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Letter of Transmittal

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Date: 10/3/14

Subject: Schofield Barracks FINAL HE Effluent Sampling Report

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FINAL

EFFLUENT SAMPLING REPORT FOR AIR MONITORING OF DEPLETED URANIUM DURING A TRAINING EXERCISE USING HIGH EXPLOSIVE ROUNDS WITHIN AN EXISTING RADIATION CONTROLLED AREA

SCHOFIELD BARRACKS, OAHU, HAWAII

Contract Number: W912DR-08-D-0026 Delivery Order: ZW01 CABRERA Project Number: 08-3123.00

Prepared for:



US ARMY CORPS OF ENGINEERS US Army – Engineering and Support Center CEHNC-CT 4820 University Square Huntsville, AL 35816-1822

Prepared by:



Cabrera Services, Inc. 1106 N. Charles St., Suite 300 Baltimore, MD 21201

August 2014



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Schofield Barracks FINAL Effluent Sampling Report During a Training Exercise Using High Explosive Rounds

TABLE OF CONTENTS

<u>SECTION</u> PAGE

TAI	BLE OF (CONTENTSI	
LIST OF TABLES II			
LIS	T OF FIC	GURESIII	
LIS	T OF AT	TACHMENTSIII	
1.0		INTRODUCTION1-1	
	1.1 1.2 1.3	Purpose.1-1Site Description.1-1Prior Investigation.1-1	
2.0		DATA QUALITY OBJECTIVES2-1	
	2.1 2.2 2.3 2.3.1 2.3.2 2.3.3 2.4 2.5 2.6 2.7	Step 1 – State the Problem2-1Step 2 – Identify the Decision2-1Step 3 – Identify Inputs to the Decision2-2Previous Investigations2-2Characteristics of the ROC2-2Action Levels2-2Step 4 – Define the Study Boundaries2-3Step 5 – Develop a Decision Rule2-3Step 6 – Specify Tolerable Limits on Decision Errors2-4Step 7 – Optimize the Design for Collecting Data2-4	
3.0		SURVEY DESIGN	
	3.1 3.2 3.3 3.3.1 3.3.2 3.4	Environmental Conditions3-1Sample Numbering3-1Air Monitors3-2Air Filters3-2Filter Correction3-2Air Sample Locations3-3	
4.0		SAMPLE COLLECTION, PREPARATION, AND ANALYSIS4-1	
	4.1 4.1.1 4.1.2 4.2 4.3	Collection4-1Background and Post Monitoring4-1Particulate Monitoring4-1Preparation4-2Analysis4-2	
5.0		SURVEY RESULTS	
	5.1 5.2 5.3	Background Air Filters5-1During HE Training Exercise5-1Post-HE Training Exercise5-1	

	5.4	²³⁸ U: ²³⁴ U Ratio Evaluation	. 5-5
6.0		QUALITY CONTROL FIELD INSTRUMENTS	6-1
7.0		QUALITY CONTROL - DATA VALIDATION	7-1
	7.1	Measurement Quality Objectives	7-1
	7.1.1	Detection Capability	
	7.1.2	Method Uncertainty/Quantification Capability	
	7.1.3	Range	
	7.1.4	Specificity	
	7.1.5	Ruggedness	
	7.2	Quality-Indicator Samples	
	7.2.1	Standard Traceability	
	7.2.2	Precision with Respect to Laboratory Duplicate (LDUP)/ Replicates (LREP)	
	Sampl	es	
	7.2.3	Bias with Respect to Laboratory Control Sample (LCS)/Laboratory Control	
	Sampl	e Duplicate (LCSD)	. 7-3
	7.2.4	Method Blank (MB)	. 7-3
	7.2.5	Tracer Yield and Biasness	.7-4
	7.3	Data Usability and Completeness	7-12
	7.4	QC Sample Frequency Summary	7-13
8.0		RECORD KEEPING AND REPORTING	.8-1
	8.1	DQCRs	. 8-1
	8.2	Daily Tailgate Safety Reports	.8-1
	8.3	Environmental Conditions Report	.8-1
	8.4	Instrument Quality Control Reports	.8-2
	8.5	Chain of Custody	.8-2
	8.6	Offsite Laboratory Analysis Reports	.8-2
	8.7	Photographs	.8-2
9.0		CONCLUSION	.9-1
10.0)	REFERENCES	10-1

LIST OF TABLES

Table 1-1. Previous Effluent Monitoring Events	1-1
Table 2-1. Decision Rules	2-4
Table 3-1. Survey Design Modification	3-1
Table 3-2. Air Monitoring Locations during HE Training Exercise Investigation	3-3
Table 4-1. Sample Collection Dates and Average Run Times	4-1
Table 5-1. Background Air Filter Sample Results and Summary Statistics	5-2
Table 5-2. HE Training Exercise Air Filter Sample Results and Summary Statistics	5-3
Table 5-3. Post-HE Training Exercise Air Filter Sample Results and Summary Statistics	5-4
Table 5-4. Detectable vs Undetectable Samples	5-5
Table 7-1: Laboratory Duplicate Sample Analysis	7-5

Table 7-2: LCS & LCSD Analysis	
Table 7-3: Method Blank Analysis	
Table 7-4: Tracer Yield Analysis	
Table 7-5: Analyses Parameters	
Table 7-6: QA Sample Frequencies	
Table 8-1: Monitoring Data	
5	

LIST OF FIGURES

Figure 3-1	Air Monitoring Loca	tions during HE Train	ning Exercise	
	9		8	

LIST OF ATTACHMENTS

Attachment A:Health & Safety ReportsAttachment B:Environmental Conditions ReportsAttachment C:Instrument Quality ControlAttachment D:Offsite Laboratory Analytical ReportsAttachment E:Photo Logs and PhotographsAttachment F:Map PackagesAttachment G:Ammo Utilization Reports

LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

%	percent	MDC	minimum detectable
(A)	Activity		concentration
°C	degrees Celsius	MQO	measurement quality objective
Cabrera	Cabrera Services, Inc.	mrem/yr	millirem/year
CFM	cubic feet per minute	NRC	U.S. Nuclear Regulatory Commission
CFR	Code of Federal Regulations	PM	project manager
COC	chain of custody		quality assurance
DOD	Department of Defense		quality control
DQO	Data Quality Objective	QC	Quality Indicator Semples
DU	depleted uranium	QIS	
ELAP	Environmental Laboratory Accreditation Program	RFD	relative percent difference
EPA	U.S. Environmental Protection Agency	ROC ROI	radionuclide of concern region of interest
ft	feet	TPU	total propagated uncertainty
FPM	feet per minute	μCi/mL	micro curies per milliliter
HE	high explosive	U	uranium
ID	identification	²³⁴ U	uranium-234
in	inches	²³⁵ U	uranium-235
LCS	laboratory control sample	²³⁸ U	uranium-238
LCSD	laboratory control sample duplicate	UO ₂	uranium dioxide
LDUP	laboratory duplicate	U ₃ O ₈	triuranium octaoxide
MB	method blank	USACE	U.S. Army Corp of Engineers





1.0 INTRODUCTION

Cabrera Services Inc. (CABRERA) was contracted by the US Army – Engineering and Support Center, CEHNC-CT, under Contract Number W912DR-08-D-0026, Delivery Order ZW01, to conduct particulate radionuclide air sampling and analysis at the Schofield Barracks Site, in Schofield Hawaii during a training exercise using high explosive (HE) rounds within an existing Radiation Controlled Area (RCA). The term "HE rounds" in this report refers to artillery, mortar, or tank fire of HE projectiles (non-DU).

1.1 Purpose

The purpose of this report is to present the results of the air sampling activities conducted from February 3, 2014 through February 12, 2014 at the Schofield Barracks Site. The primary purpose of this sampling event was to determine if existing residual DU on range soils would become re-suspended within and around the RCA perimeter at concentrations exceeding an action level during training exercises using HE rounds.

1.2 Site Description

Schofield Barracks is the largest Army post in Hawaii, located on an 18,000 acre site in central Oahu. The Schofield Training Area totals 4,695 acres located in a large valley, with a ridgeline along the north, west, and southwest boundaries. In August 2005, 15 tail assemblies from spotting rounds made of D-38 uranium (U) alloy, also called depleted uranium (DU), were recovered by a contractor clearing a Schofield Barracks range impact area of unexploded ordnance and scrap metal. During the 1960s, DU that was in the tail assembly of training rounds for the Davy Crockett weapon system was used because of its high density and weight. The DU components are approximately four inches long and one (1) inch in diameter. Other activities involving the use of DU have not been reported on Army installations in Hawaii. The presence of DU at Schofield Barracks has raised concerns about potential exposure to site workers and members of the public during training exercises and controlled burn events.

1.3 Prior Investigation

Cabrera Services, Inc. (Cabrera) has monitored potential releases of DU effluent during several previous prescribed range burns at Schofield Barracks, as listed in Table 1-1.

Year	Scope of Investigation	
July 31 to August 3, 2007	Performed test burns and reference area burns to	
	determine the potential effluent discharge of DU and to	
	monitor the actual burn.	
August 22 and 29, 2008	Monitored to determine notential effluent discharge of	
June 16, 2011	DI I during range burn	
July 28 to July 30, 2012	DO during range burn.	

Table 1-1.	Previous	Effluent	Monitoring	Events
1 abic 1-1.	I I CVIUUS	Emucin	monitoring	LIVEIIUS





2.0 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) specify the type, quality, quantity, and uses of data needed to support decisions and are the basis for designing data collection activities. To determine the project DQOs, a series of planning steps are used as specified in QA/G4, U.S. Environmental Protection Agency (EPA) Guidance for Data Quality Process (EPA, 2004). The DQO development process is used in order to optimize the data collection necessary to meet the applicable decision criteria. The seven steps of the DQO process are presented in the following subsections.

2.1 Step 1 – State the Problem

Training exercises at the Schofield Barracks range involves the use of HE rounds in RCAs at the site. Air sampling was performed to determine if these activities caused the DU contamination to become airborne at the RCA perimeter at concentrations exceeding the AL. The "problem" is defined as the potential to expose members of the public not participating in the training exercise to airborne DU effluent during at the Schofield Barracks range. Sufficient resources were allocated to define the problem, develop the project planning documents, collect data and, report results. Members of the planning and implementation team include the U.S. Army Corps of Engineers (USACE), US Army Garrison Hawaii, Installation Management Command, and Cabrera Services.

2.2 Step 2 – Identify the Decision

The principal study question is whether the airborne DU effluent present at the perimeter of the RCA at Schofield Barracks during the training exercise exceeds the project action levels. The results of the air samples were compared to project action levels derived from NRC published air effluent limits, as identified in Appendix B of Title 10 Code of Federal Regulations (CFR) Part 20, "Standards for Protection against Radiation" (NRC, 2004). The project action levels were set to 20% of the values published in Column 1 of Table 2 of 10 CFR Part 20, Appendix B. The Appendix B concentration values are equivalent to the radionuclide concentrations, which if inhaled continuously over the course of a year would produce a total effective dose equivalent of 50 millirem per year (mrem/yr) to a member of the public. The reduction to 20% of the values in 10 CFR Part 20, Appendix B allow for consistency with the EPA's 10 mrem/yr standard (40 CFR 61) for effluent releases (NRC, 2004). The proposed actions provide the following alternatives:

- Report concentrations of airborne DU that exceed the effluent concentration limits, or
- Document the results of the investigation for concentrations of airborne DU below the effluent concentration limits.

The key decision statement is the determination of whether the training exercise using HE rounds within the RCA resulted in airborne concentrations of uranium isotopes above the selected action level.

Additionally, the air sample data will be analyzed for isotopic U. Measureable results exhibiting a ratio of uranium-238 (238 U) to uranium-234 (234 U) exceeding three would likely indicate the presence of DU.



2.3 Step 3 – Identify Inputs to the Decision

Information required to resolve the decision statements were identified as inputs to the decision. The sources of those inputs and environmental measurements required to provide those inputs are described in this section. The instruments and methods used to obtain the data are discussed in Section 3.0 of this report. For this field effort, the primary inputs to the decision are the reported concentrations of 238 U in microcuries per milliliter (μ Ci/mL).

2.3.1 Previous Investigations

Previous investigations at Schofield Barracks have identified DU as the only radionuclide of concern (ROC) for the site. Areas of the Site became contaminated as a result of the DU contained in the tail assembly of training rounds. Multiple investigations have been conducted to determine the extent and effects of DU contamination in various mediums. Reference and test burns were used previously to collect site-specific information on DU in soil, plants, ash, and air particulates in order to determine if DU had affected other media with evaluation of data ongoing. The medium of concern for the study was DU particulates in air.

2.3.2 Characteristics of the ROC

The typical physical form of DU is a four inch long and one-inch diameter cylinder (i.e., the remnants of "Davy Crockett" spotting rounds historically fired at the range. DU is the useful byproduct of uranium enrichment processes, and is defined as U, containing less than 0.711 percent (%) uranium-235 (²³⁵U) by mass. DU consists primarily of ²³⁸U with much smaller amounts ²³⁴U and ²³⁵U, based on both mass and activity perspective. Barring some occasional environmental variability, the activity (*A*) ratio of ²³⁸U to ²³⁴U in natural uranium is typically close to one-to-one (1:1) with each isotope's activity representing roughly 48% of the total U activity ($A(^{238}U)/A(^{234}U) = 48.83 \%/48.83 \% = 1$). In typical DU, the ratio is roughly 10:1 ($A(^{238}U)/A(^{234}U) = 90.1 \%/8.4 \% = 10.7$). Generally, the NRC assumes that DU is present in a mixture of natural uranium and DU if, the activity ratio for the mixture, $A(^{238}U)/A(^{234}U) > 3$ (NRC, 2001).

2.3.2.1 Potential Effect of HE Training Exercises on the ROC

Projectiles from HE rounds can cause the displacement of the contaminated soils and serve as a heat source to the contaminants. In order to produce particles with an activity median aerodynamic diameter (AMAD) less than 5µm, M101 rounds must be physically acted upon, impacted or heated to temperatures over uranium's melting point of 700-1,000 degrees Celsius (°C) (Army Environmental Policy Institute (AEPI), 1995). The type of activities that could potentially produce DU particles in the 5-µm AMAD range are: 1) use of heavy equipment on former M101 ranges could, through mechanical grinding of M101 rounds; 2) kinetic impacts between munitions and M101 rounds; and, 3) incidental range fires or prescribed burns by range personnel to control vegetation.

2.3.3 Action Levels

The results of the air samples were compared to project action levels derived from NRC published limits for airborne concentrations for members of the public, as identified in Appendix B of Title 10 Code of Federal Regulations (CFR) Part 20, "Standards for Protection Against Radiation" (NRC, 2004). The project action levels were set to 20% of the values published in Column 1 of Table 2 of 10 CFR Part 20, Appendix B. The Appendix B concentration values are equivalent to the radionuclide concentrations,

which if inhaled continuously over the course of a year would produce a total effective dose equivalent of 50 mrem/yr to a member of the public. The reduction to 20% of the values in 10 CFR Part 20, Appendix B allow for consistency with the EPA's 10 mrem/yr standard (40 CFR 61) for effluent releases (NRC, 2004).

U-238 is the predominate isotope in DU. However, for the purposes of this study and conservative results evaluation, the action level is based on the most restrictive isotope (234 U) and inhalation class (Y-years) corresponding to a selected value of 5 × 10⁻¹⁴ µCi/ml. Inhalation Class Y is most appropriate when oxides (e.g., UO₂, U₃O₈, etc.) of uranium are expected. For further consistency with 40 CFR 61 (10 mrem/year from air effluents), the selected value was reduced by a factor of five (5) resulting in a final AL equivalent to 1 × 10⁻¹⁴ µCi/mL for comparison to reported isotopic results for 238 U.

2.3.3.1 Activity Ratios

The collected air samples were analyzed for isotopic U to determine the presence of DU. An activity ratio greater than 3.0 for 238 U to 234 U confirms the presence of DU. Natural U that could be present in the environment consists of approximately equal activity for 238 U and 234 U (i.e., an activity ratio of 1.0). Any activity ratios of 238 U to 234 U exceeding three (3) would be reported to the NRC.

2.4 Step 4 – Define the Study Boundaries

The area of investigation for this study was the perimeter of the RCA that encompassed the HE impact area. Effluent samplers were positioned near the spatial boundary to perform perimeter monitoring during the training exercise using HE rounds. A total of nine (9) high volume air samplers were placed around the perimeter of the RCA during the training exercise. Two (2) additional air monitors were placed inside the RCA, for a total of eleven (11) high volume air monitors used during the investigation.

2.5 Step 5 – Develop a Decision Rule

The decision rule for the air monitoring study was based on the action level and the alternative actions.

If the incremental concentration of ²³⁸U in air above background at the study area perimeter is greater than $1.0 \times 10^{-14} \,\mu\text{Ci/mL}$, then the results of the air monitoring study was documented and reported to the client Project Manager (PM) as soon as possible. If the concentration of ²³⁸U in air is less than or equal to $1.0 \times 10^{-14} \,\mu\text{Ci/mL}$, then the results of the air monitoring study will be documented and included with the final report. Additionally, the residues on the air sample filters will be analyzed for isotopic U. Per NRC policy, $A(^{238}\text{U})/A(^{234}\text{U}) > 3$ will indicate the presence of DU.

There are additional decision rules that apply to survey measurements performed during the Range Training Exercise using HE rounds that serve as inputs to the decision. Table 2-1 lists these decision rules.

Parameter of IF Interest		THEN	Comments
Air Sample Data	a an	and the second secon	the second s
Compliance with the Release Criterion	If the maximum 238 U concentration in air from the detonations exceeds the average 238 U concentration in air from the 2007 reference area burn by more than 1.0×10^{-14} µCi/mL,	Notify the Army PM.	Concentrations of ²³⁸ U that exceed background by more than the NRC effluent levels indicate the potential for releases of unacceptable concentrations of DU.
Compliance with Activity Ratio	If $A(^{238}\text{U})/A(^{234}\text{U}) > 3$,	Notify the Army PM.	Per NRC policy, $A(^{238}U)/A(^{234}U) > 3$ will indicate the presence of DU.

 Table 2-1. Decision Rules

2.6 Step 6 – Specify Tolerable Limits on Decision Errors

The collection and analyses of data are designed as a graded approach using a combination of sample collection and off-site laboratory analysis of air samples in order to manage uncertainty.

Analytical uncertainty is controlled by use of appropriate instruments, methods, techniques, and Quality Control (QC). Minimum detectable concentrations (MDCs) for individual radionuclides using specific laboratory analytical methods have been established. Specifying values for the MDC controls the level of uncertainty associated with individual analytical results and limits decision errors.

2.7 Step 7 – Optimize the Design for Collecting Data

As the data was collected and analyzed, the assumptions in the effluent sampling plan were reviewed for accuracy. Field screening techniques, visual observations, and the DQO process were utilized, as means of optimizing the survey design.

When necessary, revisions were made to the characterization survey plan to account for actual site conditions that differed from the assumptions used to develop the survey design. These revisions are discussed in Section 4.0.





