

APPENDIX B

Earhart I-2 DU-63a Summary of Findings Reports

B1: Tetra Tech Summary of Findings Report

B2: EnviroServices and Training Center Summary of Findings Report

AUG 17 2010

To: Eric Sadoyama
HEER

Fr: Rogette Bernardino
SHWB

**LIMITED
HAZARDOUS WASTE SAMPLING ACTIVITIES**

Hickam Community Housing
Ohana Nui Circle
Honolulu, Oahu, Hawaii
TMK (1) 1-1-2: Parcel 4 (portion)



**EnviroServices &
Training
Center, LLC**

RECEIVED
DEPARTMENT OF HEALTH
2010 AUG 18 A 11:33
HEER OFFICE

**LIMITED
HAZARDOUS WASTE SAMPLING ACTIVITIES**

Hickam Community Housing
Ohana Nui Circle
Honolulu, Oahu, Hawaii
TMK (1) 1-1-2: Parcel 4 (portion)

Prepared For:
STATE OF HAWAII - DEPARTMENT OF HEALTH
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Suite 212
Honolulu, Hawaii 96814

Prepared By:
ENVIROSERVICES & TRAINING CENTER, LLC
505 Ward Avenue, Suite 202
Honolulu, Hawaii 96814
tel: (808) 839-7222

ETC Project No. 10-2010

August 2010

92620

TABLE OF CONTENTS

1.0	CERTIFICATIONS AND LIMITATIONS	1
2.0	EXECUTIVE SUMMARY	2
3.0	SCOPE OF WORK	3
4.0	SITE BACKGROUND	4
4.1	SITE DESCRIPTION AND LAND AREA	4
4.2	GEOLGY AND HYDROGEOLOGY	4
4.2.1	<i>Regional Geology</i>	4
4.2.2	<i>Site Geology</i>	4
4.2.3	<i>Surface Water</i>	4
4.2.4	<i>Regional Hydrogeology</i>	5
4.2.5	<i>Site Hydrogeology</i>	5
5.0	LIMITED SOIL SAMPLING ACTIVITIES	6
5.1	SOIL SAMPLING ACTIVITIES	6
5.2	FIELD SAMPLING OBJECTIVES	6
5.3	SOIL SAMPLING ACTIVITIES	6
5.4	DECONTAMINATION	7
5.5	INVESTIGATION-DERIVED WASTE (IDW)	7
6.0	LIMITED SITE SCREENING FINDINGS	8
6.1	ANALYTICAL DATA.....	8
7.0	CONCLUSTIONS	10
8.0	REFERENCES	11

ATTACHMENTS

- APPENDIX I: FIGURES
APPENDIX II: LABORATORY REPORTS

1.0 CERTIFICATIONS AND LIMITATIONS

EnviroServices & Training Center (ETC), LLC has completed this Limited Hazardous Waste Soil Sampling Activities for the project site. ETC's findings and conclusions presented in this report are professional opinions based solely upon visual observations of the project site, government regulations, and upon interpretation of the laboratory data and field measurements gathered at the time and location of the study.

This report is intended for the sole use of ETC's Client, exclusively for the project site indicated. The scope of services performed in execution of this project may not be appropriate for satisfying the needs of other users, and any use or reuse of this report or the findings and conclusions presented herein is unauthorized and at the sole risk of said user.

ETC makes no guarantee or warranty; either expressed or implied, except that our services are consistent with good commercial or customary practices designed to conform to acceptable industry standards and governmental regulations. No warranty or representation, expressed or implied, is included or intended in its proposal, contracts, or reports. Opinions stated in this report apply only to the site as outlined and apply to the conditions present at the time of Limited Hazardous Waste Soil Sampling activities. Moreover, these opinions do not apply to site changes that occur after the Limited Hazardous Waste Soil Sampling activities.

Prepared By:



Sharla Nakashima
Environmental Professional
EnviroServices & Training Center, LLC

Date: August 2010

2.0 EXECUTIVE SUMMARY

EnviroServices & Training Center (ETC), LLC was contracted by the Hawaii Department of Health (DOH) to perform a Limited Hazardous Waste Soil Sampling activities for the subject property (hereinafter referred to as the Property) located at the Hickam Community Housing, Ohana Nui Circle, Honolulu, Oahu, Hawaii.

The purpose of this soil sampling event was to provide the DOH with a limited hazardous waste determination of the suspect dumping associated with project site. A single decision unit was established for the Property. Field triplicate multi-incremental samples were collected from the decision unit. Each multi-increment sample consisted of 30 soil increments collected directly from the top 0-12 inches of soil. In addition, as requested by on-site DOH personnel, ETC collected one discrete soil sample from a depth of 1 to 2 feet below ground surface. The multi-increment samples were hand-delivered by ETC personnel to TestAmerica-Honolulu for total and toxicity characteristic leaching procedure (TCLP) technical chlordane, aldrin and dieldrin analyses via EPA Method 1311/8081 on a 7-working day turn around time.

Analytical results indicated none of the soil samples exceeded the toxicity thresholds established for the project (ETC, 2010). Therefore, the surface soils at the site are not considered a characteristic hazardous waste.

Based on the laboratory data, the mean concentrations, including the addition of one standard deviation, total aldrin and dieldrin concentrations from the triplicate multi-increment samples exceeded the default Action Levels (ALs) established for this project (ETC, 2010). Based on comparison of the detected concentrations to ALs assuming unrestricted land use, the mean aldrin and dieldrin concentrations potentially represents a direct exposure hazard. In addition, mean concentrations, including the addition of one standard deviation, for aldrin and dieldrin exceeded the modified DOH Environmental Action Levels (EALs) for aldrin (0.42 mg/kg) and dieldrin (0.45 mg/kg) established for the site's housing development project. Note that these levels were reportedly accepted by the DOH Hazard Evaluation and Emergency Response (HEER) Office.

Note that the Property is situated adjacent to a playground area within a residential development and although not considered a hazardous waste, direct exposure hazards exist at the site. Therefore, based on these hazards and considering the current usage of the Property and surrounding areas, ETC recommends that appropriate measures be implemented to mitigate potential direct exposure by site residents to the affected soil.

3.0 SCOPE OF WORK

This report presents the results of ETC's findings during Limited Hazardous Waste Soil Sampling activities for the subject property (hereinafter referred to as the Property) located at the Hickam Community Housing, Ohana Nui Circle, Honolulu, Oahu, Hawaii.

The purpose of this soil sampling event was to provide the Client, Hawaii Department of Health (DOH), with a limited hazardous waste determination of the suspect dumping associated with the project site. The activities were performed in general accordance with the Interim Final Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan (TGM), DOH Hazard Evaluation and Emergency Response (HEER) Office, October 1997; and the currently available sections of the Interim Final TGM, DOH HEER Office, November 12, 2009.

This report presents ETC's findings during site sampling activities at the Property. The data obtained during sampling activities will help determine whether additional investigation and/or corrective actions are warranted, based on the decision rules developed in ETC's June 2010 *Limited Soil Sampling and Analysis Plan* for the Property. The action levels (ALs) for this project were identified as the default DOH Tier 1 Environmental Action Levels (EALs) for residential soils in areas where groundwater is not a potential drinking water source and where the nearest surface water body is greater than 150 meters from the site, as described in the DOH's Summer 2008 *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater* referred to herein as the "EHE Document." The toxicity thresholds for this project were identified as the toxicity characteristic thresholds specified in 40 CFR, Chapter 1, Section 261.24.

Specifically, the following tasks were completed:

- Identified decision unit boundaries using visual and physical monuments (i.e. fencing, trees, etc.).
- Collected one multi-increment surface soil sample and two field replicate multi-increment surface soil samples from the Property
- Submitted all soil samples to TestAmerica – Honolulu for analysis of total and toxicity characteristic leaching procedure (TCLP) technical chlordane, aldrin and dieldrin via EPA Method 1311/8081.
- Prepared this Limited Hazardous Waste Sampling to document field activities and summarize data obtained during the investigation.
- Prepared this report documenting the field activities and the results of the investigation.

4.0 SITE BACKGROUND

4.1 Site Description and Land Area

The Property consists of approximately 6,340 square feet of land located in Honolulu, Hawaii and is identified as Tax Map Key (TMK) identification number (1) 1-1-002: Parcel 4 (portion). The Property is currently owned by the United States of America.

The Property is relatively flat with no discernible gradient and is situated at an elevation of approximately 10 feet above mean sea level (msl). Areas adjacent to the Property generally consist of residential housing.

4.2 Geology and Hydrogeology

4.2.1 Regional Geology

Oahu is formed by the erosional remnants of two shield volcanoes. These are the Waianae range to the west and the Koolau range to the east. The Waianae volcano is estimated to have formed 2.4 to 3.6 million years before present. It consists of a tholeiitic lava shield with a thick cap of transitional to alkalic rock. Rejuvenation-stage volcanics of undifferentiated age occur in Kolekole Pass and on the south flank of the Waianae shield. Dike orientations define northwest and southwest rift zones (Macdonald, et al., 1983).

The Koolau volcano is estimated to have formed 1.8 to 2.6 million years before the present (Macdonald, et al., 1983). It consists of a tholeiitic lava shield and lacks an alkalic cap. It has well defined major dike complex trending northwest-southwest. A third, minor rift zone referred to as the Kaau rift trends southward from Kaau crater, near the upland crest of the Koolau Ridge. After a long dormant period and periods of deep erosion, the Koolau volcano developed abundant and scattered rejuvenation-stage vents, typically aligned on northeast-striking fissures (Macdonald, et al., 1983).

4.2.2 Site Geology

Soil at the Property is classified by the U.S. Department of Agriculture (USDA) Soil Conservation Service as Mamala stony silty clay loam, 0 to 12 percent slopes (MnC). As described by the USDA, MnC soils consist of shallow, well-drained soils along coastal plains on the islands of Oahu and Kauai. In a representative profile, the surface layer is a dark reddish-brown stony silty clay loam, the subsoil is a dark reddish-brown silty clay loam, and the substratum consists of coral limestone and consolidated calcareous sand. Generally, these soils are neutral to mildly alkaline. Runoff is very slow and the erosion hazard is slight to moderate. MnC soils are generally used for sugarcane, truck crops and pasture (USDA, 1972).

4.2.3 Surface Water

The nearest surface water body is Pearl Harbor, located approximately 1.4 miles north of the Property. There appears to be a drainage canal approximately 220-feet west southwest of the Property. ETC suspects that this drainage canal is lined.

4.2.4 Regional Hydrogeology

The primary drinking water in the Hawaiian Islands is drawn from basal groundwater. Basal groundwater is formed by rainwater percolating down through the residual soils and permeable volcanic rock. All of the island situated below sea level, except within rift zones of the volcanoes, is saturated with ocean salt water and thus forms a basal lens called the "Ghyben-Herzberg" lens. A zone of transition between the fresh groundwater and the ocean salt water occurs due to the constant movement of the interface as a result of tidal fluctuations, seasonal fluctuations in recharge and discharge and aquifer development (Macdonald, et al., 1983).

Downward percolation of rainwater may be stopped by impermeable layers such as dense lava flows, alluvial clay layers and volcanic ash. The groundwater then forms a perched or high level aquifer, which is not in contact with salt water. Recharge of the aquifer occurs in areas of high rainfall, which are the interior mountainous areas. The groundwater flows from the recharge areas to the areas of discharge along the shoreline. Frictional resistance to groundwater flow causes it to pile up within the island until it attains sufficient hydraulic head to overcome friction. Thus, basal groundwater tends to slope toward the shoreline.

4.2.5 Site Hydrogeology

The Property is underlain by the Moanalua Aquifer System, which is part of the Honolulu Aquifer Sector on the island of Oahu. The aquifer is classified by Mink and Lau, 1990, with the system identification number 30104116 (23321). This system includes an unconfined basal aquifer in sedimentary (nonvolcanic) lithology. The groundwater in this aquifer is described as having potential use, however, is neither a drinking water resource nor ecologically important. The groundwater is also described to be of a moderate salinity (1,000 to 5,000 mg/L Cl⁻); and is considered replaceable with a high vulnerability to contamination (Mink and Lau, 1990).

The Property is further underlain by a confined aquifer of the same system. The aquifer is classified with the system identification number 30104121 (11113) and is a basal formation in flank compartments. The groundwater in this aquifer is described as a currently used drinking water source with a fresh salinity (<250 mg/l Cl⁻). It is described as irreplaceable with a low vulnerability to contamination (Mink and Lau, 1990).

The Property is located below the Underground Injection Control (UIC) line and the groundwater is not considered a drinking water resource. Therefore, the DOH Environmental Action Levels (EALs) for soil in areas where groundwater is not current or potential drinking water source and where the nearest surface water body is greater than 150 meters from the site was used as a reference.

5.0 LIMITED SOIL SAMPLING ACTIVITIES

5.1 Soil Sampling Activities

This Limited Hazardous Waste Sampling Activities was conducted to determine whether the suspect re-interred contaminated (“hot” soil) within the project area is considered a hazardous waste and whether additional investigation and/or corrective actions are warranted at the site. Specifically, ETC conducted limited surface soil sampling activities to identify potential contaminants present in the surface soils at the site.

5.2 Field Sampling Objectives

The purpose of this Limited Hazardous Waste Sampling Activities was to obtain a representative sample from the Property. The source location was identified as the area of suspect dumping associated with the former construction activities at the Hickam Community Housing, Ohana Nui Circle development. ETC identified an approximate 6,340 square foot area suspected to be impacted with one or more organochlorine pesticides. Soil samples were collected and analyzed for total and TCLP chlordane, aldrin and dieldrin.

5.3 Soil Sampling Activities

On June 21, 2010 ETC mobilized HAZWOPER-trained personnel to perform limited surface soil sampling activities. Upon arrival, ETC personnel demarcated the boundaries of the decision unit with the current physical features, such as trees, fencing, etc. Field triplicate multi-incremental samples were collected from the decision unit. Each multi-increment sample consisted of 30 soil increments collected directly from the top 0-12 inches of soil. . The increment locations were based on a stratified, random sampling approach. ETC used a hand auger and/or Bosch Hammer SDS-Max rotary hammer drill to expose the near surface soils (0 to 12 inches bgs) and collected the soil increments. In addition, as requested by on-site DOH personnel, ETC collected one discrete soil sample from a depth of 1 to 2 feet below ground surface.

