808) 586-4700  
Facsimile: (808) 586-5838

1. Date of Collection: 7/14/11
2. Quarter: (CIRCLE ONE) Jan-Mar Apr-Jun Jul-Sep Oct-Dec Year: 2011
3. Station (City, State): Hana ma'ulu, Hawaii
4. Tap Location: Grove Farm Treatment Facility
5. Name of Collector: Jeffrey M. Eckerd
6. Office Address: 591 Ala Moana Blvd  
Honolulu, HI 96813
7. Shipping Address: \_\_\_\_\_
8. Telephone: (808) 586-4700 9. Fascimile: (808) 586-5838
10. Comments: Kawai Island

Please check here if reporting change of address or collector.

(CIRCLE ONE)



# RICHMOND, CA LABORATORY

## SAMPLE RECEIPT CHECKLIST

Client: STATE OF HAWAII City HONOLULU State HI

Date/Time received 07/19/11 0930 CoC No. WATER SAMPLING

Container I.D. No. PROX Requested TAT (Days) 21 P.O. Received Yes [ ] No [ ]

### INSPECTION

1. Custody seals on shipping container intact? Yes [ ] No [ ] N/A [x]
2. Custody seals on shipping container dated & signed? Yes [ ] No [ ] N/A [x]
3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A [x]
4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A [x]
5. Packing material is: Wet [ ] Dry [x]
6. Number of samples in shipping container: 4 Sample Matrix W
7. Number of containers per sample: 1 (Or see CoC         )
8. Samples are in correct container Yes [x] No [ ]
9. Paperwork agrees with samples? Yes [x] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [x]
11. Samples are: In good condition [x] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [x] pH 6 Preservative
13. Describe any anomalies:  
\_\_\_\_\_  
\_\_\_\_\_

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date         

15. Inspected by [Signature] Date: 07/19/11 Time: 1030

Customer Sample No.	Beta/Gamma com	Ion Chamber mR/hr	Wide	Customer Sample No.	Beta/Gamma com	Ion Chamber mR/hr	Wide
<u>See sheets</u>	<u>LSD</u>						

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Beta/Gamma Meter Ser. No. 100482 Calibration date 24 SEP 10