3.0 SURVEY DESIGN

The survey design consists of environmental condition monitoring combined with sample collection and analysis. The environmental conditions monitoring is used as a means of documenting various meteorological conditions that may impact the survey design. The sample collection and analyses provide quantitative data that are used in order to address the principal study question reflected in the decision rule.

The survey design had to be modified due to problems experienced in the field. These changes differed from what was proposed in the *Effluent Sampling Plan for Air Monitoring during High Explosive Fire* (Cabrera 2013). USACE was notified of these issues and the solution was agreed upon before any design changes were implemented.

PROBLEM	SOLUTION
Site access prevented Cabrera personnel from staging air monitors	Air monitoring locations were moved to accommodate the site restrictions. Consistent with the survey design requirements, the
at proposed locations	new locations were both upwind and downwind from the training exercise and in the pathway of the smoke plume. Figure 3-1 plots the prescribed versus the actual sample locations.
USACE expressed concern that filter face velocities needed to be increased to the extent practicable due to concerns over particle	The field team replaced the 8" x 10" Whatman-41 filter media with a four (4) inch round alternative. Air sampler flow rates were reduced from 45 CFM to 10 CFM to ensure filter integrity during each sampling interval. Refer to Section 3.3.2.
retention characteristics of the Whatman-41 filter media.	

Table 3-1. Survey Design Modification

3.1 Environmental Conditions

Monitoring consisted of recording observations and photographs. Information pertaining to weather conditions, the explosion behavior and smoke plume characteristics are examples of the environmental conditions that were documented. Meteorological forecasts were closely monitored before and during the use of HE rounds. During the investigation the weather was mostly cloudy and consisted of light precipitation. Field personnel observed smoke plumes from detonation of HE rounds. The smoke plumes were approximately 30 feet (ft) in height and 50ft in width. Photographs and observations of the environmental conditions during the air monitoring investigation are documented in Attachment B.

3.2 Sample Numbering

Samples were identified using the following numbering methodology:

SBHF13-###-RT#-DD-XX

Whereas,

- SBHF13 = Project designator for Schofield Barracks HE Firing and year
- ##### = Sample number beginning at 001
- RT# = Associated range
- DD = Sample Matrix [AS (filter paper)]
- XX = Sample Phase [BK (Background), HF (HE Firing)]

3.3 Air Monitors

The type of air monitors that were used for this study were HI-Q models CF-1003BRL and CF973T. Both air samplers are portable and have the ability to operate at variable speeds. The air monitors were calibrated for customizable flow ranges and are ideal for continuous or intermittent air sampling. Each air sampler was calibrated to the manufacturer's specifications and operated at approximately 10 cubic feet per minute (CFM). The air monitors were raised above the ground by utilizing tripods. Plastic containers with a 5" diameter cutout were used to cover the air monitor and provide protection from precipitation.

3.3.1 Air Filters

Air particulate samples are collected in order to provide information on U concentrations in air. Particulates in smoke caused by the explosions are primarily in the fine particulate range, measuring 2.5 microns or less in diameter (ALA 2010). The choice of filter paper was based on:

- 1. Its capacity to collect these small particles over the relatively short sampling time (approximately six to eight hours per filter);
- 2. The presentation of little or no naturally occurring radionuclides that could interfere with analysis and interpretation of data;
- 3. The ability to physically withstand the flow rate (approximately 10 CFM) and weather conditions, and
- 4. The ease of dissolution required for alpha spectroscopy analysis. Since filter media and binders sometimes include measurable levels of natural U, it is important that the U concentrations in the filters be evaluated.

Samples were collected using 4 inch diameter Whatman-41 type cellulose filters. Whatman-41 paper filters are well known for their retention efficiencies in the 0.2 to 10 micron particle size range (HP, 1963), are a choice medium for chemical dissolution & separation techniques for alpha spectroscopy, and meet the physical and analytical requirements for the monitoring conditions.

3.3.2 Filter Correction

The flow rate originally planned, (45 CFM) was based on use of 8-inch by 10-inch filter media. During mobilization, the USACE field representative requested a change to a smaller diameter media (4-inch overall diameter with 3-5/8 inch active area after mounting in filter holder) to increase overall face velocity to the extent practicable. After this change, the typical flow rate observed was 10 CFM. A 10 CFM flow rate and 3.625-inch filter diameter yields a minimum linear face velocity of 139.5 feet per

minute (fpm). For face velocities above 70 fpm, submicron particle retention exceeds 90% (HP, 1963). The results reported from the lab did not account for a 'filter collection efficiency factor". The result, uncertainty, and MDC values presented in Tables 5-1 thru 5-3 have been corrected by a factor of 0.9 to account for reduced filter collection efficiency.

3.4 Air Sample Locations

There were a total of 11 air monitors positioned around and within the RCA before, during and after the HE training exercise. The objective of the air monitoring during the Range HE training exercise was to determine if any elevated airborne particulate radioactivity from DU was measurable above the action level at available RCA boundary locations.

- Three (3) air monitors were placed northwest of the training exercise area along Fire Break Road.
- Three (3) air monitors were spaced along the western and southern sides of the RCA around the planned training exercise area.
- Two (2) air monitors were placed west of the "Area 3 Mover," east of the training exercise area.
- Two (2) air monitors were placed on the southeastern side of training exercise area near KR-5 and KR-3 Tower.
- One (1) air monitor was placed at the CR-2 Tower.

The placement described above is shown in Figure 3-1. All locations were recorded using a GPS. Table 3-2 lists the air sample locations and their coordinates.

Air Monitoring Location	Location Description	Description	Air Monitor Height Above Ground (Ft)	Northing (ft)	Easting (ft)
Air Monitoring Location #1	Area 3 Mover	Tripod	5	2377759.20	592373.47
Air Monitoring Location #2	Area 3 Mover	Tripod	5	2377607.24	592411.51
Air Monitoring Location #3	CR-2 Tower	Tower	20	2377573.87	595077.75
Air Monitoring Location #4	KR-5	Tripod	5	2376360.02	592535.24
Air Monitoring Location #5	KR-3 Tower	Tower	20	2376185.14	592253.14
Air Monitoring Location #6	Fire Break Road	Tripod	5	2376498.49	591191.32
Air Monitoring Location #7	Fire Break Road	Tripod	5	2376826.34	591006.11
Air Monitoring Location #8	Fire Break Road	Tripod	5	2377247.49	590990.84
Air Monitoring Location #9	Fire Break Road	Tripod	5	2378058.45	591334.37
Air Monitoring Location #10	Fire Break Road	Tripod	5	2378446.58	591419.05
Air Monitoring Location #11	Fire Break Road	Tripod	5	2378598.17	591424.97

Table 3-2. Air Monitoring Locations during HE Training Exercise Investigation



Figure 3-1 Air Monitoring Locations during HE Training Exercise

4.0 SAMPLE COLLECTION, PREPARATION, AND ANALYSIS

4.1 Collection

Table 4-1 provides an overview of the sample collection dates and the average run times of the air monitors.

		Average Run	Average Run					
Sample Date	Sample Type	Time (minutes)	Time (Hours)					
4-Feb-14	Background	177.6	3.0 ^(A)					
5-Feb-14	Background	472.3	7.9					
6-Feb-14	HE Fire Drill	363.9	6.1					
7-Feb-14	Post - He Fire Drill	378.4	6.3					
8-Feb-14	Post - He Fire Drill ^(B)	360.6	6.0					
9-Feb-14	HE Fire Drill	459.7	7.7					
10-Feb-14	HE Fire Drill	309.3	5.2					
11-Feb-14	Post - He Fire Drill	404.3	6.7					
A. Sample collection was stopped due to "live fire." USACE was notified of the situation and it was documented in DOCP. 002 (Attachment A)								
B. Four rounds of HE were fired before air samplers were in place, and no HE training occurred after								
the air samplers were	setup. USACE was notified of t	he situation and it was do	ocumented in DQCR-					
006 (Attachment A)								

 Table 4-1. Sample Collection Dates and Average Run Times

4.1.1 Background and Post Monitoring

Air particulate samples were collected prior to and post HE training exercise in order to measure ambient background and post HE training exercise conditions. The same equipment, locations, and methods that were used to collect background and post HE training exercise samples were used to collect the HE air samples. Background monitoring was performed on February 4th and 5th, 2014. Sample collection on February 4 was stopped after three hours of run time due to live fire. Even though the air monitor did not obtain the volume required to meet the project MDC, the data is still presented in this report. On the second day of background sampling the air samplers ran for an average of 7.9 hours. Post-monitoring was performed over the course of three days, February 7th, 8th, and 11th, 2014. The air monitors ran for an average of six hours or more. On February 8th four rounds of HE were fired before the air samplers were setup. Since they were collected after the HE training exercise, they have been classified as post-HE air samples. USACE was notified of the situation and it was documented in the daily quality control report (Attachment A).

4.1.2 Particulate Monitoring

A total of 11 air particulate samples were collected each day of the Range HE training exercise (February 6^{th} , 9^{th} , and 10^{th} , 2014). New cellulose (Whatman-41) filters were placed in the air monitors on a daily basis and collected at the conclusion of each work day. The air monitors were placed on a tripod which elevated them 5 feet off the ground. Two (2) out of the 11 air monitors were placed at tower stations, which provided them an elevation of 20ft from ground surface. With the exception of the air samples

collected on February 10th, all of the air monitors ran for 6-8 continuous hours operating at a flow rate of 10CFM.

4.2 Preparation

At the conclusion of each day, the air filters were removed from the air samplers and placed in re-sealable plastic bags. Each bag was labeled with the sample identification (ID), date, sample start time, sample stop time, flow rate, and initials of the person collecting the sample. Each filter was counted onsite prior to sending to the offsite laboratory for isotopic uranium analysis. The samples were counted the day after collection, without allowing for radon decay. These results are presented in Attachment C. After onsite counting the samples were placed in a container with a chain of custody and shipped to ALS Laboratories for offsite analysis.

4.3 Analysis

All of the samples collected as part of this investigation were sent to an off-site laboratory for sample preparation and analysis. The samples were analyzed for isotopic U using alpha spectrometry. The laboratory was Department of Defense Environmental Laboratory Accreditation Program (DOD ELAP) certified for performing the required analyses.

When the samples were received at the laboratory, they were checked against the chain of custody (COC) in order to ensure all data were accurately transferred to the laboratory. Any discrepancies were resolved prior to reporting the results.

Half of the filter sample was prepared for analysis and the other half was stored, in the event re-analysis is required.

All samples were weighed on arrival at the laboratory. After weighing, the samples were placed in a furnace and ashed in order to remove organic material.

After removal from the furnace, the samples were weighed again. Air samples will be reported per liter based on the volume of air that passed through the filter. The ash weights for the filters are used in order to provide an indication of filter loading.

The air filter was dissolved and diluted to a known volume. The dissolved sample was purified and the U separated from other elements. The purified sample was counted by alpha spectrometry in order to provide estimates of concentrations for the individual U isotopes.

Blank air filters were provided to the laboratory. For each batch of samples, these filters will be used as QC samples for the project. For each batch of samples, one filter was used as a method blank, one filter was spiked and used as a laboratory control sample, and one filter was spiked and used as a laboratory control sample, and one filter was spiked and used as a laboratory control sample duplicate.

All retained sample material are available for re-analysis using an alternative method, such as Inductively Coupled Plasma Mass Spectrometry, should any of the sample results prove to be inconclusive or a determination is made for the need of confirming sample results.

5.0 SURVEY RESULTS

All air filters were sent to ALS Laboratories, a NELAP accredited laboratory, for analysis of isotopic uranium by alpha spectrometry. Activity concentrations were reported for the three naturally occurring uranium radionuclides; ²³⁴U, ²³⁵U, and ²³⁸U. The results for the background, during HE training exercise, and post HE training exercise are presented in Table 5-1 through Table 5-3. All lab-reported regular sample results (concentration, uncertainty, and MDC) have been corrected by a factor of 0.9 to account for the reduced filter collection efficiency. This section provides a discussion of the activity results. MDC and uncertainty discussions are captured in Section 7.0.

5.1 Background Air Filters

A total of 22 air filters were collected over a two (2) day period (February 4th and 5th), in order to assess the ambient background radiological conditions at the Schofield Barracks Site. The samples were collected prior to the commencement of the HE training exercise at each of the 11 prescribed sample locations.

On the first day of sampling, range access limitations allowed for sampling in a limited window (2.5 - 3.5 hours). Necessary access was permitted on the second day of background sampling allowing for optimal sampler run-times.

All ²³⁸U results were qualified by the offsite lab as non-detect. ²³⁴U and ²³⁵U activity results are discussed in Section 5.4.

5.2 During HE Training Exercise

A total of 33 air filters were collected over a three (3) day period (February 6th, 9th and 10th), to evaluate the potential release of particulates containing uranium during the HE training exercise.

One sample (SBHF14-023-ST01-AS-HF) collected on February 6, from Location #1, only ran for one hour. The generator that was supplying power malfunctioned during early operation and could not be addressed for safety reasons until the training exercise had been terminated on the range.

There was no detectable activity for ²³⁸U for any of the samples collected during the HE training exercise. All reported activity concentrations of uranium isotopes in air from filtered airborne particulates collected during the training exercise were below the project action level.

5.3 **Post-HE Training Exercise**

Air monitoring was performed on the subsequent day following the HE training exdercise (February 7th, 8th, and 11th). A total of 33 air filters were collected over this three (3) day period with no detectable activity for 238 U identified. All reported activity concentrations of uranium isotopes in air from filtered airborne particulates collected post HE training exercise were below the project action level.

Table 5-1.	. Background	Air Filter	Sample	Results and	Summary	Statistics
	8				•	

						U-234			U-235				U-238				
		Height	Collection	Total Run	Total Volume	Result		MDC		Result		MDC		Result		MDC	
Sample ID	Station	(ft)	Date	Time (min)	(ml)	(µCi/ml)	TPU (µCi/ml)	(µCi/mI)	Flag	(µCi/ml)	TPU (µCi/ml)	(µCi/ml)	Flag	(µCi/ml)	TPU (µCi/ml)	(µCi/ml)	Flag
SBHF14-001-ST01-AS-BK	1	5	2/4/2014	207	5.86E+07	6.67E-16	6.56E-16	3.56E-16		0.00E+00	7.67E-16	4.22E-16	U	4.00E-16	6.56E-16	3.56E-16	LT
SBHF14-002-ST02-AS-BK	2	5	2/4/2014	213	6.03E+07	2.33E-16	3.78E-16	5.67E-16	U	-8.89E-17	4.44E-16	8.44E-16	U	3.89E-16	3.89E-16	2.11E-16	LT
SBHF14-003-ST03-AS-BK	3	20	2/4/2014	225	6.37E+07	3.44E-16	3.44E-16	1.89E-16		7.78E-17	4.00E-16	6.00E-16	U	2.11E-16	3.44E-16	5.11E-16	U
SBHF14-004-ST04-AS-BK	4	5	2/4/2014	202	5.72E+07	1.78E-16	4.33E-16	6.44E-16	U	0.00E+00	5.11E-16	7.67E-16	U	8.78E-16	7.22E-16	9.44E-16	U
SBHF14-005-ST05-AS-BK	5	20	2/4/2014	195	5.52E+07	3.67E-16	5.00E-16	8.00E-16	U	3.44E-16	4.33E-16	2.33E-16		1.44E-16	3.67E-16	2.00E-16	U
SBHF14-006-ST06-AS-BK	6	5	2/4/2014	158	4.47E+07	5.89E-16	4.89E-16	2.67E-16		0.00E+00	5.67E-16	3.11E-16	U	2.89E-16	5.22E-16	9.11E-16	U
SBHF14-007-ST07-AS-BK	7	5	2/4/2014	156	4.42E+07	9.44E-16	7.89E-16	4.22E-16		1.89E-16	9.11E-16	1.72E-15	U	6.33E-16	7.78E-16	1.16E-15	U,M
SBHF14-008-ST08-AS-BK	8	5	2/4/2014	154	4.36E+07	8.89E-17	4.11E-16	2.22E-16	U	1.00E-16	4.78E-16	2.67E-16	U	1.67E-16	4.78E-16	9.00E-16	U
SBHF14-009-ST09-AS-BK	9	5	2/4/2014	151	4.28E+07	7.33E-16	5.89E-16	6.78E-16		0.00E+00	5.33E-16	7.89E-16	U	8.89E-17	5.56E-16	1.10E-15	U
SBHF14-010-ST10-AS-BK	10	5	2/4/2014	148	4.19E+07	2.89E-16	7.00E-16	1.28E-15	υ	0.00E+00	5.67E-16	1.23E-15	υ	2.00E-16	5.56E-16	1.04E-15	U
SBHF14-011-ST11-AS-BK	11	5	2/4/2014	145	4.11E+07	1.84E-14	4.22E-15	1.22E-15		1.07E-15	8.56E-16	9.78E-16		6.78E-16	6.56E-16	8.33E-16	U
SBHF14-012-ST01-AS-BK	1	5	2/5/2014	482	1.36E+08	-7.78E-17	7.44E-16	1.46E-15	U	-2.67E-16	5.89E-16	1.32E-15	U	7.78E-17	4.44E-16	9.00E-16	U
SBHF14-013-ST02-AS-BK	2	5	2/5/2014	480	1.36E+08	3.44E-16	2.78E-16	3.78E-16	U	7.78E-17	1.78E-16	2.67E-16	U	0.00E+00	2.00E-16	4.11E-16	U
SBHF14-014-ST03-AS-BK	3	20	2/5/2014	456	1.29E+08	2.56E-16	3.78E-16	6.33E-16	U	0.00E+00	2.11E-16	4.00E-16	υ	1.11E-16	2.67E-16	4.78E-16	U
SBHF14-015-ST04-AS-BK	4	5	2/5/2014	462	1.31E+08	1.67E-16	3.11E-16	5.44E-16	U	3.33E-17	2.33E-16	4.56E-16	U	2.56E-16	2.67E-16	3.89E-16	U
SBHF14-016-ST05-AS-BK	5	20	2/5/2014	465	1.32E+08	0.00E+00	2.00E-16	4.33E-16	U	1.33E-16	2.11E-16	3.11E-16	U	1.11E-16	2.22E-16	3.89E-16	U
SBHF14-017-ST06-AS-BK	6	5	2/5/2014	468	1.33E+08	1.33E-16	3.56E-16	6.33E-16	U	1.56E-16	2.44E-16	4.11E-16	U	1.33E-16	2.22E-16	3.89E-16	υ
SBHF14-018-ST07-AS-BK	7	5	2/5/2014	470	1.33E+08	2.56E-16	2.67E-16	3.89E-16	U	1.67E-16	2.11E-16	3.22E-16	U	2.22E-16	2.11E-16	2.67E-16	U
SBHF14-019-ST08-AS-BK	8	5	2/5/2014	474	1.34E+08	2.11E-16	2.67E-16	4.22E-16	U	0.00E+00	2.00E-16	3.00E-16	U	1.78E-16	1.89E-16	2.56E-16	U
SBHF14-020-ST09-AS-BK	9	5	2/5/2014	477	1.35E+08	-3.33E-17	2.78E-16	5.78E-16	υ	-4.44E-17	2.11E-16	4.56E-16	ປ	1.44E-16	2.33E-16	3.89E-16	U
SBHF14-021-ST10-AS-BK	10	5	2/5/2014	478	1.35E+08	1.44E-16	4.11E-16	7.44E-16	U	-1.11E-16	2.67E-16	5.11E-16	U	2.33E-16	2.56E-16	3.44E-16	U
SBHF14-022-ST11-AS-BK	11	5	2/5/2014	483	1.37E+08	2.90E-15	8.33E-16	5.67E-16		1.56E-16	2.56E-16	4.33E-16	U	1.67E-16	2.11E-16	3.11E-16	U
			· · -···		Minimum =	-7.78E-17	2.00E-16	1.89E-16		-2.67E-16	1.78E-16	2.33E-16		0.00E+00	1.89E-16	2.00E-16	
					Maximum =	1.84E-14	4.22E-15	1.46E-15		1.07E-15	9.11E-16	1.72E-15		8.78E-16	7.78E-16	1.16E-15	
					Mean =	1.24E-15	6.29E-16	6.10E-16		9.04E-17	4.22E-16	6.07E-16		2.60E-16	3.97E-16	5.77E-16	
					Median =	2.56E-16	4.11E-16	5.67E-16		1.67E-17	4.17E-16	4.44E-16		1.89E-16	3.56E-16	4.00E-16	
					SD =	3.89E-15	8.24E-16	3.32E-16		2.51E-16	2.23E-16	3.98E-16		2.16E-16	1.90E-16	3.22E-16	