The soil increments from each sample were consolidated in a new, 1-gallon Ziploc® bag (i.e., one bag per multi-increment sample). The discrete soil sample was placed into a 8-ounce glass jar. Each bag and the jar was labeled with the project name, the sample identification, and the date/time of collection. The samples were placed in a designated sample cooler with chemical ice pending delivery to the laboratory. Prior to handling soil, ETC personnel donned a new pair of disposable gloves (latex/vinyl/nitrile). Only new or laboratory-cleaned sample containers were used to collect soil samples.

The multi-increment samples were hand-delivered by ETC personnel to TestAmerica-Honolulu located in Aiea, Hawaii with chain of custody documentation. ETC instructed TestAmerica-Honolulu to follow the EPA's November 2003 *Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples* (EPA 600/R-03/027) for multi-increment sample processing. TestAmerica-Honolulu was also instructed to analyze the processed samples and discrete sample for total and TCLP technical chlordane, aldrin and dieldrin via EPA Method 1311/8081 on a 7-working day turn around time.

Each sample was extracted and analyzed within the recommended maximum allowable holding time. The chain-of-custody together with the corresponding laboratory reports are presented in Appendix II.

5.4 Decontamination

All sample collection equipment were decontaminated between samples by washing with a brush and Alconox™ solution and triple rinsing with potable water and wipes. Sample containers were new or precleaned by the laboratory, and were kept in their original packaging to avoid contamination prior to use.

5.5 Investigation-Derived Waste (IDW)

IDW included soil excavated during direct push sampling, disposable personal protective equipment (PPE), disposable sampling equipment, decontamination fluids, and any other material that may have come in contact with potentially contaminated materials. IDW generated on-site were handled as follows:

- Used PPE and disposable sampling equipment (i.e., latex gloves, etc.) were disposed as solid waste.
- Soil from increment holes were returned to the source after sampling.
- Decontamination wipes were disposed as solid waste.

6.0 LIMITED SITE SCREENING FINDINGS

6.1 Analytical Data

At the request of ETC's Client, one deviation was made from the June 2010 *Limited Soil Sampling and Analysis Plan*. During sampling activities, DOH personnel requested an additional discrete sample be added to the project. Specifically, a discrete near surface soil sample was collected from a depth of 1 to 2 feet bgs. In addition, DOH personnel indicated that modified DOH EALs were established and accepted by the DOH HEER Office for aldrin (0.42 mg/kg) and dieldrin (0.45 mg/kg).

The four soil samples collected were analyzed for total and TCLP technical chlordane, aldrin and dieldrin via EPA Method 1311/8081 on a 7-working day turn around time. Results indicated that with the exception of total aldrin and total dieldrin, all constituent concentrations were either below their respective ALs/Toxicity Thresholds or not detected above method detection limits. Analytical data are presented in Table 1. Laboratory reports are presented in Appendix II.

Table 1: Organochlorine Pesticides (all results in mg/kg)

	Technical Chlordane	Aldrin	Dieldrin	TCLP Chlordane	TCLP Aldrin	TCLP Dieldrin
10-2010.SS1	0.52	0.18	0.95	<0.01	<0.0005	0.00052
10-2010.SS3	0.67	0.68	2.00	<0.01	<0.0005	0.0006
10-2010.SS5	0.49	0.37	1.90	<0.01	<0.0005	0.00053
10-2010.SS7	0.63	0.14	0.68	<0.01	<0.0005	0.00053
Action Levels (ALs) / Toxicity Thresholds	16	0.029	0.03	0.03	--	--
Mean of 10-2010.SS1, SS3 and SS5	0.56 <i>(0.66)</i>	0.41 <i>(0.66)</i>	1.617 <i>(2.197)</i>	0.01 <i>(0.01)</i>	0.0005 <i>(0.0005)</i>	0.00055 <i>(0.0006)</i>
Standard Deviation	0.10	0.25	0.58	0	0	0.00004
Relative Standard Deviation	17.22%	31.56%	35.85%	0%	0%	7.93%

Action Levels (ALs) = Default Hawaii Department of Health (DOH) Environmental Action Levels (EALs) for soil in areas where a drinking water source is not threatened and where the nearest surface water body is greater than 150 meters from the site.

Toxicity Thresholds = Toxicity Characteristic Thresholds noted in 40 CFR, Chapter 1, Section 261.24.

Boldfaced, Italicized = Effects of one standard deviation applied to mean concentrations.

Boldfaced, shaded = Value exceeds respective AL or Toxicity Threshold.

None of the soil samples exceeded the toxicity thresholds established for the project. As such, none of the surface soils within the top 0-12 inches of the site is considered a characteristic hazardous waste.

Based on the laboratory data, the mean concentrations including the addition of one standard deviation, total aldrin and dieldrin concentrations from the triplicate multi-increment samples exceeded the default ALs established for this project. Based on comparison of the detected concentrations to ALs assuming unrestricted land use, the mean aldrin and dieldrin concentrations potentially represents a direct exposure hazard. In addition, mean concentrations, including the addition of one standard deviation, for aldrin and dieldrin exceeded the modified DOH EALs for aldrin (0.42 mg/kg) and dieldrin (0.45 mg/kg) established for the site's housing development.

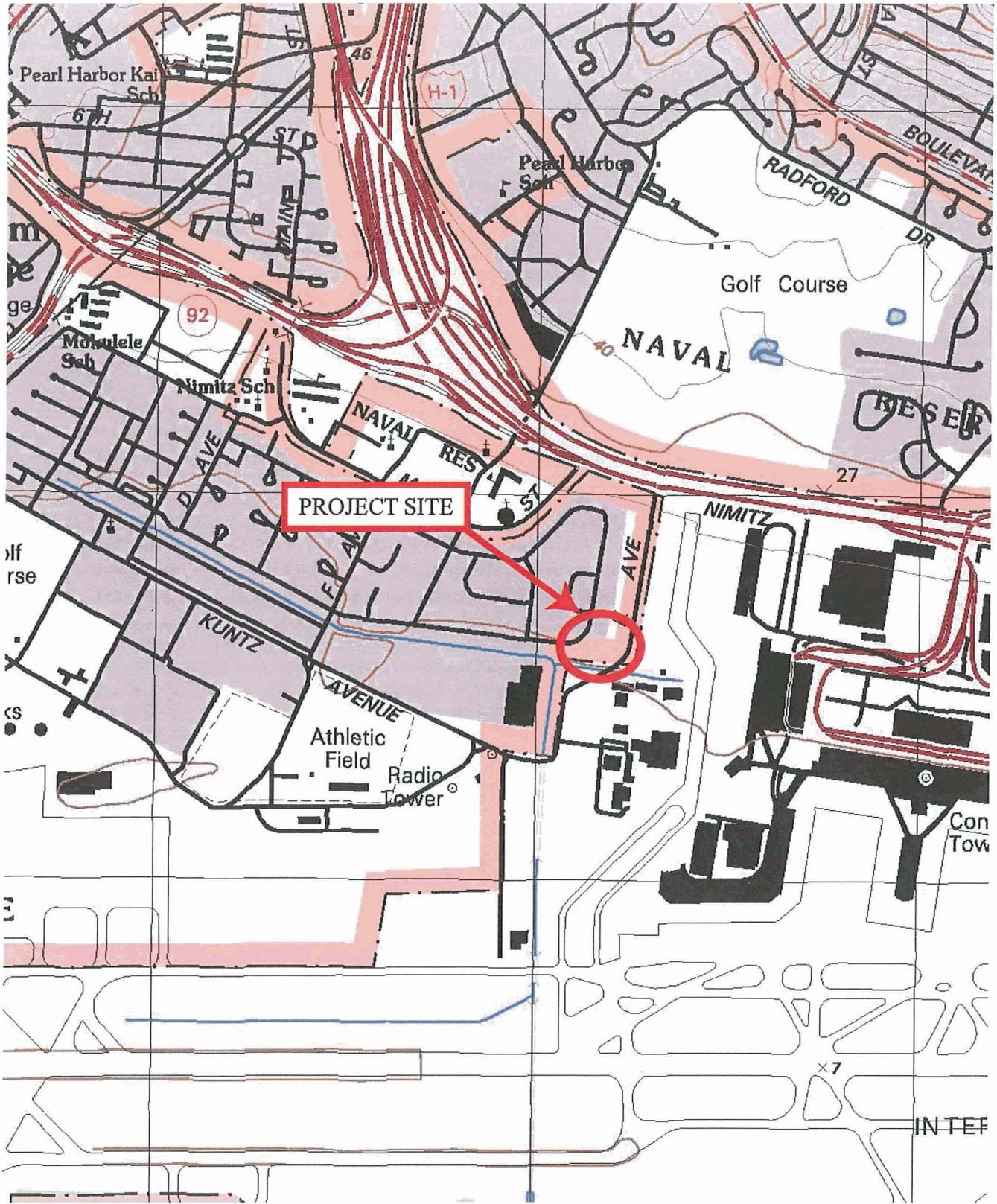
7.0 CONCLUSIONS

Based on ETC's findings, none of the suspect buried soils within the surface soil layer appears to be a characteristic hazardous waste. The site is situated adjacent to a playground area within a residential development and although not considered a hazardous waste, direct exposure hazards exist at the site. Based on these hazards and considering the current usage of the Property and surrounding areas, ETC recommends that appropriate measures be implemented to mitigate potential direct exposure by site residents to the affected soil.

REFERENCES

- EnviroServices & Training Center, LLC. June 2010. Limited Soil Sampling and Analysis Plan, Hickam Community Housing, Ohana Nui Circle, Honolulu, Oahu, Hawaii.
- Macdonald, G.A., A.T. Abbot, and F.L. Peterson. 1983. Volcanoes and the Sea. University of Hawaii Press.
- Mink, John F. and Stephen L. Lau. March 1990. Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii.
- State of Hawaii. December 1996. Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan.
- State of Hawaii Department of Health. Summer 2008 (updated October 2008). Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater.
- State of Hawaii. November 2009. Interim Final Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan.
- United States Department of Agriculture, Soil Conservation Service. August 1972. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.
- US Department of Interior Geological Survey. 1999. Pearl Harbor Quadrangle, Island of Oahu, 7.5 Minute Series (Topographic Map).

APPENDIX I
Figures



PROJECT SITE

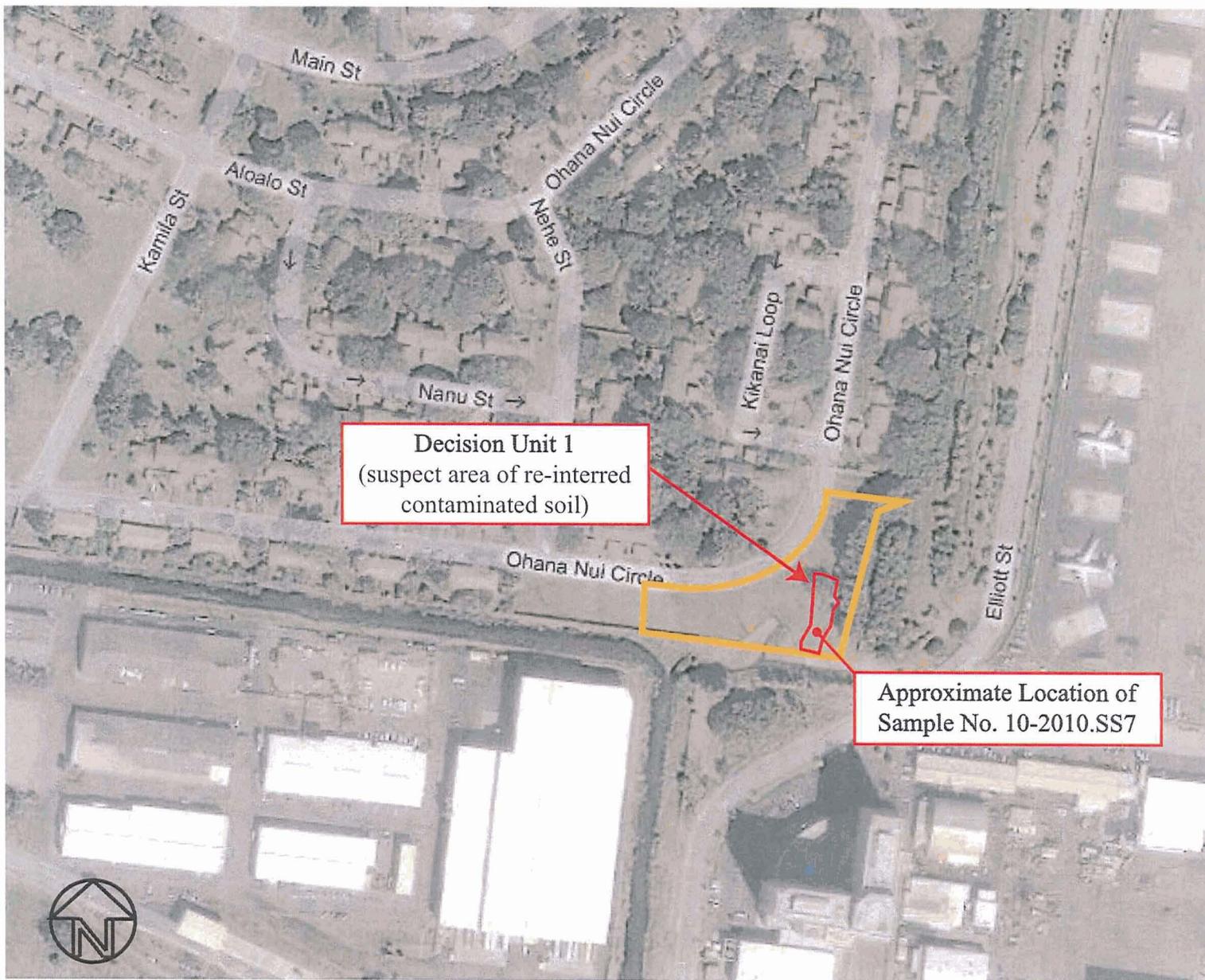
Source:
 U.S. Department Of Geological Services
 Pearl Harbor Quadrangle
 Island of Oahu, 7.5 Minute Series, 1999



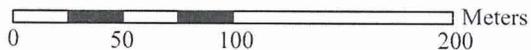
ETC Project: 10-2010

August 2010

Figure 1 - Site Location Map
 Limited Hazardous Sampling Activities
 Hickam Community Housing
 TMK (1) 1-1-2: Parcel 4 (portion)



Approximate Scale:



ETC Project: 10-2010

August 2010

Figure 2 - Sample Location Map
 Limited Hazardous Waste Sampling Activities
 Hickam Community Housing
 TMK (1) 1-1-2: Parcel 4 (portion)

APPENDIX II
Laboratory Reports

July 02, 2010

LABORATORY REPORT

Client:

EnviroServices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Attn: Sharla Nakashima

Work Order: HTF0123
Project Name: DOH Hickam Sampling
Project Number: 10-2010
Date Received: 06/23/10

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. 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, 2 pages, 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

Samples HTF0123-01 and -02 were prepared by incremental subsampling in accordance with the EPA/600/R-03/027 Guidance Document.

As per client request (S. Nakashima) by email on 6-25-10, sample HTF0123-03 did not undergo multi-incremental subsampling preparation.

MDS 6-29-10

Samples were received into laboratory at a temperature of 1 °C.

NELAC states 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.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

Approved By:



NELAC Certification # E87907

Mike D. Solick
Project Manager

EnviroServices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Sharla Nakashima

Work Order: HTF0123
Project: DOH Hickam Sampling
Project Number: 10-2010

Received: 06/23/10
Reported: 07/02/10 15:32

Sample Summary

Sample Identification	Lab Number	Client Matrix	Date/Time Sampled	Date/Time Received	Sample Qualifiers
10-2010-SS3	HTF0123-01	Solid/Soil	06/23/10 09:10	06/23/10 16:20	
10-2010-SS5	HTF0123-02	Solid/Soil	06/23/10 12:35	06/23/10 16:20	
10-2010-SS7	HTF0123-03	Solid/Soil	06/23/10 15:10	06/23/10 16:20	

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0123
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/23/10
 Reported: 07/02/10 15:32

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dil	Date Analyzed	Prep Date	Seq/ Batch	Method
Sample ID: HTF0123-01 (10-2010-SS3 - Solid/Soil)				Sampled: 06/23/10 09:10			Recvd: 06/23/10 16:20		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)									
Chlordane	670		ug/kg	150	3	06/30/10 13:37	06/29/10	10F3701	EPA 3546/8081A
Surr: Decachlorobiphenyl (45-120%)	71 %					"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	71 %					"	"	"	"
TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)									
Aldrin	ND	A-01	mg/l	0.00050	1	07/01/10 17:28	07/01/10	10G0044	EPA 8081A
Dieldrin	0.00060	A-01	"	0.00050	"	"	"	"	"
Chlordane	ND		"	0.010	"	"	"	"	"
Surr: Decachlorobiphenyl (45-120%)	77 %					"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	71 %					"	"	"	"
TCLP EXTRACTION - Semi Volatiles									
Extraction	DET		N/A	1.0	1	06/30/10 13:00	06/29/10	10F3747	EPA 1311-SV
Sample ID: HTF0123-01RE1 (10-2010-SS3 - Solid/Soil)				Sampled: 06/23/10 09:10			Recvd: 06/23/10 16:20		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)									
Aldrin	680		ug/kg	200	40	06/30/10 16:00	06/29/10	10F3701	EPA 3546/8081A
Dieldrin	2000		"	200	"	"	"	"	"
Surr: Decachlorobiphenyl (45-120%)	103 %	Z3				"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	93 %	Z3				"	"	"	"

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0123
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/23/10
 Reported: 07/02/10 15:32

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dil	Date Analyzed	Prep Date	Seq/ Batch	Method
Sample ID: HTF0123-02 (10-2010-SS5 - Solid/Soil)				Sampled: 06/23/10 12:35			Recvd: 06/23/10 16:20		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)									
Chlordane	490		ug/kg	150	3	06/30/10 14:05	06/29/10	10F3701	EPA 3546/8081A
Surr: Decachlorobiphenyl (45-120%)	74 %					"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	76 %					"	"	"	"
TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)									
Aldrin	ND	A-01	mg/l	0.00050	1	07/01/10 18:12	07/01/10	10G0044	EPA 8081A
Dieldrin	0.00053	A-01	"	0.00050	"	"	"	"	"
Chlordane	ND		"	0.010	"	"	"	"	"
Surr: Decachlorobiphenyl (45-120%)	78 %					"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	73 %					"	"	"	"
TCLP EXTRACTION - Semi Volatiles									
Extraction	DET		N/A	1.0	1	06/30/10 13:00	06/29/10	10F3747	EPA 1311-SV
Sample ID: HTF0123-02RE1 (10-2010-SS5 - Solid/Soil)				Sampled: 06/23/10 12:35			Recvd: 06/23/10 16:20		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)									
Aldrin	370		ug/kg	200	40	06/30/10 16:14	06/29/10	10F3701	EPA 3546/8081A
Dieldrin	1900		"	200	"	"	"	"	"
Surr: Decachlorobiphenyl (45-120%)	111 %	Z3				"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	100 %	Z3				"	"	"	"

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0123
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/23/10
 Reported: 07/02/10 15:32

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dil	Date Analyzed	Prep Date	Seq/ Batch	Method
Sample ID: HTF0123-03 (10-2010-SS7 - Solid/Soil)				Sampled: 06/23/10 15:10			Recvd: 06/23/10 16:20		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)									
Aldrin	140		ug/kg	15	3	06/30/10 14:34	06/29/10	10F3701	EPA 3546/8081A
Chlordane	630	R-1	"	150	"	"	"	"	"
Surr: Decachlorobiphenyl (45-120%)	60 %					"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	81 %					"	"	"	"
CLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)									
Aldrin	ND	A-01	mg/l	0.00050	1	07/01/10 18:56	07/01/10	10G0044	EPA 8081A
Dieldrin	0.00053	A-01	"	0.00050	"	"	"	"	"
Chlordane	ND		"	0.010	"	"	"	"	"
Surr: Decachlorobiphenyl (45-120%)	81 %					"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	71 %					"	"	"	"
CLP EXTRACTION - Semi Volatiles									
Extraction	DET	T5	N/A	1.0	1	06/30/10 13:00	06/29/10	10F3747	EPA 1311-SV
Sample ID: HTF0123-03RE1 (10-2010-SS7 - Solid/Soil)				Sampled: 06/23/10 15:10			Recvd: 06/23/10 16:20		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)									
Dieldrin	680		ug/kg	200	40	06/30/10 14:48	06/29/10	10F3701	EPA 3546/8081A
Surr: Decachlorobiphenyl (45-120%)	74 %	Z3				"	"	"	"
Surr: Tetrachloro-m-xylene (35-115%)	97 %	Z3				"	"	"	"

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0123
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/23/10
 Reported: 07/02/10 15:32

LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
---------	---------------	-------------	-------	-----	-----	--------	------------	-------	----------	--------------	---------	-----------	---

ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)

Batch\Seq: 10F3701 Extracted: 06/29/10

Blank Analyzed: 06/30/2010 (10F3701-BLK1)

4,4'-DDD			ug/kg	N/A	5.0	ND							
4,4'-DDE			ug/kg	N/A	5.0	ND							
4,4'-DDT			ug/kg	N/A	5.0	ND							
Aldrin			ug/kg	N/A	5.0	ND							
alpha-BHC			ug/kg	N/A	5.0	ND							
beta-BHC			ug/kg	N/A	5.0	ND							
delta-BHC			ug/kg	N/A	10	ND							
Dieldrin			ug/kg	N/A	5.0	ND							
Endosulfan I			ug/kg	N/A	5.0	ND							
Endosulfan II			ug/kg	N/A	5.0	ND							
Endosulfan sulfate			ug/kg	N/A	10	ND							
Endrin			ug/kg	N/A	5.0	ND							
Endrin aldehyde			ug/kg	N/A	5.0	ND							
Endrin ketone			ug/kg	N/A	5.0	ND							
gamma-BHC (Lindane)			ug/kg	N/A	5.0	ND							
Heptachlor			ug/kg	N/A	5.0	ND							
Heptachlor epoxide			ug/kg	N/A	5.0	ND							
Methoxychlor			ug/kg	N/A	5.0	ND							
Chlordane			ug/kg	N/A	50	ND							
Toxaphene			ug/kg	N/A	200	ND							
Surrogate: Decachlorobiphenyl			ug/kg					95		45-120			
Surrogate: Tetrachloro-m-xylene			ug/kg					81		35-115			

TCCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)

Batch\Seq: 10G0044 Extracted: 07/01/10

Blank Analyzed: 07/01/2010 (10G0044-BLK1)

Aldrin			mg/l	N/A	0.00050	ND							30
Dieldrin			mg/l	N/A	0.00050	ND							30
Chlordane			mg/l	N/A	0.010	ND							
Surrogate: Decachlorobiphenyl			mg/l					81		45-120			
Surrogate: Tetrachloro-m-xylene			mg/l					73		35-115			

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0123
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/23/10
 Reported: 07/02/10 15:32

LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	RPD Limit	Q
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)													
Batch\Seq: 10F3701 Extracted: 06/29/10													
LCS Analyzed: 06/30/2010 (10F3701-BS1)													
4,4'-DDD		33.3	ug/kg	N/A	5.0	32.8		98		60-120			
4,4'-DDE		33.3	ug/kg	N/A	5.0	29.7		89		60-120			
4,4'-DDT		33.3	ug/kg	N/A	5.0	33.3		100		65-120			
Aldrin		33.3	ug/kg	N/A	5.0	23.3		70		50-115			
alpha-BHC		33.3	ug/kg	N/A	5.0	28.0		84		60-115			
beta-BHC		33.3	ug/kg	N/A	5.0	29.5		89		60-115			
delta-BHC		33.3	ug/kg	N/A	10	30.1		90		60-115			
Dieldrin		33.3	ug/kg	N/A	5.0	29.9		90		65-115			
Endosulfan I		33.3	ug/kg	N/A	5.0	28.6		86		40-120			
Endosulfan II		33.3	ug/kg	N/A	5.0	29.7		89		55-120			
Endosulfan sulfate		33.3	ug/kg	N/A	10	30.5		92		65-115			
Endrin		33.3	ug/kg	N/A	5.0	31.2		94		55-120			
Endrin aldehyde		33.3	ug/kg	N/A	5.0	27.7		83		55-115			
Endrin ketone		33.3	ug/kg	N/A	5.0	30.3		91		65-115			
gamma-BHC (Lindane)		33.3	ug/kg	N/A	5.0	28.8		86		55-115			
Heptachlor		33.3	ug/kg	N/A	5.0	29.1		87		55-115			
Heptachlor epoxide		33.3	ug/kg	N/A	5.0	28.9		87		55-115			
Methoxychlor		33.3	ug/kg	N/A	5.0	31.4		94		65-120			
Surrogate: Decachlorobiphenyl			ug/kg					88		45-120			
Surrogate: Tetrachloro-m-xylene			ug/kg					78		35-115			

MNR

TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)

Batch\Seq: 10G0044 Extracted: 07/01/10

LCS Analyzed: 07/01/2010 (10G0044-BS1)

Aldrin	0.00250		mg/l	N/A	0.00050	0.00194		77		40-115		30	
Dieldrin	0.00250		mg/l	N/A	0.00050	0.00202		81		55-115		30	
Surrogate: Decachlorobiphenyl			mg/l					81		45-120			
Surrogate: Tetrachloro-m-xylene			mg/l					75		35-115			

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0123
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/23/10
 Reported: 07/02/10 15:32

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	REC Limits	RPD	RPD Limit	Q
TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)													
Batch/Seq: 10G0044 Extracted: 07/01/10													
Matrix Spike Analyzed: 07/01/2010 (10G0044-MS1)				QC Source Sample: HTF0123-01									
Aldrin	ND	0.00250	mg/l	N/A	0.00050	0.00189		76		35-120		30	
Dieldrin	0.000603	0.00250	mg/l	N/A	0.00050	0.00269		83		50-120		30	
Surrogate: Decachlorobiphenyl			mg/l					79		45-120			
Surrogate: Tetrachloro-m-xylene			mg/l					73		35-115			

EnviroServices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Sharla Nakashima

Work Order: HTF0123
Project: DOH Hickam Sampling
Project Number: 10-2010

Received: 06/23/10
Reported: 07/02/10 15:32

CERTIFICATION SUMMARY

Subcontracted Laboratories

TestAmerica - Irvine, CA

17461 Derian Avenue Suite 100 - Irvine, CA 92614

Method Performed: EPA 1311-SV

Samples: HTF0123-01, HTF0123-02, HTF0123-03

Method Performed: EPA 3546/8081A

Samples: HTF0123-01, HTF0123-01RE1, HTF0123-02, HTF0123-02RE1, HTF0123-03, HTF0123-03RE1

Method Performed: EPA 8081A

Samples: HTF0123-01, HTF0123-02, HTF0123-03

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

DATA QUALIFIERS AND DEFINITIONS

- A-01** This compound may react with the TCLP extraction fluid causing low or non-detect results; the compound is not part of the regulated TCLP list and has been analyzed per client request.
- MNR** No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
- R-1** The RPD between the primary and confirmatory analysis exceeded 40%. Per method 8000B, the higher value was reported.
- T5** Less than the prescribed sample amount was available to perform the leachate extraction. The volume of extraction fluid was adjusted proportionately based on the method prescribed ratio of extraction fluid to sample weight.
- Z3** The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.
- ND** Not detected at the reporting limit (or method detection limit if shown)

ADDITIONAL COMMENTS



TestAmerica - Honolulu
99-193 Aiea Heights Drive Suite 121 • Aiea, HI 96701-3900
808-486-LABS (5227) • Fax 808-486-2456

LABORATORY USE ONLY	
LAB JOB NO.	HTF0123
LOCATION	
CONTAINERS	

Chain of Custody / Analysis Request Form

Report to: Sharla Nakashima	Project identification	
Company name Enviro Services & Training Center LLC	Job name DOT Hickam Sampling	Indicate analyses requested
Address 505 Ward Ave, Suite 202	Job number 10-2010	
City Honolulu State HI ZIP 96814	P.O. number	
Phone 808-839-7222 Fax 808-839-4455	Contact email address sharla@gotsek.com Date results needed 7 day TAT	
Sampler M. Sato	# samples in shipment	

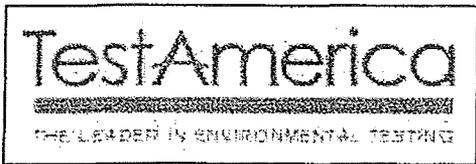
Multi-incremental subsampling
 organochlorine pest. (8081)
 TCLP organochlorine pest (8081)

Item no.	Client sample ID	COMP	GRAB	Matrix								Preservation method	Sampling		No. of containers	Laboratory ID no.				
				Water	Soil	Wastewater	Drinking water	Sludge	Liquid	Solid	Oil		Other	Date			Time			
1	10-2010-SS3		X	X								ICC	6/23/10	9:10	1	X	X	X	* SEE NOTES BELOW	HTF0123-0
2	10-2010-SS5		X	X								↓	6/23/10	12:35	1	X	X	X		-02
3	10-2010-SS7		X	X								↓	6/23/10	15:10	1	X	X	X		-03
4	Last Entry																			
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
Mel Lauren Sato / mlsato	6/23/10 16:20	hand	Quinn ELtdel	tr ml	6/23/10 16:20	1 Contact / wet
	1				1	
	1				1	

Comments: multi-incremental subsampling to 2mm soil particle size. Please ONLY report Technical Chlordane, dieldrin, and aldrin.
See Sharla Nakashima for questions (839-7222 ext. 228)

- Please check one:
- Dispose by lab
 - Return to client
 - Archive



Sample Receipt Checklist

Client Name: Env. Govt Trng Date/ Time Received: 6/23/10 1620

Checklist Completed By: ea Received By: ea

Matrices: soil Carrier: client 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: _____
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>	<u>200</u>
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 type="checkbox"/>
pH Adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Final pH: _____
Encores / 5035 Vials Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
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/Blank Temperature Range (Minimum 3 sample containers if available):			<u>1</u> °C

Comments/ Sampling Handling Notes:

Sample - SS7 has only about 25g, not enough for
TCLP or MI
Not MI. No issue by 6/25/10

July 02, 2010

LABORATORY REPORT

Client:

EnviroServices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Attn: Sharla Nakashima

Work Order: HTF0112
Project Name: DOH Hickam Sampling
Project Number: 10-2010
Date Received: 06/21/10

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. 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, 2 pages, 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

**Sample was prepared by incremental subsampling in accordance with the EPA/600/R-03/027 Guidance Document.
MDS 7-2-10**

Samples were received into laboratory at a temperature of 4 °C.