Notes:

U – non-detect at the reported MDC LT – Result with detectable activity; reported MDC higher than MQO M – non-detect result; reported MDC higher than MQO TPU - Total Propagated Uncertainty (k=2)

All lab-reported sample result, TPU, and MDC values were conservatively corrected by a factor of 0.9 to account for the Whatman-41 filter collection efficiency at the operating flow rate and calculated linear face velocity

Fable 5-2. HE Training	Exercise Air Filte	r Sample Results ar	nd Summary Statistics
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							U-234				U-235				U-238		
				Total Run												115.0	
Sample ID	Station	Heigh t (ft)	Collection Date	Time (min)	Total Volume (ml)	Result (µCi/ml)	TPU (µCi/ml)	MDC (µCi/ml)	Flag	Result (µCi/ml)	TPU (µCi/ml)	MDC (µCi/ml)	Flag	Result (µCi/ml)	TPU (µCi/mł)	MDC (µCi/ml)	Flag
SBHF14-023-ST01-AS-HF	1	5	2/6/2014	60	1.70E+07	3.78E-15	2.22E-15	7.78E-16		-3.33E-16	1.67E-15	2.56E-15	U	1.78E-15	1.67E-15	2.11E-15	U,M
SBHF14-024-ST02-AS-HF	2	5	2/6/2014	384	1.09E+08	4.22E-16	4.22E-16	2.33E-16		3.00E-16	4.89E-16	2.67E-16		-8.89E-17	4.22E-16	7.89E-16	U
SBHF14-025-ST03-AS-HF	3	20	2/6/2014	395	1.12E+08	3.33E-16	2.22E-16	1.00E-16		0.00E+00	2.11E-16	1.11E-16	Ú	3.33E-17	1.89E-16	3.89E-16	U
SBHF14-026-ST04-AS-HF	4	5	2/6/2014	434	1.23E+08	3.00E-16	2.22E-16	2.44E-16		4.44E-17	1.89E-16	2.89E-16	U	1.67E-16	2.44E-16	4.00E-16	U
SBHF14-027-ST05-AS-HF	5	20	2/6/2014	390	1.10E+08	2.44E-16	2.89E-16	4.56E-16	U	0.00E+00	2.00E-16	4.33E-16	U	0.00E+00	1.67E-16	3.67E-16	U
SBHF14-028-ST06-AS-HF	6	5	2/6/2014	391	1.11E+08	2.44E-16	2.56E-16	3.78E-16	U	2.00E-16	2.22E-16	3.00E-16	<u> </u>	2.11E-16	2.00E-16	2.56E-16	U
SBHF14-029-ST07-AS-HF	7	5	2/6/2014	393	1.11E+08	-4.44E-17	3.56E-16	7.22E-16	U	0.00E+00	3.00E-16	6.44E-16	U	8.89E-17	2.89E-16	5.44E-16	U
SBHF14-030-ST08-AS-HF	8	5	2/6/2014	392	1.11E+08	2.89E-16	3.22E-16	4.89E-16	U	2.44E-16	2.56E-16	3.56E-16	U	2.89E-16	3.00E-16	4.44E-16	U
SBHF14-031-ST09-AS-HF	9	5	2/6/2014	389	1.10E+08	1.00E-16	5.11E-16	9.33E-16	U	-5.56E-17	2.89E-16	6.33E-16	U	4.44E-17	3.00E-16	6.00E-16	<u> </u>
SBHF14-032-ST10-AS-HF	10	5	2/6/2014	388	1.10E+08	1.31E-15	5.00E-16	3.78E-16		1.22E-16	2.00E-16	3.00E-16	U	2.44E-16	2.11E-16	2.56E-16	<u> </u>
SBHF14-033-ST11-AS-HF	11	5	2/6/2014	387	1.10E+08	4.89E-15	1.22E-15	8.89E-16		-4.44E-17	2.89E-16	6.11E-16	U	-1.00E-16	2.67E-16	5.78E-16	U
SBHF14-056-ST01-AS-HF	1	5	2/9/2014	459	1.30E+08	1.56E-16	2.56E-16	1.44E-16		6.67E-17	3.00E-16	1.67E-16	U	5.56E-17	2.56E-16	4.89E-16	U
SBHF14-057-ST02-AS-HF	2	5	2/9/2014	458	1.30E+08	1.78E-16	1.56E-16	7.78E-17		3.33E-17	1.78E-16	3.33E-16	U,	1.78E-16	1.78E-16	2.22E-16	U
SBHF14-058-ST03-AS-HF	3	20	2/9/2014	448	1.27E+08	2.67E-16	1.89E-16	7.78E-17		6.67E-17	1.78E-16	1.00E-16	υ	5.56E-17	1.67E-16	3.22E-16	U
SBHF14-059-ST04-AS-HF	4	5	2/9/2014	463	1.31E+08	1.33E-16	2.22E-16	3.33E-16	U	0.00E+00	2.67E-16	4.00E-16	U	4.44E-17	2.78E-16	5.56E-16	U
SBHF14-060-ST05-AS-HF	5	20	2/9/2014	410	1.16E+08	2.89E-16	3.89E-16	6.33E-16	U	-1.11E-16	2.78E-16	6.11E-16	U	0.00E+00	2.33E-16	5.11E-16	<u>U</u>
SBHF14-061-ST06-AS-HF	6	5	2/9/2014	468	1.33E+08	1.11E-16	2.22E-16	3.89E-16	U	0.00E+00	2.11E-16	3.11E-16	U	3.33E-17	1.78E-16	2.67E-16	U
SBHF14-062-ST07-AS-HF	7	5	2/9/2014	466	1.32E+08	1.56E-16	3.44E-16	6.11E-16	U	4.44E-17	2.22E-16	4.22E-16	U	1.89E-16	2.11E-16	2.89E-16	U
SBHF14-063-ST08-AS-HF	8	5	2/9/2014	468	1.33E+08	7.78E-17	3.67E-16	6.89E-16	U	0.00E+00	2.22E-16	5.00E-16	U	1.22E-16	2.11E-16	3.67E-16	U
SBHF14-064-ST09-AS-HF	9	5	2/9/2014	471	1.33E+08	2.56E-16	3.44E-16	5.67E-16	υ	-2.33E-16	2.00E-16	5.22E-16	U	1.11E-16	1.78E-16	3.00E-16	U
SBHF14-065-ST10-AS-HF	10	5	2/9/2014	473	1.34E+08	2.56E-16	3.44E-16	5.56E-16	U	1.11E-16	1.89E-16	2.78E-16	U	2.56E-16	2.78E-16	4.22E-16	<u> </u>
SBHF14-066-ST11-AS-HF	11	5	2/9/2014	473	1.34E+08	2.20E-15	6.89E-16	4.22E-16		4.44E-17	2.00E-16	3.11E-16	U	-3.33E-17	2.11E-16	4.67E-16	υ
SBHF14-067-ST01-AS-HF	1	5	2/10/2014	306	8.66E+07	2.67E-16	2.22E-16	1.22E-16		0.00E+00	2.56E-16	3.89E-16	U	4.44E-17	2.22E-16	3.33E-16	U
SBHF14-068-ST02-AS-HF	2	5	2/10/2014	306	8.66E+07	2.67E-16	2.22E-16	1.22E-16		1.56E-16	2.56E-16	1.44E-16		2.22E-16	2.67E-16	4.11E-16	U
SBHF14-069-ST03-AS-HF	3	20	2/10/2014	312	8.83E+07	7.89E-16	5.22E-16	2.11E-16		0.00E+00	4.56E-16	6.89E-16	Ū	2.33E-16	3.89E-16	5.89E-16	U
SBHF14-070-ST04-AS-HF	4	5	2/10/2014	311	8.81E+07	4.22E-16	3.56E-16	1.89E-16		1.67E-16	4.11E-16	2.22E-16	U	2.11E-16	3.78E-16	6.56E-16	U
SBHF14-071-ST05-AS-HF	5	20	2/10/2014	307	8.69E+07	0.00E+00	2.89E-16	5.89E-16	U	1.11E-16	2.56E-16	1.44E-16	U	8.89E-17	2.22E-16	4.22E-16	U
SBHF14-072-ST06-AS-HF	6	5	2/10/2014	309	8.75E+07	2.33E-16	2.22E-16	1.22E-16		-1.11E-16	2.67E-16	5.00E-16	<u> </u>	2.78E-16	2.22E-16	1.22E-16	LT
SBHF14-073-ST07-AS-HF	7	5	2/10/2014	308	8.72E+07	4.56E-16	3.33E-16	1.56E-16		6.67E-17	3.22E-16	1.78E-16	U	3.44E-16	2.78E-16	1.56E-16	LT
SBHF14-074-ST08-AS-HF	8	5	2/10/2014	310	8.78E+07	3.78E-16	3.33E-16	4.00E-16	U	-6.67E-17	3.11E-16	6.00E-16	U	1.67E-16	2.67E-16	1.44E-16	LT
SBHF14-075-ST09-AS-HF	9	5	2/10/2014	310	8.78E+07	2.11E-16	2.11E-16	1.11E-16		1.00E-16	2.44E-16	3.67E-16	U	2.56E-16	2.44E-16	3.11E-16	U
SBHF14-076-ST10-AS-HF	10	5	2/10/2014	311	8.81E+07	2.78E-16	3.00E-16	4.11E-16	U	1.33E-16	3.22E-16	4.89E-16	U	1.67E-16	3.44E-16	<u>6.11E-16</u>	U
SBHF14-077-ST11-AS-HF	11	5	2/10/2014	312	8.83E+07	4.33E-16	5.00E-16	7.67E-16	U	2.56E-16	4.11E-16	2.33E-16		3.56E-16	3.56E-16	1.89E-16	LT
			·		Minimum =	-4.44E-17	1.56E-16	7.78E-17		-3.33E-16	1.78E-16	1.00E-16		-1.00E-16	1.67E-16	1.22E-16	
					Maximum =	4.89E-15	2.22E-15	9.33E-16		3.00E-16	1.67E-15	2.56E-15	:	1.78E-15	1.67E-15	2.11E-15	
					Mean =	5.96E-16	4.11E-16	4.03E-16		3.97E-17	3.11E-16	4.37E-16		1.83E-16	2.98E-16	4.51E-16	
					Median =	2.67E-16	3.33E-16	3.89E-16		4.44E-17	2.56E-16	3.56E-16		1.67E-16	2.44E-16	4.00E-16	
					SD =	1.06E-15	3.79E-16	2.54E-16		1.30E-16	2.56E-16	4.16E-16		3.10E-16	2.54E-16	3.38E-16	
Notos:																	

Notes: U – non-detect at the reported MDC U – non-detect at the reported MDC LT – Result with detectable activity; reported MDC higher than MQO M – non-detect result; reported MDC higher than MQO TPU - Total Propagated Uncertainty (k=2) All lab-reported sample result, TPU, and MDC values were conservatively corrected by a factor of 0.9 to account for the Whatman-41 filter collection efficiency at the operating flow rate and calculated linear face velocity

Table 5-3. Post-HE Training Exercise Air Filter Sample Results and Summary Statistics

							U-234				U-235				U-238		
				Total Run	Total					D				D 1			
Sample ID	Station	Height (ft)	Date	(min)	voiume (ml)	(µCi/ml)	TPU (µCi/ml)	MDC (µCi/ml)	Flag	(µCi/ml)	TPU (µCi/ml)	MDC (µCi/ml)	Flag	(µCi/ml)	TPU (µCi/ml)	MDC (µCi/ml)	Flag
SBHF14-034-ST01-AS-BK	1	5	2/7/2014	399	1.13E+08	-4.44E-17	2.44E-16	5.33E-16	U	1.00E-16	2.33E-16	1.33E-16	U	7.78E-17	2.00E-16	3.78E-16	U
SBHF14-035-ST02-AS-BK	2	5	2/7/2014	400	1.13E+08	2.56E-16	1.89E-16	8.89E-17		0.00E+00	1.89E-16	3.44E-16	U	1.89E-16	1.56E-16	8.89E-17	LT
SBHF14-036-ST03-AS-BK	3	20	2/7/2014	338	9.57E+07	6.67E-17	5.67E-16	1.10E-15	U	0.00E+00	4.56E-16	9.78E-16	U	3.44E-16	5.00E-16	8.33E-16	U
SBHF14-037-ST04-AS-BK	4	5	2/7/2014	356	1.01E+08	0.00E+00	4.67E-16	9.78E-16	U	0.00E+00	4.67E-16	7.11E-16	U	6.56E-16	6.22E-16	8.78E-16	U
SBHF14-038-ST05-AS-BK	5	20	2/7/2014	423	1.20E+08	0.00E+00	3.00E-16	6.00E-16	U	0.00E+00	2.22E-16	4.78E-16	U	1.56E-16	2.44E-16	4.11E-16	U
SBHF14-039-ST06-AS-BK	6	5	2/7/2014	374	1.06E+08	2.22E-16	4.11E-16	7.11E-16	U	-5.56E-17	2.56E-16	4.89E-16	U	1.78E-16	2.22E-16	3.33E-16	U
SBHF14-040-ST07-AS-BK	7	5	2/7/2014	374	1.06E+08	4.56E-16	4.56E-16	7.00E-16	U	4.44E-17	2.56E-16	5.33E-16	U	5.44E-16	3.56E-16	3.89E-16	LT
SBHF14-041-ST08-AS-BK	8	5	2/7/2014	373	1.06E+08	2.78E-16	4.44E-16	7.56E-16	U	-4.44E-17	3.33E-16	6.89E-16	U	2.00E-16	2.78E-16	4.67E-16	U
SBHF14-042-ST09-AS-BK	9	5	2/7/2014	375	1.06E+08	1.11E-16	3.44E-16	6.33E-16	U	1.33E-16	2.11E-16	3.11E-16	U	2.56E-16	3.00E-16	4.78E-16	U
SBHF14-043-ST10-AS-BK	10	5	2/7/2014	375	1.06E+08	2.56E-16	2.78E-16	4.33E-16	U	1.67E-16	2.11E-16	3.11E-16	U	1.44E-16	2.67E-16	4.67E-16	U
SBHF14-044-ST11-AS-BK	11	5	2/7/2014	375	1.06E+08	7.11E-15	1.67E-15	8.89E-16		3.89E-16	3.44E-16	4.11E-16	U	1.00E-16	3.00E-16	5.78E-16	U
SBHF14-045-ST01-AS-BK	1	5	2/8/2014	600	1.70E+08	2.11E-16	1.56E-16	7.78E-17		8.89E-17	1.56E-16	8.89E-17		2.22E-17	1.33E-16	2.44E-16	U
SBHF14-046-ST02-AS-BK	2	5	2/8/2014	600	1.70E+08	3.56E-16	2.33E-16	1.00E-16		7.78E-17	2.00E-16	3.89E-16	U	1.78E-16	1.89E-16	2.56E-16	U
SBHF14-047-ST03-AS-BK	3	20	2/8/2014	303	8.58E+07	3.44E-16	2.67E-16	1.33E-16		0.00E+00	2.89E-16	4.22E-16	U_	2.00E-16	2.44E-16	3.67E-16	U
SBHF14-048-ST04-AS-BK	4	5	2/8/2014	310	8.78E+07	3.89E-16	2.67E-16	1.22E-16		5.56E-17	2.56E-16	1.33E-16	U	1.33E-16	2.33E-16	4.00E-16	U
SBHF14-049-ST05-AS-BK	5	20	2/8/2014	339	9.60E+07	2.33E-16	3.11E-16	5.00E-16	U	8.89E-17	2.22E-16	1.22E-16	U	1.56E-16	2.22E-16	3.56E-16	U
SBHF14-050-ST06-AS-BK	6	5	2/8/2014	304	8.61E+07	5.56E-16	3.22E-16	1.22E-16		-1.00E-16	2.44E-16	4.67E-16	U	2.11E-16	2.11E-16	1.22E-16	LT
SBHF14-051-ST07-AS-BK	7	5	2/8/2014	303	8.58E+07	2.33E-16	2.89E-16	1.56E-16		2.78E-16	3.44E-16	1.89E-16		3.00E-16	2.89E-16	1.56E-16	LT
SBHF14-052-ST08-AS-BK	8	5	2/8/2014	302	8.55E+07	2.89E-16	2.78E-16	3.56E-16	U	0.00E+00	2.78E-16	5.33E-16	U	2.89E-16	2.44E-16	1.33E-16	LT
SBHF14-053-ST09-AS-BK	9	5	2/8/2014	302	8.55E+07	5.33E-16	3.22E-16	1.22E-16		1.56E-16	2.56E-16	3.89E-16	υ	1.78E-16	2.22E-16	3.22E-16	υ
SBHF14-054-ST10-AS-BK	10	5	2/8/2014	302	8.55E+07	2.33E-16	2.44E-16	3.44E-16	U	1.67E-16	2.67E-16	4.00E-16	U	4.44E-17	2.44E-16	5.00E-16	U
SBHF14-055-ST11-AS-BK	11	5	2/8/2014	302	8.55E+07	4.11E-15	1.11E-15	5.56E-16		4.00E-16	3.11E-16	1.56E-16		2.89E-16	2.44E-16	1.33E-16	LT
SBHF14-078-ST01-AS-BK	1	5	2/11/2014	392	1.11E+08	1.78E-16	3.78E-16	6.56E-16	υ	8.89E-17	2.11E-16	3.11E-16	υ	-3.33E-17	1.89E-16	4.33E-16	U
SBHF14-079-ST02-AS-BK	2	5	2/11/2014	392	1.11E+08	-6.67E-17	2.89E-16	5.89E-16	υ	7.78E-17	1.89E-16	3.67E-16	U	1.33E-16	2.56E-16	4.44E-16	U
SBHF14-080-ST03-AS-BK	3	20	2/11/2014	407	1.15E+08	-5.44E-16	4.67E-16	9.78E-16	U	0.00E+00	3.00E-16	6.11E-16	U.	-2.22E-16	2.78E-16	6.33E-16	U
SBHF14-081-ST04-AS-BK	4	5	2/11/2014	447	1.27E+08	6.67E-17	3.33E-16	6.11E-16	υ	7.78E-17	1.78E-16	1.00E-16	υ	1.22E-16	2.22E-16	3.78E-16	U
SBHF14-082-ST05-AS-BK	5	20	2/11/2014	443	1.25E+08	2.78E-16	2.56E-16	3.67E-16	υ	1.11E-16	1.78E-16	2.67E-16	υ	3.00E-16	2.22E-16	2.22E-16	LT
SBHF14-083-ST06-AS-BK	6	5	2/11/2014	399	1.13E+08	1.00E-16	3.78E-16	6.89E-16	U	0.00E+00	2.67E-16	5.44E-16	U	3.11E-16	3.11E-16	4.56E-16	U
SBHF14-084-ST07-AS-BK	7	5	2/11/2014	396	1.12E+08	3.33E-17	5.67E-16	1.02E-15	U	-1.22E-16	2.67E-16	6.11E-16	U	3.33E-17	4.00E-16	7.33E-16	U
SBHF14-085-ST08-AS-BK	8	5	2/11/2014	396	1.12E+08	0.00E+00	3.22E-16	6.33E-16	U	-8.89E-17	2.33E-16	5.11E-16	υ	2.00E-16	2.67E-16	4.33E-16	U
SBHF14-086-ST09-AS-BK	9	5	2/11/2014	393	1.11E+08	4.33E-16	4.89E-16	7.67E-16	U	-5.56E-17	2.78E-16	5.22E-16	υ	1.44E-16	2.33E-16	3.56E-16	U
SBHF14-087-ST10-AS-BK	10	5	2/11/2014	391	1.11E+08	1.44E-16	3.33E-16	5.89E-16	U	4.44E-17	2.22E-16	4.56E-16	U	2.89E-16	2.56E-16	3.33E-16	U
SBHF14-088-ST11-AS-BK	11	5	2/11/2014	391	1.11E+08	2.04E-15	9.00E-16	1.02E-15		-4.22E-16	3.67E-16	9.56E-16	U	2.56E-16	3.44E-16	5.44E-16	U
			-	· · · · · · · · · · · · · · · · · · ·	Minimum =	-5.44E-16	1.56E-16	7.78E-17		-4.22E-16	1.56E-16	8.89E-17		-2.22E-16	1.33E-16	8.89E-17	
· · ·					Maximum =	7.11E-15	1.67E-15	1.10E-15		4.00E-16	4.67E-16	9.78E-16		6.56E-16	6.22E-16	8.78E-16	
					Mean =	5.72E-16	4.21E-16	5.43E-16		5.02E-17	2.63E-16	4.22E-16		1.93E-16	2.70E-16	4.02E-16	
					Median =	2.33E-16	3.22E-16	5.89E-16		4.44E-17	2.56E-16	4.11E-16		1.78E-16	2.44E-16	3.89E-16	
					SD =	1.41E-15	2.94E-16	3.10E-16		1.47E-16	7.26E-17	2.21E-16		1.56E-16	9.38E-17	1.89E-16	