NELAC states 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.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

Approved By:



NELAC Certification # E87907

Mike D. Solick
Project Manager

EnviroServices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Sharla Nakashima

Work Order: HTF0112
Project: DOH Hickam Sampling
Project Number: 10-2010

Received: 06/21/10
Reported: 07/02/10 09:58

Sample Summary

Sample Identification	Lab Number	Client Matrix	Date/Time Sampled	Date/Time Received	Sample Qualifiers
10-2010.SS1	HTF0112-01	Solid/Soil	06/21/10 10:00	06/21/10 16:00	

EnviroServices & Training Center 505 Ward Avenue, Suite 202 Honolulu, HI 96814 Sharla Nakashima	Work Order: HTF0112 Project: DOH Hickam Sampling Project Number: 10-2010	Received: 06/21/10 Reported: 07/02/10 09:58
--	--	--

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Rpt Limit	Dil	Date Analyzed	Prep Date	Seq/ Batch	Method
Sample ID: HTF0112-01 (10-2010.SS1 - Solid/Soil)							Sampled: 06/21/10 10:00	Recvd: 06/21/10 16:00		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)										
Aldrin	180		ug/kg	7.5	25	5	06/29/10 08:17	06/25/10	10F3288	EPA 3546/8081A
Chlordane	520		"	50	250	"	"	"	"	"
<i>Surr: Decachlorobiphenyl (45-120%)</i>	73 %						"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	83 %						"	"	"	"
FCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)										
Aldrin	ND	T5,A-01	mg/l	0.00015	0.00050	1	06/28/10 22:11	06/28/10	10F3488	EPA 8081A
Dieldrin	0.00052	T5,A-01	"	0.00015	0.00050	"	"	"	"	"
Chlordane	ND	T5	"	0.0015	0.010	"	"	"	"	"
<i>Surr: Decachlorobiphenyl (45-120%)</i>	77 %	T5					"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	69 %	T5					"	"	"	"
FCLP EXTRACTION - Semi Volatiles										
Extraction	DET		N/A	0.0	1.0	1	06/26/10 15:00	06/25/10	10F3346	EPA 1311-SV
Sample ID: HTF0112-01RE1 (10-2010.SS1 - Solid/Soil)							Sampled: 06/21/10 10:00	Recvd: 06/21/10 16:00		
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)										
Dieldrin	950		ug/kg	30	100	20	06/29/10 08:31	06/25/10	10F3288	EPA 3546/8081A
<i>Surr: Decachlorobiphenyl (45-120%)</i>	86 %	Z3					"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	93 %	Z3					"	"	"	"

THE LEADER IN ENVIRONMENTAL TESTING

99-193 Aiea Heights Drive, Suite 121 Aiea, HI 96701 * 808-486-5227 * Fax 808-486-2456

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0112
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/21/10
 Reported: 07/02/10 09:58

LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
---------	---------------	-------------	-------	-----	-----	--------	------------	-------	----------	--------------	---------	-----------	---

ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)

Batch/Seq: 10F3288 Extracted: 06/25/10

Blank Analyzed: 06/28/2010 (10F3288-BLK1)

4,4'-DDD			ug/kg	1.5	5.0	ND							
4,4'-DDE			ug/kg	1.5	5.0	ND							
4,4'-DDT			ug/kg	1.5	5.0	ND							
Aldrin			ug/kg	1.5	5.0	ND							
alpha-BHC			ug/kg	1.5	5.0	ND							
beta-BHC			ug/kg	1.5	5.0	ND							
delta-BHC			ug/kg	1.5	10	ND							
Dieldrin			ug/kg	1.5	5.0	ND							
Endosulfan I			ug/kg	1.5	5.0	ND							
Endosulfan II			ug/kg	1.5	5.0	ND							
Endosulfan sulfate			ug/kg	2.0	10	ND							
Endrin			ug/kg	1.5	5.0	ND							
Endrin aldehyde			ug/kg	1.5	5.0	ND							
Endrin ketone			ug/kg	2.0	5.0	ND							
gamma-BHC (Lindane)			ug/kg	1.5	5.0	ND							
Heptachlor			ug/kg	2.0	5.0	ND							
Heptachlor epoxide			ug/kg	2.0	5.0	ND							
Methoxychlor			ug/kg	1.5	5.0	ND							
Chlordane			ug/kg	10	50	ND							
Toxaphene			ug/kg	50	200	ND							
Surrogate: Decachlorobiphenyl			ug/kg						80		45-120		
Surrogate: Tetrachloro-m-xylene			ug/kg						71		35-115		

TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)

Batch/Seq: 10F3488 Extracted: 06/28/10

Blank Analyzed: 06/28/2010 (10F3488-BLK1)

Aldrin			mg/l	0.00015	0.00050	ND							
Dieldrin			mg/l	0.00015	0.00050	ND							
Chlordane			mg/l	0.0015	0.010	ND							
Surrogate: Decachlorobiphenyl			mg/l						84		45-120		
Surrogate: Tetrachloro-m-xylene			mg/l						75		35-115		

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0112
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/21/10
 Reported: 07/02/10 09:58

LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)													
Batch\Seq: 10F3288 Extracted: 06/25/10													
LCS Analyzed: 06/28/2010 (10F3288-BS1)													
4,4'-DDD		33.3	ug/kg	1.5	5.0	30.3		91		60-120			
4,4'-DDE		33.3	ug/kg	1.5	5.0	28.6		86		60-120			
4,4'-DDT		33.3	ug/kg	1.5	5.0	30.6		92		65-120			
Aldrin		33.3	ug/kg	1.5	5.0	24.5		73		50-115			
alpha-BHC		33.3	ug/kg	1.5	5.0	28.7		86		60-115			
beta-BHC		33.3	ug/kg	1.5	5.0	28.6		86		60-115			
delta-BHC		33.3	ug/kg	1.5	10	29.1		87		60-115			
Dieldrin		33.3	ug/kg	1.5	5.0	28.7		86		65-115			
Endosulfan I		33.3	ug/kg	1.5	5.0	27.8		83		40-120			
Endosulfan II		33.3	ug/kg	1.5	5.0	27.8		83		55-120			
Endosulfan sulfate		33.3	ug/kg	2.0	10	28.7		86		65-115			
Endrin		33.3	ug/kg	1.5	5.0	29.9		90		55-120			
Endrin aldehyde		33.3	ug/kg	1.5	5.0	26.3		79		55-115			
Endrin ketone		33.3	ug/kg	2.0	5.0	28.3		85		65-115			
gamma-BHC (Lindane)		33.3	ug/kg	1.5	5.0	29.2		88		55-115			
Heptachlor		33.3	ug/kg	2.0	5.0	28.5		86		55-115			
Heptachlor epoxide		33.3	ug/kg	2.0	5.0	28.5		85		55-115			
Methoxychlor		33.3	ug/kg	1.5	5.0	28.3		85		65-120			
Surrogate: Decachlorobiphenyl			ug/kg					80		45-120			
Surrogate: Tetrachloro-m-xylene			ug/kg					81		35-115			

TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)

Batch\Seq: 10F3488 Extracted: 06/28/10

LCS Analyzed: 06/28/2010 (10F3488-BS1)

Aldrin	0.00250	mg/l	0.00015	0.00050	0.00190		76		40-115
Dieldrin	0.00250	mg/l	0.00015	0.00050	0.00200		80		55-115
Surrogate: Decachlorobiphenyl		mg/l					80		45-120
Surrogate: Tetrachloro-m-xylene		mg/l					73		35-115

EnviroServices & Training Center
 505 Ward Avenue, Suite 202
 Honolulu, HI 96814
 Sharla Nakashima

Work Order: HTF0112
 Project: DOH Hickam Sampling
 Project Number: 10-2010

Received: 06/21/10
 Reported: 07/02/10 09:58

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	RPD Limit	Q
ORGANOCHLORINE PESTICIDES (EPA 3546/8081A)													
Batch\Seq: 10F3288 Extracted: 06/25/10													
Matrix Spike Analyzed: 06/28/2010 (10F3288-MS1)						QC Source Sample: ITF2060-16							
4,4'-DDD	ND	33.3	ug/kg	1.5	5.0	25.7	23.5	77	71	40-130	9	30	
4,4'-DDE	ND	33.3	ug/kg	1.5	5.0	28.0	24.7	84	74	35-130	12	30	
4,4'-DDT	ND	33.3	ug/kg	1.5	5.0	49.6	35.8	149	107	35-130	32	30	M1,R-3
Aldrin	ND	33.3	ug/kg	1.5	5.0	26.0	23.3	78	70	40-115	11	30	
alpha-BHC	ND	33.3	ug/kg	1.5	5.0	26.3	23.8	79	71	40-115	10	30	
beta-BHC	ND	33.3	ug/kg	1.5	5.0	26.4	22.2	79	67	40-120	17	30	
delta-BHC	ND	33.3	ug/kg	1.5	10	27.0	22.7	81	68	45-120	17	30	
Dieldrin	ND	33.3	ug/kg	1.5	5.0	32.8	26.1	98	78	40-125	23	30	
Endosulfan I	ND	33.3	ug/kg	1.5	5.0	21.1	19.1	63	57	40-120	10	30	
Endosulfan II	ND	33.3	ug/kg	1.5	5.0	25.4	25.2	76	76	40-125	1	30	
Endosulfan sulfate	ND	33.3	ug/kg	2.0	10	30.7	19.9	92	60	45-120	43	30	R-3
Endrin	ND	33.3	ug/kg	1.5	5.0	17.3	16.4	52	49	45-125	5	30	
Endrin aldehyde	ND	33.3	ug/kg	1.5	5.0	28.0	20.7	84	62	30-120	30	30	
Endrin ketone	ND	33.3	ug/kg	2.0	5.0	22.1	18.9	66	57	40-120	16	30	
gamma-BHC (Lindane)	ND	33.3	ug/kg	1.5	5.0	26.7	23.2	80	70	40-120	14	30	
Heptachlor	ND	33.3	ug/kg	2.0	5.0	13.8	11.7	41	35	40-115	16	30	M2
Heptachlor epoxide	ND	33.3	ug/kg	2.0	5.0	30.5	25.3	91	76	45-115	19	30	
Methoxychlor	ND	33.3	ug/kg	1.5	5.0	15.5	14.8	46	44	40-135	4	30	
Surrogate: Decachlorobiphenyl			ug/kg					64	58	45-120			
Surrogate: Tetrachloro-m-xylene			ug/kg					76	73	35-115			

TCLP ORGANOCHLORINE PESTICIDES (EPA 1311/3510/8081A)

Batch\Seq: 10F3488 Extracted: 06/28/10

Matrix Spike Analyzed: 06/28/2010 (10F3488-MS1)

QC Source Sample: HTF0112-01

Aldrin	ND	0.00250	mg/l	0.00015	0.00050	0.00179		72		35-120			
Dieldrin	0.000518	0.00250	mg/l	0.00015	0.00050	0.00253		80		50-120			
Surrogate: Decachlorobiphenyl			mg/l					80		45-120			
Surrogate: Tetrachloro-m-xylene			mg/l					68		35-115			

EnviroServices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Sharla Nakashima

Work Order: HTF0112
Project: DOH Hickam Sampling
Project Number: 10-2010

Received: 06/21/10
Reported: 07/02/10 09:58

CERTIFICATION SUMMARY

Subcontracted Laboratories

TestAmerica - Irvine, CA

17461 Derian Avenue Suite 100 - Irvine, CA 92614

Method Performed: EPA 1311-SV

Samples: HTF0112-01

Method Performed: EPA 3546/8081A

Samples: HTF0112-01, HTF0112-01RE1

Method Performed: EPA 8081A

Samples: HTF0112-01

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

DATA QUALIFIERS AND DEFINITIONS

- A-01** This compound may react with the TCLP extraction fluid causing low or non-detect results; the compound is not part of the regulated TCLP list and has been analyzed per client request.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- R-3** The RPD exceeded the acceptance limit due to sample matrix effects.
- T5** Less than the prescribed sample amount was available to perform the leachate extraction. The volume of extraction fluid was adjusted proportionately based on the method prescribed ratio of extraction fluid to sample weight.
- Z3** The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.
- ND** Not detected at the reporting limit (or method detection limit if shown)

ADDITIONAL COMMENTS



TestAmerica - Honolulu
99-193 Aiea Heights Drive Suite 121 • Aiea, HI 96701-3900
808-486-LABS (5227) • Fax 808-486-2456