Notes:

U – non-detect at the reported MDC LT – Result with detectable activity; reported MDC higher than MQO M – non-detect result; reported MDC higher than MQO TPU - Total Propagat All lab-reported sample result, TPU, and MDC values were conservatively corrected by a factor of 0.9 to account for the Whatman-41 filter collection efficiency at the operating flow rate and calculated linear face velocity

W912DR-08-D-0026/ZW01

TPU - Total Propagated Uncertainty (k=2)

5.4 ²³⁸U:²³⁴U Ratio Evaluation

The second DQO was to use the activity ratios to determine if measured U-238 was associated with DU. Typically the presence of DU and natural uranium can be determined by examining the activity ratios of the sample results. Since ²³⁸U was not detected above instrumental background in any of the samples collected during this sampling event calculation of the ²³⁸U:²³⁴U was not performed.

On closer examination of the data, it was observed that there was a greater amount of detectable activity for 234 U compared to 238 U. This relationship is not a typical characteristic of natural U or DU.

The higher detectable activity for ²³⁴U was likely due to the manner in which the samples were prepared and measured at the offsite laboratory. Each sample collected, including the blanks, was spiked with a ²³²U tracer in order to monitor radiochemical recoveries throughout the preparation process. The ²³⁴U activity reported for samples and blanks are biased slightly high due to counts resulting from mass attenuation of the ²³²U tracer peak, which occurs just up field from the ²³⁴U Region of Interest (ROI). The ²³²U peaks tend to exhibit tailing into the ²³⁴U ROI, resulting in higher detectable counts for ²³⁴U. However, it should be noted that it is not possible to perform a post-analysis correction to the ²³⁴U ROI counts for the tailing effect. The degree of attenuation does not correlate exactly to the tracer yield since the activity and amount of mass deposit are not necessarily proportional to each other. Considering that enriched uranium is not a concern at Schofield, the ²³²U tailing effect is the most likely reason ²³⁴U was detected in 35 of the 88 samples collected (Table 5-4). Based on the frequency ²³⁴U has a detection rate of 40%. While ²³⁸U was not detected in any of the sample results

	Detectable Samples	Undetectable Samples
²³⁴ U	35	53
²³⁵ U	8	80
²³⁸ U	0	88

Table 5-4. Detectable vs Undetectable Samples

Sample SBHF14-011-ST11-AS-BK, a background sample collected from Location #11 on February 4th, exhibited an elevated activity for ²³⁴U and ²³⁵U; however, there was not any detectable ²³⁸U activity in this sample or any of the other background samples. The results for this sample for these two radionuclides seem to be erroneous. The reported activity may be biased high as result of the mass attenuation of the ²³²U tracer peak.



6.0 QUALITY CONTROL FIELD INSTRUMENTS

Survey data collection activities were performed in a controlled, deliberate manner by trained individuals with calibrated instruments following written procedures and/or protocols. Data were recorded and reviewed, and documentation is available for review. Instrumentation capable of detecting the radiation types and energies of interest were selected, calibrated, and maintained for survey data collection.

All instruments used to perform field measurements were properly calibrated within the past year and copies of the calibration documentation were maintained on the site. Instruments used to perform field measurements were checked at the beginning of each day as described in the appropriate Cabrera Standard Operating Procedure. Prior to use, instruments were checked for current calibration, adequate battery level, and physical damage. Source checks were performed to document that the instrument responds to radioactivity consistently. Background checks were performed in order to document that the instrument is not broken or contaminated. The results of the operational checks were documented in an electronic file with the instrument reading, date, and time. Calibration certificates and daily source check data are included in Attachment C.

7.0 QUALITY CONTROL - DATA VALIDATION

The analytical sampling results were evaluated to verify the data usability for project-specific DQO. As a part of the DQO, a review of the analytical data was performed with regard to its usability and quality. The purpose of the analytical data review is to identify analytical methods and compounds for which the quality assurance (QA) objectives are not satisfied. The following sections summarize the data evaluation process conducted for this report.

Eighty-eight (88) air samples were collected by Cabrera during the air monitoring investigation. All samples have been reviewed with respect to condition of sample receipt from the laboratory. All sample containers were received by ALS in good condition and under proper COC.

7.1 Measurement Quality Objectives

Because DQOs apply to both sampling and measurement activities, method performance characteristics selected specifically for the selected measurement process are required from a measurement perspective. Measurement quality objectives (MQOs) are statements of performance objectives or requirements for a particular method performance characteristic. Method performance characteristics include method uncertainty, detection capability, quantification capability, range, specificity, and ruggedness. MQOs can be applied to data collection methods as well as sample analysis methods.

7.1.1 Detection Capability

Since decisions will be made for individual measurements, it is critical that the detection capability of the measurement method be sufficient to detect radioactivity at the level of concern. Since decisions about the principal study question were determined based on air filter collections during the HE training exercise, the detection requirements only apply to those air filter samples collected during the HE training exercise. The initial objective for detection capability is the smallest concentration of radioactivity that can be reliably distinguished from zero. This value is called the MDC. The required ²³⁸U MDC for the study was set at $1.0 \times 10^{-15} \,\mu$ Ci/mL, or 10% of the action level. The requested MDC was not met for two (2) samples (SBHF14-007-ST07-AS-BK & SBHF14-023-ST01-AS-HF) with reported 'non-detect' concentration results for ²³⁸U; both attributable to reduced sampler run-times.

7.1.2 Method Uncertainty/Quantification Capability

The measurement method uncertainty refers to the predicted uncertainty of a measured value that would be calculated if the method were applied to a hypothetical sample with a specified concentration. Measurement method uncertainty is a characteristic of the measurement method and the measurement process. The air filter samples collected during the HE training exercise directly address the principal study question; thus, method uncertainty is defined for these sample measurements. The required measurement method uncertainty for alpha spectrometry measurements performed in support of this air monitoring survey for concentrations equal to the action level is set equal to 0.3 times the action level, or $3.0 \times 10^{-15} \,\mu\text{Ci/ml}$. This assumes Type I and Type II decision error rates of 0.05, or 5%. The maximum ²³⁸U result reported was sample SBHF14-023-ST01-AS-HF with a reported activity of $1.78 \times 10^{-15} \,\mu\text{Ci/ml}$ and total propagated uncertainty (TPU [*k*=2]) of $1.67 \times 10^{-15} \,\mu\text{Ci/ml}$. Since all ²³⁸U results were non-detects, no further evaluation was performed.

7.1.3 Range

The range of the measurement method is defined as the range of concentrations that can be measured accurately. Alpha spectrometry is applicable to a broad range of count rates. If the count rates get too high, the sample can be diluted or moved farther from the detector face. The activity levels encountered from the types of samples collected as part of this air monitoring survey can be measured accurately using alpha spectrometry.

7.1.4 Specificity

Specificity is the ability of the measurement method to determine the radionuclide producing the measured radiation. Alpha spectrometry was used to detect the specified uranium isotopes and their composition.

7.1.5 Ruggedness

Ruggedness is a measure of the relative stability of the measurement method performance when small variations in method parameter values are made. Since alpha spectrometry is not a rugged measurement method, these analyses are performed under laboratory conditions where variations can be minimized. Degradation of the sample spectrum can potentially result from incomplete purification or partial absorption of alpha particles from the final sample amount. Therefore, there was sufficient sample supplied in order to allow re-analysis.

7.2 Quality-Indicator Samples

Quality-Indicator Samples (QIS) are used to evaluate the usability of data. When reporting the sample data, the laboratory also provides the results of associated QC sample analyses. The following section of the report summarized QC processes that were conducted in order to verify and review the analytical data generated in the laboratory. The following sections summarized the evaluation procedures for each QIS:

7.2.1 Standard Traceability

Calibration/LCS standards must be traceable to a reliable source (e.g., NIST). The offsite laboratory utilizes a traceable reliable source (e.g. NIST, IAEA) for calibration, daily QC, LCS, and tracer evaluations.

7.2.2 Precision with Respect to Laboratory Duplicate (LDUP)/ Replicates (LREP) Samples

Precision is a measure of how well a measurement method can provide repeated results. Precision is measured by performing replicate measurements of the same sample and documenting the variability in the results. The purpose of the LDUP/LREP is to monitor the precision of the analytical method, provided the sample is fully homogenized prior to preparation and analysis. The criteria selected for initial evaluation is the relative percent difference (RPD) with an acceptance criteria of $\leq 20\%$ and a formula presented as follows:

$$%RPD = \left| \frac{(x_1 - x_2)}{0.5(x_1 + x_2)} \right| *100$$

Where:







 x_1 = First sample value (REG)

 x_2 = Second sample value (LDUP/LREP)

Sample volume was insufficient to allow preparation of a laboratory duplicate sample. A LCSD was prepared in lieu of a LDUP sample. Therefore, the sampling results for LCS and LCSD were utilized to calculate the %RPD values for ²³⁴U, and ²³⁸U. The calculated %RPD values for all samples are within the acceptable performance range. Therefore, <u>all results are acceptable</u>. The Laboratory Duplicate samples are presented in Table 7-1.

7.2.3 Bias with Respect to Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

Bias is a measure of how well a measurement method can estimate the activity for a sample with known activity (e.g., spike, laboratory control sample). Bias is measured by analyzing samples with known activity and comparing the measurement results to the expected results. The analytical laboratory analyzed a laboratory control sample with each batch of samples to provide information on bias for laboratory measurements. The purpose of the LCS and LCSD is to monitor the accuracy of sample preparation and analysis. LCS evaluation was performed for ²³⁴U, and ²³⁸U. Preparation and analysis were performed under the same conditions as a regular project sample. The laboratory acceptance criterion for LCS percent recovery (%R) is 82-122%. The calculated %R values for all LCS and LCSD sample results are within primary acceptable criterion. Therefore, all results are acceptable. The LCS and LCSD samples are presented in Table 7-2.

7.2.4 Method Blank (MB)

The purpose of the MB is to monitor the presence of external sources of contamination for parameters of interest in the sample preparation and analysis process. The MB is a laboratory-generated sample of the same matrix as the analytical samples but in absence of the parameters of interest. Primary Acceptance Criteria for MB are <MDC (95%CL) or < $1.96 u_c^2(x)$. If either primary acceptance criterion is met, the MB is considered acceptable. Except for two (2) sample results for 234 U (Lab ID - AS140215-1M and AS140215-2P), the MB results for all other samples included in this report are within primary acceptance criteria. The method blanks are presented in Table 7-3.

When both primary criteria fail, a secondary MB acceptance evaluation is performed by calculation of a Z-blank (Z_{BLANK}) statistic with Warning and Control Limits of +/-2sigma and +/-3sigma, respectively. The formula for calculation of the Z_{BLANK} is as follows:

$$Z_{BLANK} = \frac{x}{u_c^2(x)}$$

Where:

x = Reported Method Blank Result $u_c(x_1)$ = Combined Standard Uncertainty All MB results for parameters included in this report are within secondary acceptance criteria. Therefore, <u>all results are acceptable</u>.

7.2.5 Tracer Yield and Biasness

A tracer is defined as a radioactive isotope, introduced into the sample preparation/analysis process that will behave chemically similar to the analyzed isotopes of interest. Tracers provide a means of evaluating chemical separation. The activity of the tracer detected at the end of analysis compared to that of the spiked amount is used to calculate the percent recovery. The project acceptance range for tracer percent recovery is 30-110%.

The results showed that the tracer recoveries for samples are within laboratory acceptable QC limits for percent recovery. Therefore, all results are acceptable. Results of the tracer yield analysis is presented in Table 7-4.

The 232 U tracer used to prepare and measure the activity of the filter samples yielded biased high activity for 234 U. The elevated counts are a result of 232 U peaks tailing into the 234 U ROI (Section 5.4).


LABORATORY DUPLICATE/REPLICATE (LCS/LCSD)						
Lab Sample ID	Parameter	Sample Result (x)	TPU [2u _c (x)]	Rep/Dup Result (y)	Rep/Dup TPU [2u _c (y)]	RPD
AS140215-3	U-234	3.48E-14	6.5E-15	3.24E-14	5.8E-15	7.1%
AS140215-3	U-238	3.94E-14	7.3E-15	3.73E-14	6.5E-15	5.5%
AS140215-4	U-234	3.81E-14	6.8E-15	4.11E-14	7.1E-15	7.6%
AS140215-4	U-238	4.20E-14	7.5E-15	4.40E-14	7.5E-15	4.7%
AS140215-1	U-234	7.40E-14	1.3E-14	7.40E-14	1.3E-14	0.0%
AS140215-1	U-238	7.40E-14	1.3E-14	8.40E-14	1.4E-14	12.7%
AS140215-2	U-234	4.14E-14	7.1E-15	3.98E-14	6.8E-15	3.9%
AS140215-2	U-238	4.53E-14	7.7E-15	4.01E-14	6.8E-15	12.2%
AS140215-5	U-234	3.99E-14	6.9E-15	4.00E-14	7.6E-15	0.3%
AS140215-5	U-238	4.18E-14	7.2E-15	4.02E-14	7.6E-15	3.9%
	Criteria (Sou	irce)				
PD	20.0%					

Table 7-1: Laboratory Duplicate Sample Analysis

GENERAL NOTES

1. All result, uncertainty, and spike concentrations are reported in units of µCi/mI

2. The analytical laboratory reports all uncertainty values as total propagated uncertainty (TPU[2σ]). This is functionally equivalent to the MARLAP combined "expanded" uncertainty at the 95.4% uncertainty level ($2u_c$).

3. Spike uncertainties are reported as a percentage in Section 8 (Standards Traceability Documents) of the Level IV Lab Report at a level equivalent to their 2σ TPU [%2uc(d)].

4. RPD = relative percent difference

Table 7-2: LCS & LCSD Analysis

LABORATOR	Y CONTROL	SAMPLE/ST	ANDARD (LCS)					
Lab ID	Parameter	Spiked Sample Result (x)	TPU [2uc(x)]	CSU [uc(x)]	MDC	Spike (d)	%TPU [%2u _c (d)]	CSU [u _c (d)]	%R
AS140215-3	U-234	3.48E-14	6.5E-15	3.25E-15	1.10E-15	3.64E-14	0.96%	1.75E-16	95.5%
AS140215-3	U-238	3.94E-14	7.3E-15	3.65E-15	7.00E-16	3.78E-14	0.60%	1.13E-16	104.2%
AS140215-4	U-234	3.81E-14	6.8E-15	3.40E-15	9.00E-16	4.14E-14	0.96%	1.99E-16	92.0%
AS140215-4	U-238	4.20E-14	7.5E-15	3.75E-15	6.00E-16	4.30E-14	0.60%	1.29E-16	97.7%
AS140215-1	U-234	7.40E-14	1.3E-14	6.50E-15	1.00E-15	7.32E-14	0.96%	3.51E-16	101.1%
AS140215-1	U-238	7.40E-14	1.3E-14	6.50E-15	0	7.60E-14	0.60%	2.28E-16	97.4%
AS140215-2	U-234	4.14E-14	7.1E-15	3.55E-15	1.00E-16	4.04E-14	0.96%	1.94E-16	102.5%
AS140215-2	U-238	4.53E-14	7.7E-15	3.85E-15	1.00E-16	4.19E-14	0.60%	1.26E-16	108.0%
AS140215-5	U-234	3.99E-14	6.9E-15	3.45E-15	7.00E-16	3.97E-14	0.96%	1.91E-16	100.4%
AS140215-5	U-238	4.18E-14	7.2E-15	3.60E-15	5.00E-16	4.13E-14	0.60%	1.24E-16	101.3%
LABORATOR	Y CONTROL	SAMPLE DU	PLICATES	(LCSD)					
AS140215-3	U-234	3.24E-14	5.8E-15	2.90E-15	1.10E-15	3.64E-14	0.96%	1.75E-16	88.9%
AS140215-3	U-238	3.73E-14	6.5E-15	3.25E-15	8.00E-16	3.78E-14	0.60%	1.13E-16	98.6%
AS140215-4	U-234	4.11E-14	7.1E-15	3.55E-15	1.10E-15	4.14E-14	0.96%	1.99E-16	99.3%
AS140215-4	U-238	4.40E-14	7.5E-15	3.75E-15	8.00E-16	4.30E-14	0.60%	1.29E-16	102.4%
AS140215-1	U-234	7.40E-14	1.3E-14	6.50E-15	0	7.32E-14	0.96%	3.51E-16	101.1%
AS140215-1	U-238	8.40E-14	1.4E-14	7.00E-15	1.00E-15	7.60E-14	0.60%	2.28E-16	110.6%
AS140215-2	U-234	3.98E-14	6.8E-15	3.40E-15	2.00E-16	4.04E-14	0.96%	1.94E-16	98.5%
AS140215-2	U-238	4.01E-14	6.8E-15	3.40E-15	1.00E-16	4.19E-14	0.60%	1.26E-16	95.6%
AS140215-5	U-234	4.00E-14	7.6E-15	3.80E-15	7.00E-16	3.97E-14	0.96%	1.91E-16	100.7%
AS140215-5	U-238	4.02E-14	7.6E-15	3.80E-15	5.00E-16	4.13E-14	0.60%	1.24E-16	97.5%
	Criteria (Source)								
% Recov	very (R) Limits:	82% to	122%						
GENERAL N	GENERAL NOTES								

1. All result, uncertainty, and spike concentrations are reported in units of µCi/ml

2. The analytical laboratory reports all uncertainty values as total propagated uncertainty (TPU[2σ]). This is functionally equivalent to the MARLAP combined "expanded" uncertainty at the 95.4% uncertainty level ($2u_c$).

3. The blue shaded cells represent conversion of reported TPU (2σ) to combined "standard" uncertainty equivalent (u_c), where necessary, to perform "Z-based" statistical evaluations. Z_{REP} calculations for DUP/REP are based on the lab reported TPU (2σ) values.

4. Spike uncertainties are reported as a percentage in Section 8 (Standards Traceability Documents) of the Level IV Lab Report at a level equivalent to their 2σ TPU [%2uc(d)].

5. CSU = Combined Standard Uncertainty

6. %R = percent recovery

METHOD BL	METHOD BLANK						
Lab ID	Parameter	Sample Result (x)	TPU [2u _c (x)]	CSU [u _c (x)]	MDC	<2u _c (x) or <mdc< th=""><th>ZBLANK</th></mdc<>	ZBLANK
AS140215-3M	U-234	1.80E-16	4.6E-16	2.30E-16	8.10E-16	PASS	0.78
AS140215-3M	U-235	5.00E-17	2.6E-16	1.30E-16	3.90E-16	PASS	0.38
AS140215-3M	U-238	1.30E-16	3E-16	1.50E-16	5.40E-16	PASS	0.87
AS140215-3P	U-234	-3.00E-16	6.1E-16	3.05E-16	1.32E-15	PASS	-0.98
AS140215-3P	U-235	9.00E-17	4.4E-16	2.20E-16	8.30E-16	PASS	0.41
AS140215-3P	U-238	-8.00E-17	4.6E-16	2.30E-16	1.00E-15	PASS	-0.35
AS140215-4M	U-234	-5.00E-17	4.9E-16	2.45E-16	9.50E-16	PASS	-0.20
AS140215-4M	U-235	0	2.7E-16	1.35E-16	1.50E-16	PASS	0.00
AS140215-4M	U-238	9.00E-17	3E-16	1.50E-16	5.70E-16	PASS	0.60
AS140215-4P	U-234	4.10E-16	4.6E-16	2.30E-16	7.00E-16	PASS	1.78
AS140215-4P	U-235	7.00E-17	3.4E-16	1.70E-16	5.10E-16	PASS	0.41
AS140215-4P	U-238	4.10E-16	3.6E-16	1.80E-16	4.30E-16	PASS	2.28
AS140215-1M	U-234	3.40E-16	2.8E-16	1.40E-16	1.50E-16	Perform Z- Blank Test	2.43
AS140215-1M	U-235	2.00E-16	3.2E-16	1.60E-16	4.80E-16	PASS	1.25
AS140215-1M	U-238	1.10E-16	2.7E-16	1.35E-16	4.10E-16	PASS	0.81
AS140215-1P	U-234	3.50E-16	3.8E-16	1.90E-16	5.20E-16	PASS	1.84
AS140215-1P	U-235	0	4E-16	2.00E-16	6.10E-16	PASS	0.00
AS140215-1P	U-238	7.00E-17	3.7E-16	1.85E-16	7.60E-16	PASS	0.38
AS140215-2M	U-234	6.00E-17	2.1E-16	1.05E-16	4.00E-16	PASS	0.57
AS140215-2M	U-235	7.00E-17	1.7E-16	8.50E-17	1.00E-16	PASS	0.82
AS140215-2M	U-238	1.20E-16	1.7E-16	8.50E-17	2.80E-16	PASS	1.41
AS140215-2P	U-234	2.80E-16	2E-16	1.00E-16	9.00E-17	Perform Z- Blank Test	2.80
AS140215-2P	U-235	-8.00E-17	2E-16	1.00E-16	3.80E-16	PASS	-0.80
AS140215-2P	U-238	1.00E-16	1.7E-16	8.50E-17	9.00E-17	PASS	1.18
AS140215-5M	U-234	2.30E-16	4.1E-16	2.05E-16	7.00E-16	PASS	1.12
AS140215-5M	U-235	5.00E-17	2.2E-16	1.10E-16	3.40E-16	PASS	0.45
AS140215-5M	U-238	0	2.2E-16	1.10E-16	4.70E-16	PASS	0.00
AS140215-5P	U-234	3.00E-16	3.9E-16	1.95E-16	6.30E-16	PASS	1.54
AS140215-5P	U-235	0	2.2E-16	1.10E-16	4.10E-16	PASS	0.00
AS140215-5P	U-238	4.00E-17	2.5E-16	1.25E-16	5.00E-16	PASS	0.32
Criteria (Source)							
Prim	ary Criteria:	<2u _c (x) OR	<mdc< td=""><td></td><td></td><td></td><td></td></mdc<>				
Z _{MB} Limits:	Warning ±	2	Control ±	3	MARLAP	Ch. 18	
GENERAL N	OTES						

Table 7-3: Method Blank Analysis

1. All result, uncertainty, and spike concentrations are reported in units of µCi/ml.

2. The analytical laboratory reports all uncertainty values as total propagated uncertainty (TPU[2σ]). This is functionally equivalent to the MARLAP combined "expanded" uncertainty at the 95.4% uncertainty level ($2u_c$).

3. The blue shaded cells represent conversion of reported TPU (2σ) to combined "standard" uncertainty equivalent (u_c), where necessary, to perform "Z-based" statistical evaluations. Z_{REP} calculations for DUP/REP are based on the lab reported TPU (2σ) values.

4. Spike uncertainties are reported as a percentage in Section 8 (Standards Traceability Documents) of the Level IV Lab Report at a level equivalent to their 2σ TPU [%2uc(d)].

5. CSU = Combined Standard Uncertainty

6. %R = percent recovered

Lab ID	Sample Type	Parameter	Spiked Sample Result (x)	Spike Concentration (d)	%R
SBHF14-036-ST03-AS-BK	SMP	U-232	2.14E-14	4.45E-14	48.1%
SBHF14-014-ST03-AS-BK	SMP	U-232	2.31E-14	3.30E-14	70.0%
SBHF14-015-ST04-AS-BK	SMP	U-232	2.42E-14	3.25E-14	74.4%
SBHF14-016-ST05-AS- BK	SMP	U-232	2.16E-14	3.23E-14	66.9%
SBHF14-017-ST06-AS-BK	SMP	U-232	2.45E-14	3.20E-14	76.5%
SBHF14-018-ST07-AS-BK	SMP	U-232	2.17E-14	3.20E-14	67.7%
SBHF14-019-ST08-AS-BK	SMP	U-232	2.26E-14	3.18E-14	71.1%
SBHF14-020-ST09-AS-BK	SMP	U-232	2.33E-14	3.16E-14	73.9%
SBHF14-021-ST10-AS-BK	SMP	U-232	1.77E-14	3.16E-14	56.1%
SBHF14-022-ST11-AS-BK	SMP	U-232	2.28E-14	3.11E-14	73.3%
SBHF14-012-ST01-AS-BK	SMP	U-232	1.06E-14	3.13E-14	33.8%
SBHF14-037-ST04-AS-BK	SMP	U-232	1.64E-14	4.22E-14	38.9%
SBHF14-013-ST02-AS-BK	SMP	U-232	2.34E-14	3.13E-14	74.7%
SBHF14-038-ST05-AS-BK	SMP	U-232	2.81E-14	3.55E-14	79.2%
SBHF14-039-ST06-AS-BK	SMP	U-232	3.02E-14	4.02E-14	75.1%
SBHF14-040-ST07-AS-BK	SMP	U-232	3.11E-14	4.02E-14	77.4%
SBHF14-041-ST08-AS-BK	SMP	U-232	3.36E-14	4.02E-14	83.6%
SBHF14-042-ST09-AS-BK	SMP	U-232	3.23E-14	4.02E-14	80.4%
SBHF14-043-ST10-AS-BK	SMP	U-232	3.34E-14	4.02E-14	83.1%
SBHF14-044-ST11-AS-BK	SMP	U-232	2.60E-14	4.02E-14	64.7%
SBHF14-047-ST03-AS-BK	SMP	U-232	3.82E-14	4.97E-14	76.9%
SBHF14-045-ST01-AS-BK	SMP	U-232	1.79E-14	2.51E-14	71.4%
SBHF14-046-ST02-AS-BK	SMP	U-232	1.38E-14	2.51E-14	55.1%
SBHF14-025-ST03-AS- HF	SMP	U-232	2.99E-14	3.80E-14	78.6%
SBHF14-026-ST04-AS-HF	SMP	U-232	2.66E-14	3.46E-14	76.8%
SBHF14-027-ST05-AS-HF	SMP	U-232	3.19E-14	3.87E-14	82.4%
SBHF14-028-ST06-AS-HF	SMP	U-232	3.09E-14	3.84E-14	80.5%
SBHF14-029-ST07-AS-HF	SMP	U-232	2.41E-14	3.84E-14	62.8%
SBHF14-030-ST08-AS-HF	SMP	U-232	2.71E-14	3.84E-14	70.6%
SBHF14-031-ST09-AS-HF	SMP	U-232	2.33E-14	3.87E-14	60.2%
SBHF14-032-ST10-AS-HF	SMP	U-232	3.36E-14	3.87E-14	86.8%
SBHF14-048-ST04-AS-BK	SMP	U-232	4.16E-14	4.85E-14	85.7%
SBHF14-033-ST11-AS-HF	SMP	U-232	3.32E-14	3.87E-14	85.7%
SBHF14-049-ST05-AS-BK	SMP	U-232	3.85E-14	4.44E-14	86.8%
SBHF14-050-ST06-AS-BK	SMP	U-232	4.40E-14	4.95E-14	88.8%
SBHF14-051-ST07-AS-BK	SMP	U-232	3.25E-14	4.95E-14	65.6%

Table 7-4: Tracer Yield Analysis



Lab ID	Sample Type	Parameter	Spiked Sample Result (x)	Spike Concentration (d)	%R
SBHF14-052-ST08-AS-BK	SMP	U-232	3.85E-14	4.95E-14	77.7%
SBHF14-053-ST09-AS-BK	SMP	U-232	4.12E-14	4.95E-14	83.2%
SBHF14-054-ST10-AS-BK	SMP	U-232	4.04E-14	4.95E-14	81.6%
SBHF14-055-ST11-AS-BK	SMP	U-232	3.81E-14	4.95E-14	76.9%
SBHF14-023-ST01-AS-HF	SMP	U-232	1.65E-13	2.51E-13	65.8%
SBHF14-006-ST06-AS-BK	SMP	U-232	7.10E-14	9.53E-14	74.5%
SBHF14-007-ST07-AS-BK	SMP	U-232	4.57E-14	9.64E-14	47.4%
SBHF14-008-ST08-AS- BK	SMP	U-232	8.60E-14	9.77E-14	88.0%
SBHF14-009-ST09-AS-BK	SMP	U-232	7.90E-14	9.95E-14	79.4%
SBHF14-010-ST10-AS-BK	SMP	U-232	7.80E-14	1.02E-13	76.7%
SBHF14-011-ST11-AS-BK	SMP	U-232	7.00E-14	1.04E-13	67.4%
SBHF14-024-ST02-AS-HF	SMP	U-232	1.38E-14	3.91E-14	35.3%
SBHF14-034-ST01-AS-BK	SMP	U-232	2.65E-14	3.77E-14	70.3%
SBHF14-035-ST02-AS-BK	SMP	U-232	3.43E-14	3.77E-14	91.0%
SBHF14-001-ST01-AS-BK	SMP	U-232	3.10E-14	7.27E-14	42.6%
SBHF14-002-ST02-AS-BK	SMP	U-232	4.95E-14	7.06E-14	70.1%
SBHF14-003-ST03-AS-BK	SMP	U-232	4.79E-14	6.69E-14	71.6%
SBHF14-004-ST04-AS-BK	SMP	U-232	4.80E-14	7.45E-14	64.5%
SBHF14-005-ST05-AS-BK	SMP	U-232	6.05E-14	7.72E-14	78.4%
SBHF14-080-ST03-AS-BK	SMP	U-232	2.86E-14	3.70E-14	77.2%
SBHF14-078-ST01-AS-BK	SMP	U-232	3.14E-14	3.84E-14	81.8%
SBHF14-079-ST02-AS-BK	SMP	U-232	3.39E-14	3.84E-14	88.4%
SBHF14-067-ST01-AS-HF	SMP	U-232	4.10E-14	4.92E-14	83.4%
SBHF14-068-ST02-AS-HF	SMP	U-232	4.20E-14	4.92E-14	85.4%
SBHF14-081-ST04-AS-BK	SMP	U-232	2.97E-14	3.35E-14	88.6%
SBHF14-082-ST05-AS-BK	SMP	U-232	3.00E-14	3.41E-14	88.0%
SBHF14-083-ST06-AS-BK	SMP	U-232	3.26E-14	3.77E-14	86.5%
SBHF14-084-ST07-AS-BK	SMP	U-232	3.21E-14	3.80E-14	84.4%
SBHF14-085-ST08-AS-BK	SMP	U-232	3.06E-14	3.80E-14	80.5%
SBHF14-086-ST09-AS-BK	SMP	U-232	2.57E-14	3.84E-14	67.0%
SBHF14-087-ST10-AS-BK	SMP	U-232	3.32E-14	3.84E-14	86.5%
SBHF14-088-ST11-AS-BK	SMP	U-232	2.34E-14	3.84E-14	61.0%
SBHF14-069-ST03-AS-HF	SMP	U-232	2.24E-14	4.82E-14	46.4%
SBHF14-056-ST01-AS-HF	SMP	U-232	1.55E-14	3.28E-14	47.3%
SBHF14-057-ST02-AS-HF	SMP	U-232	2.76E-14	3.28E-14	84.2%
SBHF14-058-ST03-AS-HF	SMP	U-232	2.81E-14	3.35E-14	83.8%
SBHF14-059-ST04-AS-HF	SMP	U-232	1.68E-14	3.25E-14	51.7%
SBHF14-060-ST05-AS-HF	SMP	U-232	2.06E-14	3.67E-14	56.1%

Lab ID	Sample Type	Parameter	Spiked Sample Result (x)	Spike Concentration (d)	%R
SBHF14-061-ST06-AS-HF	SMP	U-232	2.08E-14	3.20E-14	64.9%
SBHF14-062-ST07-AS-HF	SMP	U-232	2.24E-14	3.23E-14	69.4%
SBHF14-063-ST08-AS-HF	SMP	U-232	2.09E-14	3.20E-14	65.3%
SBHF14-064-ST09-AS-HF	SMP	U-232	2.95E-14	3.20E-14	92.1%
SBHF14-065-ST10-AS-HF	SMP	U-232	2.30E-14	3.18E-14	72.3%
SBHF14-070-ST04-AS-HF	SMP	U-232	2.53E-14	4.84E-14	52.3%
SBHF14-066-ST11-AS-HF	SMP	U-232	2.11E-14	3.18E-14	66.4%
SBHF14-071-ST05-AS-HF	SMP	U-232	4.01E-14	4.90E-14	81.8%
SBHF14-072-ST06-AS-HF	SMP	U-232	4.02E-14	4.87E-14	82.6%
SBHF14-073-ST07-AS-HF	SMP	U-232	3.28E-14	4.89E-14	67.1%
SBHF14-074-ST08-AS-HF	SMP	U-232	3.30E-14	4.85E-14	68.0%
SBHF14-075-ST09-AS-HF	SMP	U-232	4.14E-14	4.85E-14	85.3%
SBHF14-076-ST10-AS-HF	SMP	U-232	3.15E-14	4.84E-14	65.1%
SBHF14-077-ST11-AS-HF	SMP	U-232	2.45E-14	4.82E-14	50.8%
Criteria (Source)					
%Recov	very (R) Limits	s: 30%	to	110%	
GENERAL NOTES					

GENERAL NOTES

1. All result, uncertainty, and spike concentrations are reported in units of μ Ci/ml

2. %R = percent recovered

7.3 Data Usability and Completeness

The overall quality of the sampling information meets or exceeds the established project objectives. Data, as presented, has been qualified as usable, but estimated when necessary. <u>No reported parameter results</u> were flagged "R-Rejected". Two (2) non-detect samples slightly exceeded the MDC target.

Table 7-5 presents the analyses parameters reported by the laboratory, the method used, and the associated accreditation reference:

Table 7-5: Analyses Parameters

PARAMETER	ANALYSIS METHOD	ACCREDIATION
U-234	Alpha Spectrometry	DoD ELAP
U-235	Alpha Spectrometry	DoD ELAP
U-238	Alpha Spectrometry	DoD ELAP

Data produced for this project demonstrates that it can withstand scientific scrutiny, is appropriate for its intended purpose, is technically defensible, and is of known and acceptable precision, and accuracy. Data

integrity has been documented through proper implementation of Quality Assurance and Quality Control measures.

7.4 QC Sample Frequency Summary

Table 7-6 presents the QA sample frequencies for the sample types and ROC parameters included in this report:

	U-234	U-235	U-238
REG	88	88	88
LDUP/LREP (LCS/LCSD)	5/5	-	5/5
LCS/LCSD	5/5	-	5/5
MB	10	10	10

Table 7-6: QA Sample Frequencies





8.0 RECORD KEEPING AND REPORTING

This section describes the documentation and reporting requirements for this investigation. The following records were generated during this investigation and are included in accompanying attachments.