LABORATORY USE ONLY	
LAB JOB NO.	MTF0112
LOCATION	
CONTAINERS	

Chain of Custody / Analysis Request Form

Report to: **Charla Nakashima**
 Company name: **EnviroServices & Training Center LLC**
 Address: **555 Ward Ave, Suite 202**
 City: **Honolulu** State: **HI** ZIP: **96914**
 Phone: **808-839-7222** Fax: **808-839-4455**
 Sampler: **M. Sato** # samples in shipment: **1**

Project identification
 Job name: **DOT Hickam Sampling**
 Job number: **10-2010**
 P.O. number: _____
 Contact email address: **charla@gotoek.com** Date results needed: **7-day AT**

Indicate analyses requested

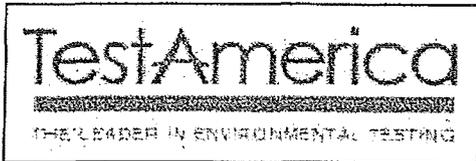
*Multi-incremental subsampling
 organochlorine pest (0081)
 TCUP organochlorine pest (0081)*

Item no.	Client sample ID	COMP	GRAB	Matrix										Sampling			No. of containers	Laboratory ID no.						
				Water	Soil	Wastewater	Drinking water	Sludge	Liquid	Solid	Oil	Other	Preservation method	Date	Time									
1	10-2010.SS1		X	X											IC	6/21	10:00	1	X	X	X	* see notes	MTF0112-01	
2	10-2010.SS2		X	X											↓	6/21	10:00	1	X	X	X	Below	* hand off to tetra tech.	
3	<i>last entry</i>																							
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
<i>Melauron Sato</i>	6/21/10 15:15	hand	<i>YOUNG PHILIP</i>	Tetra Tech	6/21/10 1515	intact, only receive SS2
<i>Melauron Sato</i>	6/21/10 16:00	hand	<i>Jim</i>	TA Man	6/21/10 1600	Punt 42

Comments: *Multi-incremental subsampling to 2mm soil particle size. Please ONLY report technical chlordane, dieldrin, and aldrin. sec charla Nakashima for questions (839-7222 ext 228)*

Please check one:
 Dispose by lab
 Return to client
 Archive



Sample Receipt Checklist

Client Name: ETC Date/ Time Received: 6/21/10 1600

Checklist Completed By: sr Received By: sr

Matrices: Soil

Carrier: Clear

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
- Chain of Custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sample containers on ice? Yes No Type: Wet
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? 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 / 5035 Vials Present? Yes No
- Sample Filtration Needed? Yes No Filtered in Field:
- Dry Weight Corrected Results? Yes No Take Action:
- DODQSM / QAPP Project? Yes No Type: _____

Temperature Blank Present? Yes No

Sample Container/Blank Temperature Range (Minimum 3 sample containers if available): 4 °C

Comments/ Sampling Handling Notes:



July 6, 2010

Mladena Yankova Kukin
Development Manager
Hickam Community Housing
211 Mercury Avenue
Honolulu, HI 96818

by email: mladena.kukin@actuslendlease.com

Subject: TO 55 Memorandum: HDOH Sampling Oversight and Split Sample Collection at Earhart I-2, Hickam Air Force Base, Hawai`i

Dear Ms. Yankova Kukin:

Hickam Community Housing (HCH) requested that Tetra Tech provide environmental oversight and documentation of soil sampling conducted by Hawai`i Department of Health (HDOH) contractors at the southeastern corner of the Earhart I-2 Neighborhood at Hickam Air Force Base, Hawai`I (hereinafter the "Site"). In addition to the oversight and documentation activities HCH also requested that Tetra Tech collect and analyze split samples from the soil samples collected by the HDOH contractors.

Field sampling oversight was provided by Yvonne Parry on June 21 and 23, 2010. Tetra Tech's observations are described below, and copies of Tetra Tech field records and photographic documentation are provided in Appendices A and B, respectively.

FIELD METHODS

The HDOH contracted with the environmental consultants EnviroServices and Training Center (ETC) to perform soil sampling activities at the Site, which were conducted in accordance with a limited Sampling Analysis Plan (SAP) that was prepared by ETC (ETC 2010). Copies of the SAP were provided to Tetra Tech and HCH personnel prior to soil sampling on June 21, 2010.

Prior to soil sampling, ETC delineated one open area (OA) decision unit (DU) in the southeastern corner of the Site; the location of the DU is shown in Figure 1. For quality assurance / quality control purposes ETC collected a triplicate multi-incremental (MI) soil sample (one MI soil sample and two replicates) from the 0- to 12-inch depth interval at the DU. Under an HCH approved deviation from the ETC prepared SAP, ETC also collected one discrete split soil sample (SS7 and SS8) from an approximate depth interval of 12 to 24 inches at the Site. The location of the discrete soil sample is provided in Figure 1.

Thirty soil increments (subsamples) were collected for each MI soil sample using a hand auger, or hammer drill with auger attachment. For the collection of the discrete sample, a 1-foot deep hole was advanced using a shovel, followed by extraction of the soil sample using the hammer drill with auger attachment. The auger attachments were cleaned prior to collecting each MI and discrete soil sample using a laboratory grade detergent mixed with water, followed by a tap water rinse.

The MI soil sampling followed the general guidelines described by the Hawai'i Department of Public Health (HDOH) *Interim Technical Guidance Manual* (HDOH 2009a). Each MI soil sample was composited in the field by placing the sample increments in a sealable 1-gallon plastic bag. All samples were collected as split samples, whereby half of each individual soil sample increment was placed in one sealable 1-gallon plastic bag, and the other half was placed in a second sealable 1-gallon plastic bag. The soil for each increment was removed from the auger bit by hand using clean gloves. The split discrete samples were placed into 8-ounce amber glass jars by hand using clean gloves. In order to preserve sample integrity during sample collection and transport, each of the sample containers was sealed, labeled, and placed into an ice-cooled insulated chest for transport under a chain-of-custody to the analytical laboratory. At the end of each sampling day, Tetra Tech received the respective split samples from ETC, a chain-of-custody was signed, and the HDOH placed custody seals on each of the split soil samples provided to Tetra Tech, per HCH request.

ANALYTICAL METHODS

Tetra Tech submitted the split soil samples to Torrent Laboratory, Milpitas, California for analysis. These samples consisted of a total of three MI soil samples (SS2, SS4 and SS6) and one discrete sample (SS8). The MI soil samples were prepared according to the HDOH MI sub-sampling protocol (HDOH 2009a). Material from the 1-gallon bag was air dried at room temperature, and sieved through a 2 millimeter (mm) sieve.

The graded material was then spread out, and thirty subsamples collected by the laboratory were combined into one composite sample prepared for analysis. The samples were analyzed for organochlorine pesticides by:

- US Environmental Protection Agency (EPA) Method 8081A.

The laboratory analytical results were compared to the following screening levels:

- HDOH Tier 1 HDOH Environmental Action Levels (EALs) are for soil with an unrestricted land use at a distance greater than 150 meters from surface water, and groundwater is a non drinking water resource (Table B-1);
- Site-specific Tier 2 EALs for technical chlordane, aldrin, and dieldrin established for HCH property (Tetra Tech 2009b); and
- The cumulative risk was calculated and compared to the 1×10^{-5} cumulative risk threshold established for HCH property (Tetra Tech 2009).

The laboratory analytical results are summarized in Table 1, and copies of the analytical reports are provided in Appendix C. Only analytes detected at or above the respective laboratory reporting limits (the method detection limits for these sampling event) are shown in Table 1.

Cumulative Risk

Cumulative risk is the sum of the carcinogenic risks of the individual compounds. For HCH sites, the calculated cumulative risk posed by aldrin, chlordane, and dieldrin is compared to the 1×10^{-5} risk threshold established for HCH (Tetra Tech 2009). The cumulative risk can be exceeded even if there are no detections above the Tier 2 EALs. If the calculated cumulative risk exceeds the risk threshold, the soil is designated as pesticide-impacted (PI) soil.

- The calculated cumulative risk exceeds the 1×10^{-5} risk threshold in the triplicate MI soil samples collected from the 0- to 12-inch depth interval at the Site.
- The calculated cumulative risk is below the 1×10^{-5} risk threshold for the discrete soil sample collected from the 12 to 24-inch depth interval at the Site.

CONCLUSIONS AND RECOMMENDATIONS

- The results of the soil sampling indicate that the organochlorine pesticides were detected in soil at the Site.
- The Tier 1 EAL for aldrin was exceeded in MI soil samples SS2 and SS4. The Tier 2 EAL for aldrin was exceeded in MI soil sample SS6.
- The Tier 2 EAL for dieldrin was exceeded in all of the triplicate MI soil samples.
- The Tier 1 EALs for aldrin and dieldrin were exceeded in the discrete soil sample.
- Based on the cumulative risk calculations, the soil from the 0- and 12-inch depth interval at the Site exceeds the risk threshold, and is PI soil.

- The calculated cumulative risk for the discrete sample collected from the 12 to 24-inch depth interval is below the risk threshold.

REFERENCES

- ATSDR (Agency for Toxic Substances and Disease Registry). 1994. *US Department of Health and Human Services, Public Health Service. Toxicological Profile for Chlordane*. Internet Website at URL:
<http://www.atsdr.cdc.gov/toxprofiles/tp31.pdf>.
- ETC (EnviroServices and Training Center.) 2010. *Limited Sampling Analysis Plan, Soil Investigation Earhart I-2, Hickam Air Force Base, O`ahu, Hawai`i*. Prepared for Hawai`i Department of Health. June 2010.
- HDOH (Hawai`i Department of Health). 2009a. *Interim Final Technical Guidance Manual for Implementation of the Hawaii State Contingency Plan*. Prepared by: Hawai`i Department of Health Environmental Management Division. June 21.
- HDOH (Hawai`i Department of Health). 2009b. *HDOH Environmental Action Levels, Supplemental Models in Excel Format, EAL Surfer. March 2009*. Accessed at internet website URL:
<http://hawaii.gov/health/environmental/hazard/eal2005.html>
- Tetra Tech. 2009. *Pesticide-Impacted Soil Investigation and Management Program Manual, Hickam Air Force Base, O`ahu, Hawai`i*. Prepared for Hickam Community Housing LLC. May 2009.

If you have any questions or comments about this report, please contact me at (415) 490-2975 or Yvonne Parry in our Honolulu office, at (808) 533-3366.

Sincerely,
TETRA TECH



Gail Eaton, P.G.
Senior Geologist

cc: Brenda Zehr, Zehr Consulting LLC
Yvonne Parry, Project Manager, Tetra Tech
Tom Whitehead, C.HG., Technical Lead, Tetra Tech
Gary Floyd, Program Manager, Tetra Tech

Attachments:

Figure 1 Decision Unit at the Earhart I-2 Neighborhood
Table 1 Analytical Results of HDOH Split Soil Sampling for Pesticides
Earhart I-2 Neighborhood

Appendix A Tetra Tech Field Records
Appendix B Photographic Documentation
Appendix C Analytical Reports

FIGURE



Earhart I-2 Decision Unit Map

Hickam Air Force Base, O'ahu, Hawai'i

TABLE

Table 1
Analytical Results of HDOH Split Soil Sampling for Pesticides
Earhart I-2 Neighborhood
Hickam Air Force Base, O'ahu, Hawai`i

Sample Name →	HDOH Tier 1 EAL ¹ (mg/kg)	HDOH Tier 2 EAL ² (mg/kg)	10-2010.SS2 (mg/kg)	10-2010.SS4 (mg/kg)	10-2010.SS6 (mg/kg)	10-2010.SS8 (mg/kg)
<i>Depth Interval</i> →			0 to 12 inch	0 to 12 inch	0 to 12 inch	12 to 24 inch
<i>Sample Date</i> →			6/21/2010	6/23/2010	6/23/2010	6/23/2010
<i>Sample Type</i> →			MI	MI	MI	Discrete
<i>Analyte</i>						
4,4-DDE	1.4	NE	0.12	0.085	0.072	0.02
4,4-DDT	1.7	NE	0.10	0.10	0.09	0.026
Aldrin	0.029	0.42	0.27	0.27	0.52	0.04
Chlordane	16	23.4	0.51	0.76	0.54	0.24
Dieldrin	0.03	0.45	0.89	1.1	1.2	0.20
Endrin	0.06	NE	0.014	0.014	0.014	0.013
alpha-Chlordane	NE	NE	0.082	0.11	0.08	0.033
gamma-Chlordane	NE	NE	0.072	0.10	0.07	0.028
Cumulative Risk			2.64E-05	3.12E-05	3.93E-05	5.50E-06

Notes:

Only detected analytes are shown in this table.
Samples SS2, SS4 and SS6 are triplicate samples.

	Exceeds HDOH Tier 1 EAL
	Exceeds HDOH Tier 2 EAL
	Below 1×10^{-5} risk threshold
	Above 1×10^{-5} risk threshold

- HDOH Hawai`i Department of Health
- EAL Environmental Action Level
- mg/kg milligram per kilogram
- MI multi-incremental
- < less than the laboratory reporting limit
- NE not established
- 1 HDOH Tier 1 EALs are for soil with an unrestricted land use at a distance greater than 150 meters from surface water, and groundwater is a non drinking water resource (Table B-1) (HDOH 2009).
- 2 Site-specific Tier 2 EALs calculated for Hickam Community Housing property (Tetra Tech 2009).