8.1 DQCRs

DQCRs were generated by the Site Health and Safety Officer in order to document the daily activities of the investigation. The weather for each day and any additional environmental conditions or observations pertinent to field activities were documented. A list of team members present and their role on the project as well as visitors to the immediate investigation area was included. All meetings and briefings were summarized. Significant issues, changes, and delays that required coordination with USACE were documented in the DQCRs as well. Copies of the DQCRs generated during the HE training exercise effluent monitoring investigation can be found in Attachment A.

8.2 Daily Tailgate Safety Reports

Daily safety meetings were conducted to review the daily work plan, associated activities, and any anticipated hazards. The purpose of the meetings was to ensure that personnel were given a clear direction and the proper tools for performing their respective tasks. The safety meeting was required for all individuals scheduled to work that day. Records of attendee names and topics of discussion are documented on the Daily Tailgate Form, which can be found in Attachment A.

8.3 Environmental Conditions Report

The results of visual observations are presented in Attachment B – Environmental Conditions Report. The visual observations describe the overall plume behavior as well as ambient conditions at the HE training exercise location. Table 8-1 displays the type of data that was collected during the investigation.

Type of Data	Examples			
UE Detension	Detonation Name (date and range area)			
HE Detonation	Date			
Information	Time (start, stop)			
	Observer Name			
Observer Information	Location (relative to detonations)			
	Elevation (relative to detonations)			
	Sky Cover (clear, mostly sunny, fair, partly cloudy, mostly cloudy, cloudy, variable clouds)			
Weather Information	Temperature (maximum, minimum, average)			
	Wind Speed (average, maximum gust)			
	Wind Direction (average, range)			
Explosion Behavior	Height of Smoke Plume			
	Shape (sketch or photo)			
Canalta Diuma	Slope (steep is straight up, shallow is close to ground)			
Smoke Fluine	Color			
	Visibility (can the observer see through the plume)			

 Table 8-1: Monitoring Data

8.4 Instrument Quality Control Reports

The quality of analytical data was controlled through the performance of QC measurements and the calibration of field and laboratory equipment following established protocols. All of the instruments and sources used during this investigation were calibrated to the manufacturer specifications. Source checks and operational checks were performed to document that the instrument responded to radioactivity. Filter samples were pre-screened for radiological activity prior to being shipped to the offsite laboratory. Copies of instrument calibrations, daily source checks and prescreening survey are documented in the instrument quality control reports, which can be found in Attachment C.

8.5 Chain of Custody

A COC was filled out for each day samples are collected. The chain of custody form documented the persons responsible for controlling the samples from the time they were collected until the samples arrived at the laboratory. The COC also allowed the field team to provide necessary information to the laboratory concerning the number, type, and ID of the samples. The COC included the sample ID, collection date and time, number of containers (generally one), and the requested analyses (i.e., isotopic uranium by alpha spec). Also, the COC included contact information for the client point of contact. The person collecting the samples signed the COC on the day the samples are collected. The sample collector maintained physical control of the samples until custody was transferred to another person (e.g., maintained visual contact, locked the samples in a vehicle, samples locked in an office). The original COC was placed inside the shipping container with the samples prior to sealing the container. When the samples arrived at the laboratory, the laboratory accepting custody of the samples signed the COC. Copies of the COCs are included in each offsite lab deliverable (Attachment D).

8.6 Offsite Laboratory Analysis Reports

Samples collected as part of this investigation provide critical information to resolving the principal study questions. All of the samples were analyzed and reported with the maximum sensitivity possible. After analysis the laboratory generates an electronic file of the raw analytical sample results (EDD file) and a case narrative. The case narrative documents the analysis procedure used, the sample results (i.e. activity, MDA, and uncertainty), quality control methods, and any issues encountered during the sample preparation and analysis phase. Offsite laboratory measurement results and reports provided in Attachment D.

8.7 Photographs

Photographs were documented in an electronic photo log. The log includes the time, date, name or initials of the photographer and the location of the photograph. The photo logs and photographs for each sampling area are included in Attachment E.







9.0 CONCLUSION

A total of 88 air filter samples were collected and submitted to an offsite laboratory for alpha spectroscopy analysis. All results were acceptable for use with all ²³⁸U results reported as "non-detect". Therefore, no elevated activity associated with the HE training exercise at the Schofield Barracks range was identified.

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10.0 REFERENCES

- ALA, 2010, Health Impacts of Grass Seed Field Burning, American Lung Association Web site, October 2010
- Cabrera, 2008, Technical Memorandum Schofield Barracks Firing Range Monitoring of Air Quality during Burning of Vegetation, April 2008. ADAMS Docket Number ML091170320.
- Cabrera, 2013, OP-358, HP Instrument General Quality Control Procedure (Rev 1.0), August, 2013.
- Cabrera, 2013, Effluent Sampling Plan for Air Monitoring During High Explosive Fire, December 2013
- EPA, 2007, Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4. U.S. Environmental Protection Agency, April, 2007.
- EPA, 2011, Title 40, Code of Federal Regulations, Part 61. U.S. Environmental Protection Agency, July 2011.
- HPS, 1963 Collection Efficiency of Whatman 41 Filter Paper for Submicron Aerosols, Health Physics, Pergamon Press 1963. Vol 9, pp. 305-308.
- NRC, 2004, Energy, Title 10 Code of Federal Regulations; January 2004.
- NRC, 2001, Systematic Radiological Assessment of Exemptions for Source and Byproduct Materials. NUREG-1717. June 2001.
- U.S. Army, 2011, Radiation Safety Plan for U.S. Army Garrison Hawaii Ranges Affected by Depleted Uranium in M101 Davy Crockett Spotting Rounds, June 2011. ADAMS Docket Number ML11193A227.



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Attachment A Health and Safety Reports

ATTACHMENT A. HEALTH & SAFETY REPORTS

1 Introduction

Health and Safety reports were prepared and maintained during survey and sampling activities at Schofield Barracks.

Daily Quality Control Reports (DQCRs) – DQCRs were generated by the Site Health and Safety Officer in order to document the daily activities of the investigation. The weather for each day and any additional environmental conditions or observations pertinent to field activities was documented. A list of team members present and their role on the project as well as visitors to the immediate investigation area was included. All meetings and briefings were summarized. Significant issues, changes, and delays that required coordination with USACE were documented in the DQCRs as well.

Daily Tailgate Safety Meetings - Daily safety meetings were conducted to review the daily work plan, associated activities, and any anticipated hazards. The purpose of the meetings was to ensure that personnel were given a clear direction and the proper tools for performing their respective tasks. The safety meeting was required for all individuals scheduled to work that day. Records of attendee names and topics of discussion are documented on the Daily Tailgate Form

Daily Quality Control Reports (DQCRs)



Day/Date:	2/3/2014
Start/Stop:	0800 to 1630
Log No.:	001

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, Raining, Temperature ~60s-70s ° F (Max 71), Wind speed 0-3 mph, Precipitation 0.26"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician
Hans Honerlah	USACE	Oversight
Bob Cherry	Army	Oversight
Bob Evans	NRC	Regulator

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- Cabrera received instrumentation/ field equipment at Fedex location (Honolulu Airport)
- Cabrera arrived at Schofield Barracks at 0900 and proceeded to base security badging office to obtain ID badge for base access
- All Cabrera personnel onsite at Schofield Barracks at 1100 and proceeded to field office -- Bldg 205 at MF-1
- Cabrera held daily safety brief and reviewed APP prior to conducting field activities
- Begin instrument setup and initial QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- Purchased additional field supplies at Home Depot, including 20-gal plastic containers that will be used to cover and protect air monitors from expected rainfall during air monitoring activities
- Per Hans Honerlah (USACE), 4" diameter air filters will be deployed for all air monitors.
- Completed assembly of air monitoring instrumentation. The following specifications will be used for all air monitoring instruments.
 - 4" Diameter cellulous filters
 - Air monitors will be set upon ~5 Ft tripod
 - Plastic containers will cover air monitors to protect from precipitation (will protect filters from break-thru due to excessive moisture)
 - Plastic containers will have 5" diameter hole cut into side to expose filter to atmosphere
 - Air monitors will be set to 10 cubic feet per minute flow rate
 - 2500 watt gasoline generator will supply power to air monitors
- Cabrera completed setup of all 11 air monitoring devices. GPS was used to locate proposed air monitoring. Several Air Monitoring locations were moved from proposed locations due to access restrictions and new coordinates were obtained. All air monitors facing HE impact area



Location #1 – Inside BAX Area 3 (at proposed location)

- Location #2 Inside BAX Area 3 (at proposed location)
- Location #3 Moved to KR-3 Tower Approx. 20 Ft. above ground level. (Access to proposed location inside BAX Area 6 was restricted due to Army training exercise)
- Location #4 Moved to KR-5 Area South of RCA boundary (Access to proposed location was restricted due to Army training exercise).
- Location #5 CR-2 Tower Approx. 20 Ft. above ground level. (At proposed location)
- Location #6 along Fire Break Road, west side of RCA boundary (close proximity to proposed location)
- Location #7 along Fire Break Road, west side of RCA boundary (close proximity to proposed location)
- Location #8 along Fire Break Road, west side of RCA boundary (close proximity to proposed location)
- Location #9 Moved to Fire Break Road, north of RCA boundary
- Location #10 Moved to Fire Break Road, north of RCA boundary
- Location #11 Moved to Fire Break Road, north of RCA boundary

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

• None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

• None

0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/3/2014	Quality Control Manager



































Day/Date:	2/4/2014
Start/Stop:	0600 to 1700
Log No.:	002

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI							
FSM:	Jon Cote	Safety Incidents:	None							

Weather: Cloudy, Raining, Temperature ~60s-70s ° F (Max 71), Wind speed 0-3 mph, Precipitation 0.55"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician
Hans Honerlah	USACE	Oversight
Bob Cherry	Army	Oversight
ob Evans	NRC	Regulator

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0600 and proceeded to field office Bldg 205 at MF-1
- Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 1300 Cabrera deployed all 11 air monitoring devices to collect background air samples at designated locations (4" diameter filter at 10 CFM flow rate per discussions with onsite USACE HP Representative)
- Hourly weather information collected from base weather station
- 1500 Cabrera was notified that the range will begin live fire and will continue till late in the night. Cabrera would be unable to refuel generators during this period, as well as access Fire Break Road at night (due to safety concerns). In coordination with onsite USACE HP Representative, Cabrera decided to collect air samplers prior to the Army beginning the live fire exercise.
- 1530 Collected background air samples from all 11 air monitoring locations (Average approx. Run-time 3 hr). All air monitor start/stop times were recorded to determine total volume collected (cubic feet).
- Offsite at 1700

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

• None

0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of nonmpliance, etc.)

As described in Section 2.0, at 1500 Cabrera was notified by Range Control that the range will begin 'live fire' and continue late into the night. Cabrera would be unable to access Fire Break Road and the BAX area in order to refuel generators during the Army live fire exercise, which would cause air monitors to shut-off at an unknown time. In addition, Schofield Safety Manager restricted access to Fire Break Road at night, due to the safety concerns involved



with driving on rough terrain, wet conditions, and steep grades. In coordination with the onsite USACE HP Representative, Cabrera FSM made the decision to collect air samples before 'live fire' began, although the air samplers had not reached their target run-time. As a corrective action, Cabrera will deploy air samplers earlier in the morning, in order to get maximum run-time in the event that Army training schedules interfere with range access.

5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/4/2014	Quality Control Manager





Air Sample Log - Schofield Army Barracks, BAX Construction Support, Oahu, HI HE Detonation - FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

XX = Sample Phase [BK (Background), HF (HE Fire)]

Sample ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Air Sampler #	Air Sample Station #	BKG (Day #)	HE Detonation (Day #)	Comments
SBHF14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3
SBHF14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3
SBHF14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 Tower
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/A	South Fire Break Road
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road



Day/Date:	2/5/2014
Start/Stop:	0600 to 1700
Log No.:	003

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, Raining, Temperature ~60s-70s ° F (Max 74), Wind speed 6-15 mph, Precipitation 0.09"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician
Hans Honerlah	USACE	Oversight
Bob Cherry	Army	Oversight
ob Evans	NRC	Regulator

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0600 and proceeded to field office Bldg 205 at MF-1
- Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0730 Cabrera deployed all 11 air monitoring devices to collect background air samples at designated locations (4" diameter filter at 10 CFM flow rate)
- 1300 Cabrera checked all 11 air monitors to insure they were still running/ needed re-fueling All air monitors were still operating
- Hourly weather information collected from base weather station
- 1530 Collected background air samples from all 11 air monitoring locations (Average approx. Run-time 8 hr). All air monitor start/stop times were collected to determine total air volume collected (cubic feet)
- Completed radiological screening of background air samples from previous day (2/4/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Offsite at 1700

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

• None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

None



5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title						
Stephan Owe	Stephan Owe - 2/5/2014	Quality Control Manager						

Air Sample Log - Schofield Army Barracks, BAX Construction Support, Oahu, HI HE Detonation - FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

XX = Sample Phase [BK (Background), HF (HE Fire)]

			Start Time	• .														
	Date		Flow Rate	Stop	Stop Time Flow	Total Run Time	Total Volume		Air Sample:	BKG₂	HE Detonation							
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments						
SBHF14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3						
SBHF14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3						
SBHF14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)						
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5						
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 Tower						
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road						
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road						
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road						
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road						
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1 N/A		South Fire Break Road						
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road						
SBHF14-012-ST01-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3						
SBHF14-013-ST02-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3						
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)						
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5						
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower						
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road						
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road						
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road						
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road						
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road						
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road						

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Counting Instrument:	Ludlum Model 2929	Detector:	Ludlum 43-10-1	Cal. Date:	5/4/2014
Serial #:	200051	Serial #:	PR215948	Cal. Due Date OK?	OK

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Count time (min)	Backgroun d Count time (min)	Limitir Isotope d	ig Alpha if Concern	Limitir	ng Beta Isotope of Concern	Filter Area Factor (Adjusts for Portion of Filter that is Counted Only)
Alpha Beta	0.3806	Th-230 Tc-99	5648-06 5649-06	16,800 12,600	9/24/2012 9/24/2012	7.70E+04 2.13E+05	16800 12600	<u>30</u> 30	20 20	lsotope U-238	10CFR20 Occupatio nal DAC /Effluent 1.00E-14	lsotope U-238	10CFR20 Occupational DAC /Effluent 1.00E-14	4.67 Caution ! Review notes

Area Factor

Area Monitored and Air Mover Serial #/Bar Code	Air Sample Start Date/Tim	Air Sample End Date/Tim	Count Date	Run Time (min)	Flow Rate (CFM)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	1.11E-14	1.20E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	1.08E-14	1.17E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	1.02E-14	1.11E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	1.13E-14	1.23E-13
SBHF14-005-ST05-AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	1.17E-14	1.28E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.45E-14	1.58E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.47E-14	1.60E-13
SBHF14-008-ST08-AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	1.49E-14	1.62E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	1.52E-14	1.65E-13
SBHF14-010-ST10-AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	1.55E-14	1.68E-13
SBHF14-011-ST11-AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	1.58E-14	1.72E-13



Day/Date:	2/6/2014
Start/Stop:	0800 to 1830
Log No.:	004

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, Raining, Temperature ~60s-70s ° F (Max 78), Wind speed 0-6 mph, Precipitation 0.14"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician
Hans Honerlah	USACE	Oversight
Bob Cherry	Army	Oversight
kobert Evans	NRC	Regulator
	State of Hawaii	Site Visit
	State of Hawaii	Site Visit

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0800 and proceeded to field office Bldg 205 at MF-1
- Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0945 Cabrera deployed all 11 air monitoring devices at designated locations to collect air samples during High Explosive (HE) firing (4" diameter filter at 10 CFM flow rate).
- HE firing occurred between 1045 to 1535
- Weather information collected from base weather station
- 1615 Collected air samples from all 11 air monitoring locations (Average approx. Run-time 6 hr 30 min). All air monitor start/stop times were collected to determine total air volume collected (cubic feet).
- When field personnel arrived at air monitoring station #1 to collect air sample, generator was not running due to mechanical failure. Timer on air monitor showed a run time of approx. 1 hour.
- Completed radiological screening of air samples from previous day HE impact air samples (2/5/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Time-permitting, Cabrera performed re-counts on sub-set of air samples from previous days sampling. Several air samples with the highest alpha reading were chosen for re-count. Although re-counts still did not allow for full radon decay, reduction in gross counts can be seen in subsequent count results.
- Offsite at 1830



None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

• As described in Section 2.0, Cabrera arrived at air monitoring station #1 at approximately 1600 to collect air samples. On arrival, the generator/ air sampler #1 was not operating. After inspection of the generator, we determined that the generator had shut-off due to a mechanical failure. The timer on the air sampler was functioning and read approximately 1 hour, meaning the generator and air sampler had shut-off after approx. 1 hour of run-time. As a corrective action, Cabrera took the generator out of service and will use a back-up generator for the next day's air sampling.

5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/6/2014	Quality Control Manager



Air Sample Log - Schofield Army Barracks, BAX Construction Support, Oahu, HI HE Detonation - FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

XX = Sample Phase [BK (Background), HF (HE Fire)]

			Start Time									
	Date		Flow Rate	Stop	Stop Time Flow	Total Run Time	Total Volume		Air Sample	BKG	HE Detonation	
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments
SBHF14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3
SBHF14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3
SBHF14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 Tower
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/A	South Fire Break Road
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road
SBHF14-012-ST01-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3
SBHF14-013-ST02-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road
SBHF14-023-ST01-AS-HF	02/06/14	9:45	10	10:45	10	60	600	20248	1	N/A	1	BAX Area 3
SBHF14-024-ST02-AS-HF	02/06/14	9:48	10	16:12	10	384	3840	18205	2	N/A	1	BAX Area 3
SBHF14-025-ST03-AS-HF	02/06/14	10:44	10	17:19	10	395	3950	20249	3	N/A	1	Range Control Tower (CR-2)
SBHF14-026-ST04-AS-HF	02/06/14	9:53	10	17:07	10	434	4340	18204	4	N/A	1	KR-5
SBHF14-027-ST05-AS-HF	02/06/14	10:33	10	17:03	10	390	3900	16833	5	N/A	1	KR-3 Tower
SBHF14-028-ST06-AS-HF	02/06/14	10:27	10	16:58	10	391	3910	16830	6	N/A	1	South Fire Break Road
SBHF14-029-ST07-AS-HF	02/06/14	10:23	10	16:56	10	393	3930	16832	7	N/A	1	South Fire Break Road
SBHF14-030-ST08-AS-HF	02/06/14	10:19	10	16:51	10	392	3920	16829	8	N/A	1	South Fire Break Road
SBHF14-031-ST09-AS-HF	02/06/14	10:15	10	16:44	10	389	3890	16831	9	N/A	1	South Fire Break Road
SBHF14-032-ST10-AS-HF	02/06/14	10:10	10	16:38	10	388	3880	16826	10	N/A	1	South Fire Break Road
SBHF14-033-ST11-AS-HF	02/06/14	10:06	10	16:33	10	387	3870	16827	11	N/A	1	South Fire Break Road

HI-Q HIGH VOLUME GENERAL/EFFLUENT AIRBORNE CONCENTRATION LOG (Rev 12)

Co	ounting Ins	trument:	Ludium N	Model 2929	Detector:	Ludium	43-10-1	Γ	Cal. Date:	5/4/2014	1	[
		Serial #:	200	0051	Serial #:	PR21	5948	Cal. D	ue Date OK?	OK									1	-
				0.0(0.0)	1			1			1					+			r	-
Radiation	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Count time (min)	Background Count time (min)		Limiting / of C	Apha Isotope Concern		Limiti	ng Beta Iso Concern	otope of		Filter Are (Adjusts fo of Filter Counter	a Factor or Portion that is d Only)	
Alpha	0.3806	Th-230	5648-06	16,800	9/24/2012	7.70E+04	16800	30	20		Isotope	10CFR20 Occupational DAC /Effluent		Isotope	10C Occupati /Eff	FR20 ional DAC luent		4.6	37	
Beta	0.3460	Tc-99	5649-06	12,600	9/24/2012	2.13E+05	12600	30	20		U-238	1.00E-14		U-238	1.00	DE-14		Caution ! Re associated wi	rview notes th Filter Area tor	
Area M Mover :	fonitored a Serial #/Ba	nd Air r Code	Air Sample Start Date/Time	Air Sample End Date/Time	Count Date	Run Time (min)	Flow Rate (CFM)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Fraction of DAC or Environ. Effluent Limit Alpha	Fraction of DAC or Environ. Effluent Limit Beta	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
SBHF14	4-001-ST01-	-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	6.25	39.72	1.11E-14	1.20E-13
SBHF14	4-002-ST02-	AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	4.81	21.44	1.08E-14	1.17E-13
SBHF14	4-003-ST03-	AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	5.75	-5.08	1.02E-14	1.11E-13
SBHF14	4-004-ST04-	AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	2.40	8.67	1.13E-14	1.23E-13
SBHF14	4-005-ST05-	AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	-0.28	33,18	1.17E-14	1.28E-13
SBHF14	4-006-ST06-	AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.93	13.97	1.45E-14	1.58E-13
SBHF14	4-007-ST07-	AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.95	27.82	1.47E-14	1.60E-13
SBHF14	4-008-ST08-	AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	0.81	65.25	1.49E-14	1.62E-13
SBHF14	4-009-ST09-	AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	3.21	21.68	1.52E-14	1.65E-13
SBHF14	4-010-ST10-	AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	0.23	19.03	1.55E-14	1.68E-13
SBHF14	4-011-ST11-	AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	-1.62	46.20	1.58E-14	1.72E-13
SBHF14	1-012-ST01-	AS-BK	2/5/14 7:36	2/5/14 15:38	02/06/14	482	10.0	4	892	0.10	29.40	0.94	0	1	3.16E-15	1.58E-14	0.32	1.58	3.60E-15	5.32E-14
SBHF14	4-013-ST02-	AS-BK	2/5/14 7:40	2/5/14 15:40	02/06/14	480	10.0	7	895	0.10	29.40	0.94	1	1	8.80E-15	2.06E-14	0.88	2.06	3.62E-15	5.34E-14
SBHF14	4-014-ST03-	AS-BK	2/5/14 9:00	2/5/14 16:36	02/06/14	456	10.0	7	904	0.10	29.40	0.94	1	2	9.26E-15	3.67E-14	0.93	3.67	3.81E-15	5.62E-14
SBHF14	1-015-ST04-	AS-BK	2/5/14 8:42	2/5/14 16:24	02/06/14	462	10.0	13	945	0.10	29.40	0.94	1	6	2.08E-14	1.04E-13	2.08	10.38	3.76E-15	5.55E-14
SBHF14	1-016-ST05-	AS-BK	2/5/14 8:36	2/5/14 16:21	02/06/14	465	10.0	4	941	0.10	29.40	0.94	0	6	3.27E-15	9.66E-14	0.33	9.66	3.74E-15	5.51E-14
SBHF14	1-017-ST06-	AS-BK	2/5/14 8:29	2/5/14 16:17	02/06/14	468	10.0	13	898	0.10	29.40	0.94	1	2	2.06E-14	2.60E-14	2.06	2.60	3.71E-15	5.48E-14
SBHF14	1-018-ST07-	AS-BK	2/5/14 8:24	2/5/14 16:14	02/06/14	470	10.0	12	891	0.10	29.40	0.94	1	1	1.86E-14	1.46E-14	1.86	1.46	3.70E-15	5.45E-14
SBHF14	1-019-ST08-	AS-BK	2/5/14 8:18	2/5/14 16:12	02/06/14	474	10.0	5	898	0.10	29.40	0.94	0	2	5.11E-15	2.57E-14	0.51	2.57	3.66E-15	5.41E-14
SBHF14	1-020-ST09-	AS-BK	2/5/14 8:11	2/5/14 16:08	02/06/14	477	10.0	23	923	0.10	29.40	0.94	2	4	3.90E-14	6.54E-14	3.90	6.54	3.64E-15	5.37E-14
SBHF14	1-021-ST10-	AS-BK	2/5/14 8:05	2/5/14 16:03	02/06/14	478	10.0	11	903	0.10	29.40	0.94	1	2	1.64E-14	3.34E-14	1.64	3.34	3.63E-15	5.36E-14
SBHF14	1-022-ST11-	AS-BK	2/5/14 7:58	2/5/14 16:01	02/06/14	483	10.0	13	919	0.10	29.40	0.94	1	4	1.99E-14	5.83E-14	1.99	5.83	3.60E-15	5.31E-14
SBHF14	-001-ST01-	AS-BK	2/4/14 12:00	2/4/14 15:27	02/06/14	207	10.0	4	856	0.10	29.40	0.94	0	-3	7.36E-15	-9.56E-14	0.74	-9.56	8.39E-15	1.24E-13
SBHF14	-002-ST02-	AS-BK	2/4/14 11:50	2/4/14 15:23	02/06/14	213	10.0	3	843	0.10	29.40	0.94	0	-4	2.92E-15	-1.39E-13	0.29	-13.94	8.15E-15	1.20E-13
SBHF14	-003-ST03-	AS-BK	2/4/14 12:25	2/4/14 16:10	02/06/14	225	10.0	3	875	0.10	29.40	0.94	0	-1	2.77E-15	-2.37E-14	0.28	-2.37	7.72E-15	1.14E-13
SBHF14	-004-ST04-	AS-BK	2/4/14 12:37	2/4/14 15:59	02/06/14	202	10.0	3	863	0.10	29.40	0.94	0	-2	3.08E-15	-7.16E-14	0.31	-7.16	8.60E-15	1.27E-13
SBHF14	-006-ST06-	AS-BK	2/4/14 12:52	2/4/14 15:30	02/06/14	158	10.0	2	863	0.10	29.40	0.94	0	-2	-1.75E-15	-9.15E-14	-0.18	-9.15	1.10E-14	1.62E-13
SBHF14	-007-ST07-	AS-BK	2/4/14 12:56	2/4/14 15:32	02/06/14	156	10.0	2	868	0.10	29.40	0.94	0	-1	-1.77E-15	-6.83E-14	-0.18	-6.83	1.11E-14	1.64E-13
SBHF14	-009-ST09-	AS-BK	2/4/14 13:00	1 2/4/14 15:38	02/06/14	151	1 10 0	2	853	0.10	20 40	0.04	0	.2	1 925 15	1 46E 12	0.19	14 62	1 165 14	1 70E 12




Day/Date:	2/7/2014
Start/Stop:	0600 to 1730
Log No.:	005

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, Raining, Temperature ~60s-70s ° F (Max 76), Wind speed 0-3 mph, Precipitation 0.05"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician
Hans Honerlah	USACE	Oversight
Bob Cherry	Army	Oversight
obert Evans	NRC	Regulator

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0600 and proceeded to field office Bldg 205 at MF-1
- Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0830 Cabrera deployed all 11 air monitoring devices at designated locations to collect background air samples No HE firing occurred (4" diameter filter at 10 CFM flow rate).
- Hourly weather information collected from base weather station
- 1515 Collected background air samples from all 11 air monitoring locations (Average approx. Run-time 6 hr 15 min). All air monitor start/stop times were collected to determine total air volume collected (cubic feet).
- Completed radiological screening of background air samples from previous day (2/6/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Time-permitting, Cabrera performed re-counts on sub-set of air samples from previous days sampling. Several air samples with the highest alpha reading were chosen for re-count. Although re-counts still did not allow for full radon decay, reduction in gross counts can be seen in subsequent count results.

• Offsite at 1730

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

• None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

• None



5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/7/2014	Quality Control Manager

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year ### = Sample number beginning at 001 ST# = Air Sample Station # number beginning at 01(see comments below) DD - Sample Matrix [AS (Filter Paper)] XX = Sample Phase [BK (Background), HF (HE Fire)]

	Date	Stort Time	Start Time Flow Rate	Stop	Stop Time Flow	Total Run Time	Total Volume	Air Commiss #	Air Sample	BKG	HE Detonation			
Sample ID #	Collected	Start Time		111110	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments		
SBHF14-001-S101-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3		
SBHF14-002-S102-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205		1	N/A	BAX Area 3		
SBHF14-003-S103-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)		
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	<u> </u>		
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 lower		
SBHF14-006-S106-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	0		N/A	South Fire Break Road		
SBHF14-007-S107-AS-BK	02/04/14	12:56	10	15:32	10	150	1560	16832			N/A	South Fire Break Road		
SBHF14-008-S108-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road		
SBHF14-009-S109-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road		
SBHF14-010-S110-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/A	South Fire Break Road		
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road		
SBHF14-012-S101-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3		
SBHF14-013-S102-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3		
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)		
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5		
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower		
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road		
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road		
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road		
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road		
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road		
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road		
SBHF14-023-ST01-AS-HF	02/06/14	9:45	10	10:45	10	60	600	20248	1	N/A	1	BAX Area 3		
SBHF14-024-ST02-AS-HF	02/06/14	9:48	10	16:12	10	384	3840	18205	2	N/A	1	BAX Area 3		
SBHF14-025-ST03-AS-HF	02/06/14	10:44	10	17:19	10	395	3950	20249	3	N/A	1	Range Control Tower (CR-2)		
SBHF14-026-ST04-AS-HF	02/06/14	9:53	10	17:07	10	434	4340	18204	4	N/A	1	KR-5		
SBHF14-027-ST05-AS-HF	02/06/14	10:33	10	17:03	10	390	3900	16833	5	N/A	1	KR-3 Tower		
SBHF14-028-ST06-AS-HF	02/06/14	10:27	10	16:58	10	391	3910	16830	6	N/A	11	South Fire Break Road		
SBHF14-029-ST07-AS-HF	02/06/14	10:23	10	16:56	10	393	3930	16832	7	N/A	1	South Fire Break Road		
SBHF14-030-ST08-AS-HF	02/06/14	10:19	10	16:51	10	392	3920	16829	8	N/A	1	South Fire Break Road		
SBHF14-031-ST09-AS-HF	02/06/14	10:15	10	16:44	10	389	3890	16831	9	N/A	1	South Fire Break Road		
SBHF14-032-ST10-AS-HF	02/06/14	10:10	10	16:38	10	388	3880	16826	10	N/A	1	South Fire Break Road		
SBHF14-033-ST11-AS-HF	02/06/14	10:06	10	16:33	10	387	3870	16827	11	N/A	1	South Fire Break Road		
SBHF14-034-ST01-AS-BK	02/07/14	8:26	10	<u>15:05</u>	10	399	3990	20248	1	3	N/A	BAX Area 3		
SBHF14-035-ST02-AS-BK	02/07/14	8:28	10	15:08	10	400	4000	18205	2	3	N/A	BAX Area 3		
SBHF14-036-ST03-AS-BK	02/07/14	10:27	10	16:05	10	338	3380	20249	3	3	N/A	Range Control Tower (CR-2		
SBHF14-037-ST04-AS-BK	02/07/14	9:58	10	15:54	10	356	3560	18204	4	3	N/A	KR-5		





1911 192

Air Sample Log - Schofield Army Barracks, BAX Construction Support, Oahu, HI HE Detonation - FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

XX = Sample Phase [BK (Background), HF (HE Fire)]

Sample ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Áir Sampler #	Air Sample Station #	∕BKG (Day #)	HE Detonation (Day #)	Comments
SBHF14-038-ST05-AS-BK	02/07/14	8:48	10	15:51	10	423	4230	16833	5	3	N/A	KR-3 Tower
SBHF14-039-ST06-AS-BK	02/07/14	9:32	10	15:46	10	374	3740	16830	6	3	N/A	South Fire Break Road
SBHF14-040-ST07-AS-BK	02/07/14	9:29	10	15:43	10	374	3740	16832	7	3	N/A	South Fire Break Road
SBHF14-041-ST08-AS-BK	02/07/14	9:25	10	15:38	10	373	3730	16829	8	3	N/A	South Fire Break Road
SBHF14-042-ST09-AS-BK	02/07/14	<u>9:</u> 18	10	15:33	10	375	3750	16831	9	3	N/A	South Fire Break Road
SBHF14-043-ST10-AS-BK	02/07/14	9:15	10	15:30	10	375	3750	16826	10	3	N/A	South Fire Break Road
SBHF14-044-ST11-AS-BK	02/07/14	9:10	10	15:25	10	375	3750	16827	11	3	N/A	South Fire Break Road

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Counting Instrument:	Ludlum Model 2929	Detector:	Ludlum 43-10-1	Cal. Date:	5/4/2014
Serial #:	200051	Serial #:	PR215948	Cal. Due Date OK?	OK

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Backgroun Count d Count time (min) time (min)		Limitin Isotope c	g Alpha of Concern	Limitin	g Beta Isotope of Concern	
Alpha	0.3806	Th-230	5648-06	16,800	9/24/2012	7.70E+04	16800	30	20		lsotope	10CFR20 Occupatio nal DAC /Effluent	lsotope	10CFR20 Occupational DAC /Effluent
Beta	0.3460	Tc-99	5649-06	12,600	9/24/2012	2.13E+05	12600	30	20]	U-238	1.00E-14	U-238	1.00E-14

Filter Area Factor (Adjusts for Portion of Filter that is Counted Only)



associated with Filter Area Factor

Area Monitored and Air Mover Serial #/Bar Code	Sample Start Date/Tim	Sample End Date/Tim	Count Date	Run Time (min)	Flow Rate (CFM)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	1.11E-14	1.20E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	1.08E-14	1.17E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	1.02E-14	1.11E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	1.13E-14	1.23E-13
SBHF14-005-ST05-AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	1.17E-14	1.28E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.45E-14	1.58E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.47E-14	1.60E-13
SBHF14-008-ST08-AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	1.49E-14	1.62E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	1.52E-14	1.65E-13
SBHF14-010-ST10-AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	1.55E-14	1.68E-13
SBHF14-011-ST11-AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	1.58E-14	1.72E-13
SBHF14-012-ST01-AS-BK	2/5/14 7:36	2/5/14 15:38	02/06/14	482	10.0	4	892	0.10	29.40	0.94	0	1	3.16E-15	1.58E-14	3.60E-15	5.32E-14
SBHF14-013-ST02-AS-BK	2/5/14 7:40	2/5/14 15:40	02/06/14	480	10.0	7	895	0.10	29.40	0.94	1	1	8.80E-15	2.06E-14	3.62E-15	5.34E-14
SBHF14-014-ST03-AS-BK	2/5/14 9:00	2/5/14 16:36	02/06/14	456	10.0	7	904	0.10	29.40	0.94	1	2	9.26E-15	3.67E-14	3.81E-15	5.62E-14
SBHF14-015-ST04-AS-BK	2/5/14 8:42	2/5/14 16:24	02/06/14	462	10.0	13	945	0.10	29.40	0.94	1	6	2.08E-14	1.04E-13	3.76E-15	5.55E-14
SBHF14-016-ST05-AS-BK	2/5/14 8:36	2/5/14 16:21	02/06/14	465	10.0	4	941	0.10	29.40	0.94	0	6	3.27E-15	9.66E-14	3.74E-15	5.51E-14
SBHF14-017-ST06-AS-BK	2/5/14 8:29	2/5/14 16:17	02/06/14	468	10.0	13	898	0.10	29.40	0.94	1	2	2.06E-14	2.60E-14	3.71E-15	5.48E-14
SBHF14-018-ST07-AS-BK	2/5/14 8:24	2/5/14 16:14	02/06/14	470	10.0	12	891	0.10	29.40	0.94	1	1	1.86E-14	1.46E-14	3.70E-15	5.45E-14
SBHF14-019-ST08-AS-BK	2/5/14 8:18	2/5/14 16:12	02/06/14	474	10.0	5	898	0.10	29.40	0.94	0	2	5.11E-15	2.57E-14	3.66E-15	5.41E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11	2/5/14 16:08	02/06/14	477	10.0	23	923	0.10	29.40	0.94	2	4	3.90E-14	6.54E-14	3.64E-15	5.37E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05	2/5/14 16:03	02/06/14	478	10.0	11	903	0.10	29.40	0.94	1	2	1.64E-14	3.34E-14	3.63E-15	5.36E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58	2/5/14 16:01	02/06/14	483	10.0	13	919	0.10	29.40	0.94	1	4	1.99E-14	5.83E-14	3.60E-15	5.31E-14
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/06/14	207	10.0	4	856	0.10	29.40	0.94	0	-3	7.36E-15	-9.56E-14	8.39E-15	1.24E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/06/14	213	10.0	3	843	0.10	29.40	0.94	0	-4	2.92E-15	-1.39E-13	8.15E-15	1.20E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/06/14	225	10.0	3	875	0.10	29.40	0.94	0	-1	2.77E-15	-2.37E-14	7.72E-15	1.14E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/06/14	202	10.0	3	863	0.10	29.40	0.94	0	-2	3.08E-15	-7.16E-14	8.60E-15	1.27E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/06/14	158	10.0	2	863	0.10	29.40	0.94	0	-2	-1.75E-15	-9.15E-14	1.10E-14	1.62E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/06/14	156	10.0	2	868	0.10	29.40	0.94	0	-1	-1.77E-15	-6.83E-14	1.11E-14	1.64E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:00	2/4/14 15:38	02/06/14	151	10.0	2	853	0.10	29.40	0.94	0	-3	-1.83E-15	-1.46E-13	1.15E-14	1.70E-13
SBHF14-023-ST01-AS-HF	2/6/14 9:45	2/6/14 10:45	02/07/14	60	10.0	7	857	0.10	29.20	0.94	1	-2	7.04E-14	-2.41E-13	2.89E-14	4.26E-13
SBHF14-024-ST02-AS-HF	2/6/14 9:48	2/6/14 16:12	02/07/14	384	10.0	23	937	0.10	29.20	0.94	2	6	4.85E-14	1.21E-13	4.52E-15	6.65E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44	2/6/14 17:19	02/07/14	395	10.0	16	968	0.10	29.20	0.94	2	9	3.12E-14	1.77E-13	4.40E-15	6.47E-14
SBHF14-026-ST04-AS-HF	2/6/14 9:53	2/6/14 17:07	02/07/14	434	10.0	15	899	0.10	29.20	0.94	1	2	2.63E-14	4.03E-14	4.00E-15	5.88E-14
SBHF14-027-ST05-AS-HF	2/6/14 10:33	2/6/14 17:03	02/07/14	390	10.0	16	911	0.10	29.20	0.94	2	3	3.16E-14	6.83E-14	4.45E-15	6.55E-14
SBHF14-028-ST06-AS-HF	2/6/14 10:27	2/6/14 16:58	02/07/14	391	10.0	10	926	0.10	29.20	0.94	1	5	1.77E-14	9.74E-14	4.44E-15	6.53E-14
SBHF14-029-ST07-AS-HF	2/6/14 10:23	2/6/14 16:56	02/07/14	393	10.0	8	894	0.10	29.20	0.94	1	2	1.30E-14	3.49E-14	4.42E-15	6.50E-14