APPENDIX A

FIELD RECORDS

FIELD NOTES: SOIL MANAGEMENT

Project #: 100-SFO-T26
 Project Title: Earhart I-2 oversight
 Date: 6/21/2010
 Time: 855 - 1530
 Location: Earhart I-2, HAFB
 Client: HCH
 Tt Personnel: YVONNE PARRY

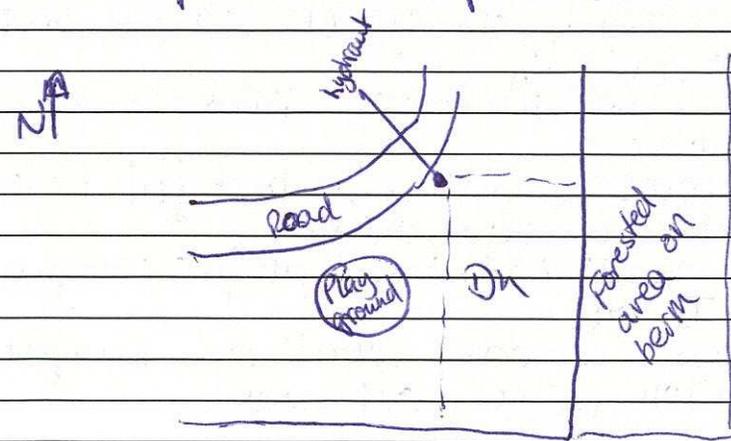
Misc. Personnel: ETC (Sharla, Mel, Benton), HDOH (Rogette, Tom), HCH (Mladena)

Statement of Work: OVERSIGHT of ETC/HDOH Sampling

Equipment Used: CAMERA

Weather: SUNNY, DREZZY

Time	Project Activity
855	Tt arrived on site
855	Health & Safety Meeting
915	Mladena (HCH) on site
925	HDOH on site
	Enviroservices and Training ^{YVP} Training Center (ETC) on site
930	YVP conducts Hazcom, all parties sign off
945	YVP, ETC, HDOH walk site
	Sharla explains sampling process
	1 on - sampled in triplicates, depth 12 inches
	sample will be split (1/2 TE, 1/2 ETC)





1000 ETC starts sampling

sampler is a ^{hand} double helix auger



- grass is cleared
- gets drilled in the ground
- pulled up
- sample is split in half from top to bottom
- 2 zip loc bags (one for TE, one for ETC)
- gloved hands are used to remove sample



30 increments per triplicate MIS

1115 Mladena off site

1139 Sharla off site - Rogette off site

1155 ETC : 17 of 30 increments on 1st triplicate

1158 ETC bathroom break

1225 ETC back on site

1230 YP off site

1305 YP back on site (Rogette returned in mean time)

ETC broke hand auger attachment

auger portion still stuck in ground

ETC uses pneumatic drill with auger attachment and generator to extract samples

1330 Jacobsen (Maintenance) on site to identify/turn on sprinkler heads

1347 Jacobsen off site, Hott placed rocks next to sprinkler heads (2 didn't come up)

1400 Air Force Jordan Germent (civilian contractor) on site

1405 Air Force JB off site

1430 ETC finishes sampling 1st DU triplicate

1435 Marleina (TE) + Sharla (ETC) on site

1450 Marleina (TE) off site

ETC tries to dislodge broken auger attachment

ETC removes auger and backfill hole

ETC packs up equipment

1515 10-20' 10. SS2 (split sample) is signed over to TE YP

RB places custody seal on sample bag

1530 YP, HDOH, ETC off site

1125



FIELD NOTES: SOIL MANAGEMENT

Project #: 100-SFO-T26
 Project Title: Earhart I-2 HDOH sampling oversight
 Date: 6/23/2010
 Time: 900 - 1600
 Location: Earhart I-2
 Client: HCH
 Tt Personnel: Yvonne Parry

Misc. Personnel: ETC: Mel, Benton / HDOH: Rogette, Gavin
 HCH: Jerry Schmitz

Statement of Work: oversee ETC / HDOH sampling

Equipment Used: camera, GPS

Weather: sunny

Time	Project Activity
900	Tt arrived on site, ETC is on site setting up
900	Health & Safety Meeting
910	HDOH on site
915	ETC starts sampling using hammer drill with auger attachment powered by generator 5 increments sampled of 2nd replicate, ETC stops work because sprinkler markers have been removed
930	YP collects GPS coordinates of sampling area
955	Jerry Schmitz HCH on site - sprinklers are turned on, HDOH/ETC mark them - sampling starts again - Jerry sees/observes sampling procedure
1030	- Jerry off site
1035	- YP off site
1105	- YP back on site
1120	- ETC finishes 2nd sample (2nd triplicate) - 2 bags (1 split for ETC, one for TE) - same sampling procedure as Monday - ETC takes break
1211	- ETC prepares for decon decon process -> spray bottle with Alconox



- solution, wipe with paper towel, spray bottle with tapwater (as per Met-ETC)
wipe dry with paper towel
- 1230 ETC starts sampling 3rd triplicate
YP off site (met with Madda-Hett)
- 1400 YP back on site (Sharla ETC on site)
ETC on 28/30 increments
- 1405 Sharla mentions that HDOH would like to collect a grab sample @ 1 to 2 ft depth
- 1410 YP calls RB to request permission from Hett for sampling (information is not ~~in~~ in work plan)
RB calls back → YP to call JS
JS: okay to sample (one split, discrete, from between 1 to 2 ft bags)
YP gives go ahead to Sharla, ETC collects 3rd triplicate
HDOH & ETC start removing grass layer and dig to 1 ft below ground surface (when YP asked Sharla earlier about the process, she just mentioned they would dig - no mention of digging)
YP asks if sample will be collected in 8oz. glass jar as recommended in method
RB not clear on what the method recommends
YP states EPA 8081 recommends glass jars for discrete sample collection
ETC will sample in plastic bags, RB asks if YP wants to get TE jars but ETC will sample in plastic bag,
YP will collect TE sample split exactly how HDOH gets theirs
Sharla says she would prefer glass jars as well
- YP provides glass jars, YP collects GPS data,
- 1510 ETC collects sample in glass jars (SS7+SS8)
- 1530 ETC signs over SS4, SS6 and SS8
RB places custody seal on all samples (TE splits)
- 1600 HDOH, ETC, TE off site

APPENDIX B

PHOTOGRAPHIC DOCUMENTATION

**Photographs: HDOH Sampling Oversight at Earhart I-2
2010**



Photograph 1: EnviroServices and Training Center (ETC) personnel collects MI sample using hand auger. (Image# 3634)



Photograph 2: ETC collects MI sample using hammer drill with auger attachment. (Image# 3638)

Photographs: HDOH Sampling Oversight at Earhart I-2
2010



Photograph 3: Image showing the first set of multi-incremental split samples (SS1 and SS2). (Image# 3646)



Photograph 4: Decontamination of auger attachment (Image# 3652)

**Photographs: HDOH Sampling Oversight at Earhart I-2
2010**



Photograph 5: Discrete sample collection using hammer drill and auger attachment. (Image# 3661)



Photograph 6: Discrete sample collection. (Image# 3666)

APPENDIX C

ANALYTICAL REPORTS



Tetra Tech Inc (HI)
737 Bishop St, Suite 3020
Honolulu, Hawaii 96813
Tel: 808-533-3366
Fax: 808-533-3306
RE: Earhart I-2 HDOH Sampling

Work Order No.: 1006139

Dear Yvonne Parry:

Torrent Laboratory, Inc. received 1 sample(s) on June 23, 2010 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Patti Sandrock

June 30, 2010

Date



Date: 6/30/2010

Client: Tetra Tech Inc (HI)

Project: Earhart I-2 HDOH Sampling

Work Order: 1006139

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Analytical Comments, General, For all samples, Note: Samples processed under Incremental Sampling Procedure SOP TCI0109.

Sample collection date and time is reflective of Hawaiian Standard Time (HST) while all analytical dates and times are reflective of Pacific Standard Time (PST).

Analytical Comments for METHOD 8081S_Tetra Tech, ALL SAMPLE, Note: Per client request, whenever possible (where matrix interference does not preclude it), sample data is reported to the MDL. Results reported between the MDL and PQL are qualified with the appropriate "J" flag and should be considered as estimated values.



Sample Result Summary

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 06/23/10
Date Reported: 06/30/10
1006139-001

10-2010.SS2

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Aldrin	SW8081A	10	0.0044	0.020	0.27	mg/Kg
gamma-Chlordane	SW8081A	10	0.0042	0.020	0.072	mg/Kg
alpha-Chlordane	SW8081A	10	0.0036	0.020	0.082	mg/Kg
4,4'-DDE	SW8081A	10	0.0048	0.020	0.12	mg/Kg
Endrin	SW8081A	10	0.0057	0.020	0.014	mg/Kg
4,4'-DDT	SW8081A	10	0.0081	0.020	0.10	mg/Kg
Chlordane	SW8081A	10	0.10	0.20	0.51	mg/Kg
Dieldrin	SW8081A	20	0.0085	0.040	0.89	mg/Kg



SAMPLE RESULTS

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 06/23/10
Date Reported: 06/30/10

Client Sample ID:	10-2010.SS2	Lab Sample ID:	1006139-001A
Project Name/Location:	Earhart I-2 HDOH Sampling	Sample Matrix:	Soil
Project Number:	100-SFO-T26xxx		
Date/Time Sampled:	06/21/10 / 10:00		
Tag Number:	Earhart I-2 HDOH Sampling		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
-------------	-----------------	-----------	---------------	----	-----	-----	---------	---------------	------	------------------	------------

The results shown below are reported using their MDL.

alpha-BHC	SW8081A	6/29/10	06/29/10	10	0.0044	0.020	ND		mg/Kg	401358	0642
gamma-BHC	SW8081A	6/29/10	06/29/10	10	0.0040	0.020	ND		mg/Kg	401358	0642
beta-BHC	SW8081A	6/29/10	06/29/10	10	0.0036	0.020	ND		mg/Kg	401358	0642
delta-BHC	SW8081A	6/29/10	06/29/10	10	0.0049	0.020	ND		mg/Kg	401358	0642
Heptachlor	SW8081A	6/29/10	06/29/10	10	0.011	0.020	ND		mg/Kg	401358	0642
Aldrin	SW8081A	6/29/10	06/29/10	10	0.0044	0.020	0.27		mg/Kg	401358	0642
Heptachlor epoxide	SW8081A	6/29/10	06/29/10	10	0.0032	0.020	ND		mg/Kg	401358	0642
gamma-Chlordane	SW8081A	6/29/10	06/29/10	10	0.0042	0.020	0.072		mg/Kg	401358	0642
alpha-Chlordane	SW8081A	6/29/10	06/29/10	10	0.0036	0.020	0.082		mg/Kg	401358	0642
Endosulfan I	SW8081A	6/29/10	06/29/10	10	0.0059	0.020	ND		mg/Kg	401358	0642
4,4'-DDE	SW8081A	6/29/10	06/29/10	10	0.0048	0.020	0.12		mg/Kg	401358	0642
Endrin	SW8081A	6/29/10	06/29/10	10	0.0057	0.020	0.014	J	mg/Kg	401358	0642
4,4'-DDD	SW8081A	6/29/10	06/29/10	10	0.0047	0.020	ND		mg/Kg	401358	0642
Endosulfan II	SW8081A	6/29/10	06/29/10	10	0.015	0.020	ND		mg/Kg	401358	0642
4,4'-DDT	SW8081A	6/29/10	06/29/10	10	0.0081	0.020	0.10		mg/Kg	401358	0642
Endrin aldehyde	SW8081A	6/29/10	06/29/10	10	0.010	0.020	ND		mg/Kg	401358	0642
Endosulfan sulfate	SW8081A	6/29/10	06/29/10	10	0.0049	0.020	ND		mg/Kg	401358	0642
Methoxychlor	SW8081A	6/29/10	06/29/10	10	0.0062	0.050	ND		mg/Kg	401358	0642
Endrin Ketone	SW8081A	6/29/10	06/29/10	10	0.0040	0.020	ND		mg/Kg	401358	0642
Chlordane	SW8081A	6/29/10	06/29/10	10	0.10	0.20	0.51		mg/Kg	401358	0642
Toxaphene	SW8081A	6/29/10	06/29/10	10	0.10	1.0	ND		mg/Kg	401358	0642
TCMX (S)	SW8081A	6/29/10	06/29/10	10	52.5	139	98.4		%	401358	0642
DCBP (S)	SW8081A	6/29/10	06/29/10	10	50.2	139	95.7		%	401358	0642

NOTE: Reporting limits increased due to the nature of the sample matrix (dark color extract). Values detected between the MDL and RL should be considered as estimated and would be flagged with a "J" qualifier.

Dieldrin	SW8081A	6/29/10	06/29/10	20	0.0085	0.040	0.89		mg/Kg	401358	0642
----------	---------	---------	----------	----	--------	-------	------	--	-------	--------	------



MB Summary Report

Work Order:	1006139	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/29/10	Analytical Batch:	401358
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
alpha-BHC	0.00044	0.0020	ND		
gamma-BHC	0.00040	0.0020	ND		
beta-BHC	0.00036	0.0020	ND		
delta-BHC	0.00049	0.0020	ND		
Heptachlor	0.0011	0.0020	ND		
Aldrin	0.00044	0.0020	ND		
Heptachlor epoxide	0.00032	0.0020	ND		
gamma-Chlordane	0.00042	0.0020	ND		
alpha-Chlordane	0.00036	0.0020	ND		
Endosulfan I	0.00059	0.0020	ND		
4,4'-DDE	0.00048	0.0020	ND		
Dieldrin	0.00043	0.0020	ND		
Endrin	0.00057	0.0020	ND		
4,4'-DDD	0.00047	0.0020	ND		
Endosulfan II	0.0015	0.0020	ND		
4,4'-DDT	0.00081	0.0020	ND		
Endrin aldehyde	0.0010	0.0020	ND		
Endosulfan sulfate	0.00049	0.0020	ND		
Methoxychlor	0.00062	0.0050	ND		
Endrin Ketone	0.00040	0.0020	ND		
Chlordane	0.010	0.020	ND		
Toxaphene	0.010	0.10	ND		
TCMX (S)			100		
DCBP (S)			97.0		



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1006139	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/29/10	Analytical Batch:	401358
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
alpha-BHC	0.44	2.0		20	107	99.6	7.20	44.2 - 125	30	
gamma-BHC	0.40	2.0		20	103	95.5	7.55	56.9 - 124	30	
beta-BHC	0.36	2.0		20	99.6	89.2	11.0	44.2 - 125	30	
delta-BHC	0.49	2.0		20	105	99.6	5.28	61.5 - 116	30	
Heptachlor	1.1	2.0		20	116	107	8.35	63.6 - 125	30	
Aldrin	0.44	2.0		20	104	96.0	7.56	53 - 126	30	
Heptachlor epoxide	0.32	2.0		20	108	101	6.62	54.6 - 130	30	
gamma-Chlordane	0.42	2.0		20	108	101	6.47	68.7 - 123	30	
alpha-Chlordane	0.36	2.0		20	106	99.1	6.72	42.4 - 128	30	
Endosulfan I	0.59	2.0		20	106	99.5	5.81	61.2 - 119	30	
4,4'-DDE	0.48	2.0		20	105	99.1	5.82	45.3 - 123	30	
Dieldrin	0.43	2.0		20	109	102	6.62	44 - 128	30	
Endrin	0.57	2.0		20	120	115	4.25	44.1 - 126	30	
4,4'-DDD	0.47	2.0		20	105	101	4.21	39.6 - 123	30	
Endosulfan II	1.5	2.0		20	96.0	90.9	5.51	56.7 - 112	30	
4,4'-DDT	0.81	2.0		20	114	127	10.2	52.8 - 134	30	
Endrin aldehyde	1.0	2.0		20	95.9	94.6	1.48	50.2 - 113	30	
Endosulfan sulfate	0.49	2.0		20	106	102	3.00	62.1 - 116	30	
Methoxychlor	0.62	5.0		20	116	124	6.80	55.2 - 126	30	
Endrin Ketone	0.40	2.0		20	99.3	92.9	6.86	53.9 - 120	30	
TCMX (S)				2100	103	96.3		52.5 - 121		
DCBP (S)				2100	98.7	94.6		50.2 - 121		



Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - mg/L and mg/Kg (equivalent to PPM - parts per million in liquid and solid), ug/L and ug/Kg (equivalent to PPB - parts per billion in liquid and solid), ug/m³ , mg.m³ , ppbv and ppmv (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), ug/Wipe (concentration found on the surface of a single Wipe usually taken over a 100cm ² surface)

LABORATORY QUALIFIERS:

<p>B - Indicates when the analyte is found in the associated method or preparation blank</p> <p>D - Surrogate is not recoverable due to the necessary dilution of the sample</p> <p>E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.</p> <p>H- Indicates that the recommended holding time for the analyte or compound has been exceeded</p> <p>J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative</p> <p>NA - Not Analyzed</p> <p>N/A - Not Applicable</p> <p>NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added</p> <p>R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts</p> <p>S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</p> <p>X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.</p>



Sample Receipt Checklist

Client Name: Tetra Tech Inc (HI)

Date and Time Received: 6/23/2010 13:30

Project Name: Earhart I-2 HDOH Sampling

Received By: NG

Work Order No.: 1006139

Physically Logged By: NG

Checklist Completed By: NG

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present? Yes
Chain of custody signed when relinquished and received? Yes
Chain of custody agrees with sample labels? Yes
Custody seals intact on sample bottles? Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler? Not Present
Shipping Container/Cooler In Good Condition? Yes
Samples in proper container/bottle? Yes
Samples containers intact? Yes
Sufficient sample volume for indicated test? Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes
Container/Temp Blank temperature in compliance? Yes Temperature: 5 °C
Water-VOA vials have zero headspace? No VOA vials submitted
Water-pH acceptable upon receipt?

pH Checked by: pH Adjusted by:



Login Summary Report

Client ID:	TL5162 Tetra Tech Inc (HI)	QC Level:	
Project Name:	Earhart I-2 HDOH Sampling	TAT Requested:	3 day:25
Project # :	100-SFO-T26xxx	Date Received:	6/23/2010
Report Due Date:	6/28/2010	Time Received:	13:30
Comments:	3 day RUSH!!! Recv'd 1 soil for 8081@ 5'C.Pls. email an EDD result to Y.Parry ; G.Eaton ;J.Mollison.Incremental sampling required. Samples need to be air dried.		
Work Order # :	1006139		

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1006139-001A	10-2010.SS2	06/21/10 10:00	Soil	12/20/10			EDD S_8081MITetra	
Sample Note: 3 day RUSH!! /EDD ;Incremental sampling required.								
1006139-001A20 x	10-2010.SS2	06/21/10 10:00	Soil	12/20/10			S_8081MITetra	



Tetra Tech Inc (HI)
737 Bishop St, Suite 3020
Honolulu, Hawaii 96813
Tel: 808-533-3366
Fax: 808-533-3306
RE: Earhart I-2 HDOH Sampling

Work Order No.: 1006151

Dear Yvonne Parry:

Torrent Laboratory, Inc. received 3 sample(s) on June 25, 2010 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Patti Sandrock

July 02, 2010

Date

Date: 7/2/2010

Client: Tetra Tech Inc (HI)

Project: Earhart I-2 HDOH Sampling

Work Order: 1006151

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Analytical Comments, General, For all samples, Note: Samples processed under Incremental Sampling Procedure SOP TCI0109.

Sample collection date and time is reflective of Hawaiian Standard Time (HST) while all analytical dates and times are reflective of Pacific Standard Time (PST).

Analytical Comments for METHOD 8081S_Tetra Tech, ALL SAMPLE, Note: Per client request, whenever possible (where matrix interference does not preclude it), sample data is reported to the MDL. Results reported between the MDL and PQL are qualified with the appropriate "J" flag and should be considered as estimated values.

Analytical Comment for S_8081Tetra, 1006151-001A MS/MSD, QC BATCH 0642, Note: The spikes in the MS/MSD for Aldrin, Dieldrin and 4,4'-DDT are not recoverable. The sample concentration is greater than 4X the spike concentration. No corrective action is required.

Analytical Comment for S_8081Tetra, Method Blank 1 and Method Blank 2, Note: Due to the necessary re-extraction of sample -003A, two method blanks are reported for the same #0642 QC Batch.



Sample Result Summary

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 06/25/10

Date Reported: 07/02/10

10-2010-SS4

1006151-001A

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Aldrin	SW8081A	50	0.022	0.10	0.27	mg/Kg
gamma-Chlordane	SW8081A	50	0.021	0.10	0.10	mg/Kg
alpha-Chlordane	SW8081A	50	0.018	0.10	0.11	mg/Kg
4,4'-DDE	SW8081A	50	0.024	0.10	0.085	mg/Kg
Dieldrin	SW8081A	50	0.021	0.10	1.1	mg/Kg
Endrin	SW8081A	50	0.028	0.10	0.11	mg/Kg
4,4'-DDT	SW8081A	50	0.040	0.10	0.13	mg/Kg
Endrin Ketone	SW8081A	50	0.020	0.10	0.045	mg/Kg
Chlordane	SW8081A	50	0.50	1.0	0.76	mg/Kg

10-2010-SS6

1006151-002A

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Aldrin	SW8081A	50	0.022	0.10	0.52	mg/Kg
gamma-Chlordane	SW8081A	50	0.021	0.10	0.070	mg/Kg
alpha-Chlordane	SW8081A	50	0.018	0.10	0.080	mg/Kg
4,4'-DDE	SW8081A	50	0.024	0.10	0.072	mg/Kg
Dieldrin	SW8081A	50	0.021	0.10	1.3	mg/Kg
Endrin	SW8081A	50	0.028	0.10	0.029	mg/Kg
4,4'-DDT	SW8081A	50	0.040	0.10	0.090	mg/Kg
Methoxychlor	SW8081A	50	0.031	0.25	0.11	mg/Kg
Chlordane	SW8081A	50	0.50	1.0	0.54	mg/Kg

10-2010-SS8

1006151-003A

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Aldrin	SW8081A	4	0.0035	0.016	0.040	mg/Kg
gamma-Chlordane	SW8081A	4	0.0034	0.016	0.028	mg/Kg
alpha-Chlordane	SW8081A	4	0.0029	0.016	0.033	mg/Kg
4,4'-DDE	SW8081A	4	0.0038	0.016	0.020	mg/Kg
Dieldrin	SW8081A	4	0.0034	0.016	0.20	mg/Kg
Endrin	SW8081A	4	0.0046	0.016	0.013	mg/Kg
4,4'-DDT	SW8081A	4	0.0065	0.016	0.026	mg/Kg
Chlordane	SW8081A	4	0.080	0.16	0.24	mg/Kg



SAMPLE RESULTS

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 06/25/10
Date Reported: 07/02/10

Client Sample ID:	10-2010-SS4	Lab Sample ID:	1006151-001A
Project Name/Location:	Earhart I-2 HDOH Sampling	Sample Matrix:	Soil
Project Number:	100-SFO-T26XXX		
Date/Time Sampled:	06/23/10 / 9:10		
Tag Number:	Earhart I-2 HDOH		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
-------------	-----------------	-----------	---------------	----	-----	-----	---------	---------------	------	------------------	------------

The results shown below are reported using their MDL.

alpha-BHC	SW8081A	6/29/10	06/29/10	10	0.0044	0.020	ND		mg/Kg	401358	0642
gamma-BHC	SW8081A	6/29/10	06/29/10	10	0.0040	0.020	ND		mg/Kg	401358	0642
beta-BHC	SW8081A	6/29/10	06/29/10	10	0.0036	0.020	ND		mg/Kg	401358	0642
delta-BHC	SW8081A	6/29/10	06/29/10	10	0.0049	0.020	ND		mg/Kg	401358	0642
Heptachlor	SW8081A	6/29/10	06/29/10	10	0.011	0.020	ND		mg/Kg	401358	0642
Aldrin	SW8081A	6/29/10	06/29/10	10	0.0044	0.020	0.27		mg/Kg	401358	0642
Heptachlor epoxide	SW8081A	6/29/10	06/29/10	10	0.0032	0.020	ND		mg/Kg	401358	0642
gamma-Chlordane	SW8081A	6/29/10	06/29/10	10	0.0042	0.020	0.10		mg/Kg	401358	0642
alpha-Chlordane	SW8081A	6/29/10	06/29/10	10	0.0036	0.020	0.11		mg/Kg	401358	0642
Endosulfan I	SW8081A	6/29/10	06/29/10	10	0.0059	0.020	ND		mg/Kg	401358	0642
4,4'-DDE	SW8081A	6/29/10	06/29/10	10	0.0048	0.020	0.085		mg/Kg	401358	0642
Endrin	SW8081A	6/29/10	06/29/10	10	0.0057	0.020	0.014	J	mg/Kg	401358	0642
4,4'-DDD	SW8081A	6/29/10	06/29/10	10	0.0047	0.020	ND		mg/Kg	401358	0642
Endosulfan II	SW8081A	6/29/10	06/29/10	10	0.015	0.020	ND		mg/Kg	401358	0642
4,4'-DDT	SW8081A	6/29/10	06/29/10	10	0.0081	0.020	0.10		mg/Kg	401358	0642
Endrin aldehyde	SW8081A	6/29/10	06/29/10	10	0.010	0.020	ND		mg/Kg	401358	0642
Endosulfan sulfate	SW8081A	6/29/10	06/29/10	10	0.0049	0.020	ND		mg/Kg	401358	0642
Methoxychlor	SW8081A	6/29/10	06/29/10	10	0.0062	0.050	ND		mg/Kg	401358	0642
Endrin Ketone	SW8081A	6/29/10	06/29/10	10	0.0040	0.020	ND		mg/Kg	401358	0642
Chlordane	SW8081A	6/29/10	06/29/10	10	0.10	0.20	0.76		mg/Kg	401358	0642
Toxaphene	SW8081A	6/29/10	06/29/10	10	0.10	1.0	ND		mg/Kg	401358	0642
TCMX (S)	SW8081A	6/29/10	06/29/10	10	52.5	139	113		%	401358	0642
DCBP (S)	SW8081A	6/29/10	06/29/10	10	50.2	139	128		%	401358	0642

NOTE: Reporting limits increased due to the nature of the sample matrix (dark color extract). Values detected between the MDL and RL should be considered as estimated and would be flagged with a "J" qualifier.

Dieldrin	SW8081A	6/29/10	06/30/10	50	0.021	0.10	1.1		mg/Kg	401375	0642
----------	---------	---------	----------	----	-------	------	-----	--	-------	--------	------



SAMPLE RESULTS

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 06/25/10
Date Reported: 07/02/10

Client Sample ID:	10-2010-SS6	Lab Sample ID:	1006151-002A
Project Name/Location:	Earhart I-2 HDOH Sampling	Sample Matrix:	Soil
Project Number:	100-SFO-T26XXX		
Date/Time Sampled:	06/23/10 / 12:35		
Tag Number:	Earhart I-2 HDOH		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
-------------	-----------------	-----------	---------------	----	-----	-----	---------	---------------	------	------------------	------------

The results shown below are reported using their MDL.

alpha-BHC	SW8081A	6/29/10	06/29/10	10	0.0044	0.020	ND		mg/Kg	401358	0642
gamma-BHC	SW8081A	6/29/10	06/29/10	10	0.0040	0.020	ND		mg/Kg	401358	0642
beta-BHC	SW8081A	6/29/10	06/29/10	10	0.0036	0.020	ND		mg/Kg	401358	0642
delta-BHC	SW8081A	6/29/10	06/29/10	10	0.0049	0.020	ND		mg/Kg	401358	0642
Heptachlor	SW8081A	6/29/10	06/29/10	10	0.011	0.020	ND		mg/Kg	401358	0642
Aldrin	SW8081A	6/29/10	06/29/10	10	0.0044	0.020	0.52		mg/Kg	401358	0642
Heptachlor epoxide	SW8081A	6/29/10	06/29/10	10	0.0032	0.020	ND		mg/Kg	401358	0642
gamma-Chlordane	SW8081A	6/29/10	06/29/10	10	0.0042	0.020	0.070		mg/Kg	401358	0642
alpha-Chlordane	SW8081A	6/29/10	06/29/10	10	0.0036	0.020	0.080		mg/Kg	401358	0642
Endosulfan I	SW8081A	6/29/10	06/29/10	10	0.0059	0.020	ND		mg/Kg	401358	0642
4,4'-DDE	SW8081A	6/29/10	06/29/10	10	0.0048	0.020	0.072		mg/Kg	401358	0642
Endrin	SW8081A	6/29/10	06/29/10	10	0.0057	0.020	0.014	J	mg/Kg	401358	0642
4,4'-DDD	SW8081A	6/29/10	06/29/10	10	0.0047	0.020	ND		mg/Kg	401358	0642
Endosulfan II	SW8081A	6/29/10	06/29/10	10	0.015	0.020	ND		mg/Kg	401358	0642
4,4'-DDT	SW8081A	6/29/10	06/29/10	10	0.0081	0.020	0.090		mg/Kg	401358	0642
Endrin aldehyde	SW8081A	6/29/10	06/29/10	10	0.010	0.020	ND		mg/Kg	401358	0642
Endosulfan sulfate	SW8081A	6/29/10	06/29/10	10	0.0049	0.020	ND		mg/Kg	401358	0642
Methoxychlor	SW8081A	6/29/10	06/29/10	10	0.0062	0.050	ND		mg/Kg	401358	0642
Endrin Ketone	SW8081A	6/29/10	06/29/10	10	0.0040	0.020	ND		mg/Kg	401358	0642
Chlordane	SW8081A	6/29/10	06/29/10	10	0.10	0.20	0.54		mg/Kg	401358	0642
Toxaphene	SW8081A	6/29/10	06/29/10	10	0.10	1.0	ND		mg/Kg	401358	0642
TCMX (S)	SW8081A	6/29/10	06/29/10	10	52.5	139	113		%	401358	0642
DCBP (S)	SW8081A	6/29/10	06/29/10	10	50.2	139	116		%	401358	0642

NOTE: Reporting limits increased due to the nature of the sample matrix (dark color extract). Values detected between the MDL and RL should be considered as estimated and would be flagged with a "J" qualifier.

Dieldrin	SW8081A	6/29/10	06/30/10	50	0.021	0.10	1.2	mg/Kg	401375	0642
----------	---------	---------	----------	----	-------	------	-----	-------	--------	------



SAMPLE RESULTS

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 06/25/10
Date Reported: 07/02/10

Client Sample ID:	10-2010-SS8	Lab Sample ID:	1006151-003A
Project Name/Location:	Earhart I-2 HDOH Sampling	Sample Matrix:	Soil
Project Number:	100-SFO-T26XXX		
Date/Time Sampled:	06/23/10 / 15:10		
Tag Number:	Earhart I-2 HDOH		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
-------------	-----------------	-----------	---------------	----	-----	-----	---------	---------------	------	------------------	------------

The results shown below are reported using their MDL.

alpha-BHC	SW8081A	6/29/10	06/30/10	4	0.0035	0.016	ND		mg/Kg	401375	0642
gamma-BHC	SW8081A	6/29/10	06/30/10	4	0.0032	0.016	ND		mg/Kg	401375	0642
beta-BHC	SW8081A	6/29/10	06/30/10	4	0.0029	0.016	ND		mg/Kg	401375	0642
delta-BHC	SW8081A	6/29/10	06/30/10	4	0.0039	0.016	ND		mg/Kg	401375	0642
Heptachlor	SW8081A	6/29/10	06/30/10	4	0.0088	0.016	ND		mg/Kg	401375	0642
Aldrin	SW8081A	6/29/10	06/30/10	4	0.0035	0.016	0.040		mg/Kg	401375	0642
Heptachlor epoxide	SW8081A	6/29/10	06/30/10	4	0.0025	0.016	ND		mg/Kg	401375	0642
gamma-Chlordane	SW8081A	6/29/10	06/30/10	4	0.0034	0.016	0.028		mg/Kg	401375	0642
alpha-Chlordane	SW8081A	6/29/10	06/30/10	4	0.0029	0.016	0.033		mg/Kg	401375	0642
Endosulfan I	SW8081A	6/29/10	06/30/10	4	0.0047	0.016	ND		mg/Kg	401375	0642
4,4'-DDE	SW8081A	6/29/10	06/30/10	4	0.0038	0.016	0.020		mg/Kg	401375	0642
Dieldrin	SW8081A	6/29/10	06/30/10	4	0.0034	0.016	0.20		mg/Kg	401375	0642
Endrin	SW8081A	6/29/10	06/30/10	4	0.0046	0.016	0.013	J	mg/Kg	401375	0642
4,4'-DDD	SW8081A	6/29/10	06/30/10	4	0.0038	0.016	ND		mg/Kg	401375	0642
Endosulfan II	SW8081A	6/29/10	06/30/10	4	0.012	0.016	ND		mg/Kg	401375	0642
4,4'-DDT	SW8081A	6/29/10	06/30/10	4	0.0065	0.016	0.026		mg/Kg	401375	0642
Endrin aldehyde	SW8081A	6/29/10	06/30/10	4	0.0082	0.016	ND		mg/Kg	401375	0642
Endosulfan sulfate	SW8081A	6/29/10	06/30/10	4	0.0039	0.016	ND		mg/Kg	401375	0642
Methoxychlor	SW8081A	6/29/10	06/30/10	4	0.0049	0.040	ND		mg/Kg	401375	0642
Endrin Ketone	SW8081A	6/29/10	06/30/10	4	0.0032	0.016	ND		mg/Kg	401375	0642
Chlordane	SW8081A	6/29/10	06/30/10	4	0.080	0.16	0.24		mg/Kg	401375	0642
Toxaphene	SW8081A	6/29/10	06/30/10	4	0.080	0.80	ND		mg/Kg	401375	0642
TCMX (S)	SW8081A	6/29/10	06/30/10	4	52.5	139	103		%	401375	0642
DCBP (S)	SW8081A	6/29/10	06/30/10	4	50.2	139	103		%	401375	0642

NOTE: Reporting limits increased due to the nature of the sample matrix (dark color extract). Values detected between the MDL and RL should be considered as estimated and would be flagged with a "J" qualifier.



MB Summary Report

Work Order:	1006151	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/29/10	Analytical Batch:	401358
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
alpha-BHC	0.00044	0.0020	ND		
gamma-BHC	0.00040	0.0020	ND		
beta-BHC	0.00036	0.0020	ND		
delta-BHC	0.00049	0.0020	ND		
Heptachlor	0.0011	0.0020	ND		
Aldrin	0.00044	0.0020	ND		
Heptachlor epoxide	0.00032	0.0020	ND		
gamma-Chlordane	0.00042	0.0020	ND		
alpha-Chlordane	0.00036	0.0020	ND		
Endosulfan I	0.00059	0.0020	ND		
4,4'-DDE	0.00048	0.0020	ND		
Dieldrin	0.00043	0.0020	ND		
Endrin	0.00057	0.0020	ND		
4,4'-DDD	0.00047	0.0020	ND		
Endosulfan II	0.0015	0.0020	ND		
4,4'-DDT	0.00081	0.0020	ND		
Endrin aldehyde	0.0010	0.0020	ND		
Endosulfan sulfate	0.00049	0.0020	ND		
Methoxychlor	0.00062	0.0050	ND		
Endrin Ketone	0.00040	0.0020	ND		
Chlordane	0.010	0.020	ND		
Toxaphene	0.010	0.10	ND		
TCMX (S)			100 %		
DCBP (S)			97.0 %		



MB Summary Report

Work Order:	1006151	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/30/10	Analytical Batch:	401375
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
alpha-BHC	0.00044	0.0020	ND		
gamma-BHC	0.00040	0.0020	ND		
beta-BHC	0.00036	0.0020	ND		
delta-BHC	0.00049	0.0020	ND		
Heptachlor	0.0011	0.0020	ND		
Aldrin	0.00044	0.0020	ND		
Heptachlor epoxide	0.00032	0.0020	ND		
gamma-Chlordane	0.00042	0.0020	ND		
alpha-Chlordane	0.00036	0.0020	ND		
Endosulfan I	0.00059	0.0020	ND		
4,4'-DDE	0.00048	0.0020	ND		
Dieldrin	0.00043	0.0020	ND		
Endrin	0.00057	0.0020	ND		
4,4'-DDD	0.00047	0.0020	ND		
Endosulfan II	0.0015	0.0020	ND		
4,4'-DDT	0.00081	0.0020	ND		
Endrin aldehyde	0.0010	0.0020	ND		
Endosulfan sulfate	0.00049	0.0020	ND		
Methoxychlor	0.00062	0.0050	ND		
Endrin Ketone	0.00040	0.0020	ND		
Chlordane	0.010	0.020	ND		
Toxaphene	0.010	0.10	ND		
TCMX (S)			102 %		
DCBP (S)			101 %		
alpha-BHC	0.00044	0.0020	ND		
gamma-BHC	0.00040	0.0020	ND		
beta-BHC	0.00036	0.0020	ND		
delta-BHC	0.00049	0.0020	ND		
Heptachlor	0.0011	0.0020	ND		
Aldrin	0.00044	0.0020	ND		
Heptachlor epoxide	0.00032	0.0020	ND		
gamma-Chlordane	0.00042	0.0020	ND		
alpha-Chlordane	0.00036	0.0020	ND		
Endosulfan I	0.00059	0.0020	ND		
4,4'-DDE	0.00048	0.0020	ND		
Dieldrin	0.00043	0.0020	ND		
Endrin	0.00057	0.0020	ND		
4,4'-DDD	0.00047	0.0020	ND		
Endosulfan II	0.0015	0.0020	ND		
4,4'-DDT	0.00081	0.0020	ND		



MB Summary Report

Work Order:	1006151	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/30/10	Analytical Batch:	401375
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Endrin aldehyde	0.0010	0.0020	ND	
Endosulfan sulfate	0.00049	0.0020	ND	
Methoxychlor	0.00062	0.0050	ND	
Endrin Ketone	0.00040	0.0020	ND	
Chlordane	0.010	0.020	ND	
Toxaphene	0.010	0.10	ND	
TCMX (S)			102 %	
DCBP (S)			101 %	



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1006151	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/29/10	Analytical Batch:	401358
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
alpha-BHC	0.44	2.0		20	107	99.6	7.20	44.2 - 125	30	
gamma-BHC	0.40	2.0		20	103	95.5	7.55	56.9 - 124	30	
beta-BHC	0.36	2.0		20	99.6	89.2	11.0	44.2 - 125	30	
delta-BHC	0.49	2.0		20	105	99.6	5.28	61.5 - 116	30	
Heptachlor	1.1	2.0		20	116	107	8.35	63.6 - 125	30	
Aldrin	0.44	2.0		20	104	96.0	7.56	53 - 126	30	
Heptachlor epoxide	0.32	2.0		20	108	101	6.62	54.6 - 130	30	
gamma-Chlordane	0.42	2.0		20	108	101	6.47	68.7 - 123	30	
alpha-Chlordane	0.36	2.0		20	106	99.1	6.72	42.4 - 128	30	
Endosulfan I	0.59	2.0		20	106	99.5	5.81	61.2 - 119	30	
4,4'-DDE	0.48	2.0		20	105	99.1	5.82	45.3 - 123	30	
Dieldrin	0.43	2.0		20	109	102	6.62	44 - 128	30	
Endrin	0.57	2.0		20	120	115	4.25	44.1 - 126	30	
4,4'-DDD	0.47	2.0		20	105	101	4.21	39.6 - 123	30	
Endosulfan II	1.5	2.0		20	96.0	90.9	5.51	56.7 - 112	30	
4,4'-DDT	0.81	2.0		20	114	127	10.2	52.8 - 134	30	
Endrin aldehyde	1.0	2.0		20	95.9	94.6	1.48	50.2 - 113	30	
Endosulfan sulfate	0.49	2.0		20	106	102	3.00	62.1 - 116	30	
Methoxychlor	0.62	5.0		20	116	124	6.80	55.2 - 126	30	
Endrin Ketone	0.40	2.0		20	99.3	92.9	6.86	53.9 - 120	30	
TCMX (S)				2100	103	96.3		52.5 - 121		
DCBP (S)				2100	98.7	94.6		50.2 - 121		



MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1006151	Prep Method:	3545MI_OCP	Prep Date:	06/29/10	Prep Batch:	0642
Matrix:	Soil	Analytical Method:	SW8081A	Analyzed Date:	06/29/10	Analytical Batch:	401358
Spiked Sample:	1006151-001A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aldrin	4.4	20	26.80	20	0.000	0.000	0.000	53.9 - 142	30	NR
gamma-BHC	4.0	20	0.00	20	85.9	84.5	1.80	56.9 - 120	30	
Heptachlor	11	20	0.20	20	98.8	96.9	1.94	52.2 - 117	30	
Dieldrin	4.3	20	114.17	20	0.000	0.000	0.000	29.2 - 130	30	NR
Endrin	5.7	20	1.44	20	114	92.8	12.1	44.1 - 121	30	
4,4'-DDT	8.1	20	10.07	20	0.000	0.000	0.000	24.6 - 134	30	NR
TCMX (S)				2100	111	111		52.5 - 139		
DCBP (S)				2100	130	134		50.2 - 139		



Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - mg/L and mg/Kg (equivalent to PPM - parts per million in liquid and solid), ug/L and ug/Kg (equivalent to PPB - parts per billion in liquid and solid), ug/m³ , mg.m³ , ppbv and ppmv (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), ug/Wipe (concentration found on the surface of a single Wipe usually taken over a 100cm ² surface)

LABORATORY QUALIFIERS:

<p>B - Indicates when the analyte is found in the associated method or preparation blank</p> <p>D - Surrogate is not recoverable due to the necessary dilution of the sample</p> <p>E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.</p> <p>H- Indicates that the recommended holding time for the analyte or compound has been exceeded</p> <p>J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative</p> <p>NA - Not Analyzed</p> <p>N/A - Not Applicable</p> <p>NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added</p> <p>R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts</p> <p>S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</p> <p>X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.</p>



Sample Receipt Checklist

Client Name: Tetra Tech Inc (HI)

Date and Time Received: 6/25/2010 12:45

Project Name: Earhart I-2 HDOH Sampling

Received By: RAJ

Work Order No.: 1006151

Physically Logged By:

Checklist Completed By: LORNA

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present? Yes
Chain of custody signed when relinquished and received? Yes
Chain of custody agrees with sample labels? Yes
Custody seals intact on sample bottles? Yes

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes
Shipping Container/Cooler In Good Condition? Yes
Samples in proper container/bottle? Yes
Samples containers intact? Yes
Sufficient sample volume for indicated test? Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes
Container/Temp Blank temperature in compliance? Temperature: 3 °C
Water-VOA vials have zero headspace? No VOA vials submitted
Water-pH acceptable upon receipt?

pH Checked by: pH Adjusted by:

-001A and -002A Incremental sampling required;-003A "NOT Incremental.



Login Summary Report

Client ID:	TL5162 Tetra Tech Inc (HI)	QC Level:	
Project Name:	Earhart I-2 HDOH Sampling	TAT Requested:	3 Day Noon:37.5
Project # :	100-SFO-T26XXX	Date Received:	6/25/2010
Report Due Date:	7/2/2010	Time Received:	12:45
Comments:	3 day RUSH for 8081 Incremental sampling on samples -001A and -002A ; -003A not required. Pls. email an EDD result to Y.Parry.G.Eaton.J.Mollison.Recv'd 3 soils @3'C.		
Work Order # :	1006151		

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1006151-001A	10-2010-SS4	06/23/10 9:10	Soil	12/22/10			EDD S_8081MITetra	
Sample Note: 3 day RUSH!!! Recv'd 3 samples. Sample 001,002 multi incremental and 003 discrete.								
1006151-001A50 x	10-2010-SS4	06/23/10 9:10	Soil	12/22/10			S_8081MITetra	
1006151-002A	10-2010-SS6	06/23/10 12:35	Soil	12/22/10			S_8081MITetra	
1006151-002A50 x	10-2010-SS6	06/23/10 12:35	Soil	12/22/10			S_8081MITetra	
1006151-003A	10-2010-SS8	06/23/10 15:10	Soil	12/22/10			S_8081AOC	
Sample Note: Discrete sample does not require drying and sieving.								