SBHF14-030-ST08-AS-HF	2/6/14 10:19 2/6/14 16:51	02/07/14	392	10.0	6	891	0.10	29.20	0.94	0	1	8.47E-15	2.91E-14	4.43E-15	6.52E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44	02/07/14	389	10.0	29	950	0.10	29.20	0.94	3	7	6.17E-14	1.45E-13	4.46E-15	6.57E-14
SBHF14-032-ST10-AS-HF	2/6/14 10:10 2/6/14 16:38	02/07/14	388	10.0	15	881	0.10	29.20	0.94	1	0	2.94E-14	9.81E-15	4.48E-15	6.58E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33	02/07/14	387	10.0	19	903	0.10	29.20	0.94	2	3	3.88E-14	5.31E-14	4.49E-15	6.60E-14
SBHF14-007-ST07-AS-BK	2/5/14 8:24 2/5/14 16:14	02/07/14	470	10.0	3	899	0.10	29.20	0.94	0	2	1.33E-15	3.73E-14	3.70E-15	5.43E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11 2/5/14 16:08	02/07/14	477	10.0	8	875	0.10	29.20	0.94	1	0	1.07E-14	-1.60E-15	3.64E-15	5.35E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05 2/5/14 16:03	02/07/14	478	10.0	4	887	0.10	29.20	0.94	0	1	3.19E-15	1.75E-14	3.63E-15	5.34E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58 2/5/14 16:01	02/07/14	483	10.0	7	921	0.10	29.20	0.94	1	4	8.74E-15	7.09E-14	3.60E-15	5.29E-14



Day/Date:	2/8/2014
Start/Stop:	0630 to 1730
Log No.:	006

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, Raining, Temperature ~60s-70s ° F (Max 76), Wind speed 0-5 mph, Precipitation 0.21"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0630 and proceeded to field office Bldg 205 at MF-1 Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0700 Cabrera contacted Range Control for access to the BAX area and Fire Break road to deploy air samplers. Range control denied access to these areas. 4 rounds of HE were fired before air samplers were in place. Clint German (Schofield Safety Manager) contacted Range Control to inform them that they cannot issue 'Hot permit' to army for HE firing unless air samplers have been deployed. Hans Honerlah (USACE) was contacted to explain issue.
- 1030 Cabrera deployed all 11 air monitoring devices at designated locations to collect background air samples No HE firing occurred after air samplers were deployed (4" diameter filter at 10 CFM flow rate).
- Weather information collected from base weather station
- 1615 Collected background air samples from all 11 air monitoring locations (Average approx. Run-time 5 hr 15 min). All air monitor start/stop times were collected to determine total air volume collected (cubic feet).
- Completed radiological screening of background air samples from previous day (2/7/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Time-permitting, Cabrera performed re-counts on sub-set of air samples from previous days sampling. Several air samples with the highest alpha reading were chosen for re-count. Although re-counts still did not allow for full radon decay, reduction in gross counts can be seen in subsequent count results.
- Offsite at 1730

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

• As described in Section 2.0, Cabrera was denied access to the BAX and Fire Break Road to deploy air samplers during the morning by Army Range Control. Cabrera contacted USACE technical lead and Schofield Safety Manager



to discuss issue. Schofield Safety Manager discussed issue with Army Range Control and Cabrera was granted access to deploy air monitors at 1030. Four (4) rounds of HE were fired prior to air monitors being deployed, zero rounds were fired after monitors were deployed. As a corrective action, Army Range Control will contact Cabrera via radio to ensure air monitors are deployed prior to issuing the range a 'Hot Permit'.

5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/8/2014	Quality Control Manager

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

	Date		Start Time Flow Rate	Stop	Stop Time Flow	Total Run Time	Total Volume		Air Sample	BKG	HE Detonation	
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments
SBHF14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3
SBHF14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3
SBHF14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 Tower
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/Å	South Fire Break Road
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road
SBHF14-012-ST01-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3
SBHF14-013-ST02-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road
SBHF14-023-ST01-AS-HF	02/06/14	9:45	10	10:45	10	60	600	20248	1	N/A	1	BAX Area 3
SBHF14-024-ST02-AS-HF	02/06/14	9:48	10	<u>1</u> 6:12	10	384	3840	18205	2	N/A	1	BAX Area 3
SBHF14-025-ST03-AS-HF	02/06/14	10:44	10	17:19	10	395	3950	20249	3	N/A	1	Range Control Tower (CR-2)
SBHF14-026-ST04-AS-HF	02/06/14	9:53	10	17:07	10	434	4340	18204	4	N/A	1	KR-5
SBHF14-027-ST05-AS-HF	02/06/14	10:33	10	17:03	10	390	3900	16833	5	N/A	1	KR-3 Tower
SBHF14-028-ST06-AS-HF	02/06/14	10:27	10	16:58	10	391	3910	16830	6	N/A	1	South Fire Break Road
SBHF14-029-ST07-AS-HF	02/06/14	10:23	10	16:56	10	393	3930	16832	7	N/A	1	South Fire Break Road
SBHF14-030-ST08-AS-HF	02/06/14	10:19	10	16:51	10	392	3920	16829	8	N/A	1	South Fire Break Road
SBHF14-031-ST09-AS-HF	02/06/14	10:15	10	16:44	10	389	3890	16831	9	N/A	1	South Fire Break Road
SBHF14-032-ST10-AS-HF	02/06/14	10:10	10	16:38	10	388	3880	16826	10	N/A	1	South Fire Break Road
SBHF14-033-ST11-AS-HF	02/06/14	10:06	10	16:33	10	387	3870	16827	11	N/A	1	South Fire Break Road
SBHF14-034-ST01-AS-BK	02/07/14	8:26	10	15:05	10	399	3990	20248	1	3	N/A	BAX Area 3
SBHF14-035-ST02-AS-BK	02/07/14	8:28	10	15:08	10	400	4000	18205	2	3	N/A	BAX Area 3
SBHF14-036-ST03-AS-BK	02/07/14	10:27	10	16:05	10	338	3380	20249	3	3	N/A	Range Control Tower (CR-2)
SBHF14-037-ST04-AS-BK	02/07/14	9:58	10	15:54	10	356	3560	18204	4	3	N/A	KR-5

Counting Instrument:	Ludlum Model 2929	Detector:	Ludlum 43-10-1	Cal. Date:	5/4/2014
Serial #:	200051	Serial #:	PR215948	Cal. Due Date OK?	OK

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Count time (min)	Backgroun d Count time (min)	Limitin Isotope o	g Alpha f Concern	Limitin	g Beta Isotope of Concern
Alpha Beta	0.3806 0.3460	Th-230 Tc-99	5648-06 5649-06	16,800 12,600	9/24/2012 9/24/2012	7.70E+04 2.13E+05	16800 12600	30 30	20 20	lsotope U-238	10CFR20 Occupatio nal DAC /Effluent 1.00E-14	lsotope U-238	10CFR20 Occupational DAC /Effluent 1.00E-14

Caution ! Review notes associated with Filter Area Factor

4.67

Area Monitored and Air Mover	Air Sample	Air Sample	Count	Bun Time	Flow	Sample	Sample	Alpha	Bota Bkg	Filter	Sample	Sample	Alpha	Beta	Alpha	Bata MDA
Serial #/Bar Code	Start Date/Tim	End Date/Tim	Date	(min)	Rate (CFM)	Alpha (Counts)	Beta (Counts)	Bkg (cpm)	(cpm)	Efficiency (fraction)	Activity (dpm)	Activity (dpm)	Concen. (uCi/cc)	Concen. (uCi/cc)	MDA (uCi/cc)	(uCi/cc)
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	1.11E-14	1.20E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	1.08E-14	1.17E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	1.02E-14	1.11E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	1.13E-14	1.23E-13
SBHF14-005-ST05-AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	1.17E-14	1.28E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.45E-14	1.58E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.47E-14	1.60E-13
SBHF14-008-ST08-AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	1.49E-14	1.62E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	1.52E-14	1.65E-13
SBHF14-010-ST10-AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	1.55E-14	1.68E-13
SBHF14-011-ST11-AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	1.58E-14	1.72E-13
SBHF14-012-ST01-AS-BK	2/5/14 7:36	2/5/14 15:38	02/06/14	482	10.0	4	892	0.10	29.40	0.94	0	1	3.16E-15	1.58E-14	3.60E-15	5.32E-14
SBHF14-013-ST02-AS-BK	2/5/14 7:40	2/5/14 15:40	02/06/14	480	10.0	7	895	0.10	29.40	0.94	1	1	8.80E-15	2.06E-14	3.62E-15	5.34E-14
SBHF14-014-ST03-AS-BK	2/5/14 9:00	2/5/14 16:36	02/06/14	456	10.0	7	904	0.10	29.40	0.94	1	2	9.26E-15	3.67E-14	3.81E-15	5.62E-14
SBHF14-015-ST04-AS-BK	2/5/14 8:42	2/5/14 16:24	02/06/14	462	10.0	13	945	0.10	29.40	0.94	1	6	2.08E-14	1.04E-13	3.76E-15	5.55E-14
SBHF14-016-ST05-AS-BK	2/5/14 8:36	2/5/14 16:21	02/06/14	465	10.0	4	941	0.10	29.40	0.94	0	6	3.27E-15	9.66E-14	3.74E-15	5.51E-14
SBHF14-017-ST06-AS-BK	2/5/14 8:29	2/5/14 16:17	02/06/14	468	10.0	13	898	0.10	29.40	0.94	1	2	2.06E-14	2.60E-14	3.71E-15	5.48E-14
SBHF14-018-ST07-AS-BK	2/5/14 8:24	2/5/14 16:14	02/06/14	470	10.0	12	891	0.10	29.40	0.94	1	1	1.86E-14	1.46E-14	3.70E-15	5.45E-14
SBHF14-019-ST08-AS-BK	2/5/14 8:18	2/5/14 16:12	02/06/14	474	10.0	5	898	0.10	29.40	0.94	0	2	5.11E-15	2.57E-14	3.66E-15	5.41E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11	2/5/14 16:08	02/06/14	477	10.0	23	923	0.10	29.40	0.94	2	4	3.90E-14	6.54E-14	3.64E-15	5.37E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05	2/5/14 16:03	02/06/14	478	10.0	11	903	0.10	29.40	0.94	1	2	1.64E-14	3.34E-14	3.63E-15	5.36E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58	2/5/14 16:01	02/06/14	483	10.0	13	919	0.10	29.40	0.94	1	4	1.99E-14	5.83E-14	3.60E-15	5.31E-14
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/06/14	207	10.0	4	856	0.10	29.40	0.94	0	-3	7.36E-15	-9.56E-14	8.39E-15	1.24E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/06/14	213	10.0	3	843	0.10	29.40	0.94	0	-4	2.92E-15	-1.39E-13	8.15E-15	1.20E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/06/14	225	10.0	3	875	0.10	29.40	0.94	0	-1	2.77E-15	-2.37E-14	7.72E-15	1.14E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/06/14	202	10.0	3	863	0.10	29.40	0.94	0	-2	3.08E-15	-7.16E-14	8.60E-15	1.27E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/06/14	158	10.0	2	863	0.10	29.40	0.94	0	-2	-1.75E-15	-9.15E-14	1.10E-14	1.62E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/06/14	156	10.0	2	868	0.10	29.40	0.94	0	-1	-1.77E-15	-6.83E-14	1.11E-14	1.64E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:00	2/4/14 15:38	02/06/14	151	10.0	2	853	0.10	29.40	0.94	0	-3	-1.83E-15	-1.46E-13	1.15E-14	1.70E-13
SBHF14-023-ST01-AS-HF	2/6/14 9:45	2/6/14 10:45	02/07/14	60	10.0	7	857	0.10	29.20	0.94	1	-2	7.04E-14	-2.41E-13	2.89E-14	4.26E-13
SBHF14-024-ST02-AS-HF	2/6/14 9:48	2/6/14 16:12	02/07/14	384	10.0	23	937	0.10	29.20	0.94	2	6	4.85E-14	1.21E-13	4.52E-15	6.65E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44	2/6/14 17:19	02/07/14	395	10.0	16	968	0.10	29.20	0.94	2	9	3.12E-14	1.77E-13	4.40E-15	6.47E-14
SBHF14-026-ST04-AS-HF	2/6/14 9:53	2/6/14 17:07	02/07/14	434	10.0	15	899	0.10	29.20	0.94	1	2	2.63E-14	4.03E-14	4.00E-15	5.88E-14
SBHF14-027-ST05-AS-HF	2/6/14 10:33	2/6/14 17:03	02/07/14	390	10.0	16	911	0.10	29.20	0.94	2	3	3.16E-14	6.83E-14	4.45E-15	6.55E-14
SBHF14-028-ST06-AS-HF	2/6/14 10:27	2/6/14 16:58	02/07/14	391	10.0	10	926	0.10	29.20	0.94	1	5	1.77E-14	9.74E-14	4.44E-15	6.53E-14
SBHF14-029-ST07-AS-HF	2/6/14 10:23	2/6/14 16:56	02/07/14	393	10.0	8	894	0.10	29.20	0.94	1	2	1 30E-14	3 49E-14	4 42E-15	6 50E-14

Filter Area Factor (Adjusts for Portion of Filter that is

Counted Only)

	1.1									-					
SBHF14-030-ST08-AS-HF	2/6/14 10:19 2/6/14 16:51	02/07/14	392	10.0	6	891	0.10	29.20	0.94	0	1	8.47E-15	2.91E-14	4.43E-15	6.52E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44	02/07/14	389	10.0	29	950	0.10	29.20	0.94	3	7	6.17E-14	1.45E-13	4.46E-15	6.57E-14
SBHF14-032-ST10-AS-HF	2/6/14 10:10 2/6/14 16:38	02/07/14	388	10.0	15	881	0.10	29.20	0.94	1	0	2.94E-14	9.81E-15	4.48E-15	6.58E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33	02/07/14	387	10.0	19	903	0.10	29.20	0.94	2	3	3.88E-14	5.31E-14	4.49E-15	6.60E-14
SBHF14-007-ST07-AS-BK	2/5/14 8:24 2/5/14 16:14	02/07/14	470	10.0	3	899	0.10	29.20	0.94	0	2	1.33E-15	3.73E-14	3.70E-15	5.43E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11 2/5/14 16:08	02/07/14	477	10.0	8	875	0.10	29.20	0.94	1	0	1.07E-14	-1.60E-15	3.64E-15	5.35E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05 2/5/14 16:03	02/07/14	478	10.0	4	887	0.10	29.20	0.94	0	1	3.19E-15	1.75E-14	3.63E-15	5.34E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58 2/5/14 16:01	02/07/14	483	10.0	7	921	0.10	29.20	0.94	1	4	8.74E-15	7.09E-14	3.60E-15	5.29E-14
SBHF14-034-ST01-AS-BK	2/7/14 8:26 2/7/14 15:05	02/08/14	399	10.0	11	933	0.10	29.70	0.94	1	4	1.96E-14	8.01E-14	4.35E-15	6.45E-14
SBHF14-035-ST02-AS-BK	2/7/14 8:28 2/7/14 15:08	02/08/14	400	10.0	17	883	0.10	29.70	0.94	2	-1	3.30E-14	-1.52E-14	4.34E-15	6.44E-14
SBHF14-036-ST03-AS-BK	2/7/14 10:27 2/7/14 16:05	02/08/14	338	10.0	15	962	0.10	29.70	0.94	1	7	3.38E-14	1.60E-13	5.14E-15	7.62E-14
SBHF14-037-ST04-AS-BK	2/7/14 9:58 2/7/14 15:54	02/08/14	356	10.0	27	930	0.10	29.70	0.94	3	4	6.24E-14	8.34E-14	4.88E-15	7.23E-14
SBHF14-038-ST05-AS-BK	2/7/14 8:48 2/7/14 15:51	02/08/14	423	10.0	23	905	0.10	29.70	0.94	2	1	4.40E-14	2.52E-14	4.11E-15	6.09E-14
SBHF14-039-ST06-AS-BK	2/7/14 9:32 2/7/14 15:46	02/08/14	374	10.0	26	919	0.10	29.70	0.94	3	3	5.70E-14	5.70E-14	4.64E-15	6.89E-14
SBHF14-040-ST07-AS-BK	2/7/14 9:29 2/7/14 15:43	02/08/14	374	10.0	13	851	0.10	29.70	0.94	1	-4	2.57E-14	-8.14E-14	4.64E-15	6.89E-14
SBHF14-041-ST08-AS-BK	2/7/14 9:25 2/7/14 15:38	02/08/14	373	10.0	11	922	0.10	29.70	0.94	1	3	2.10E-14	6.33E-14	4.66E-15	6.90E-14
SBHF14-042-ST09-AS-BK	2/7/14 9:18 2/7/14 15:33	02/08/14	375	10.0	12	885	0.10	29.70	0.94	1	-1	2.33E-14	-1.22E-14	4.63E-15	6.87E-14
SBHF14-043-ST10-AS-BK	2/7/14 9:15 2/7/14 15:30	02/08/14	375	10.0	6	865	0.10	29.70	0.94	0	-3	8.86E-15	-5.28E-14	4.63E-15	6.87E-14
SBHF14-044-ST11-AS-BK	2/7/14 9:10 2/7/14 15:25	02/08/14	375	10.0	14	882	0.10	29.70	0.94	1	-1	2.81E-14	-1.83E-14	4.63E-15	6.87E-14
SBHF14-024-ST02-AS-HF	2/6/14 9:48 2/6/14 16:12	02/08/14	384	10.0	7	880	0.10	29.70	0.94	1	-1	1.10E-14	-2.18E-14	4.52E-15	6.71E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44 2/6/14 17:19	02/08/14	395	10.0	3	856	0.10	29.70	0.94	0	-3	1.58E-15	-6.75E-14	4.40E-15	6.52E-14
SBHF14-027-ST05-AS-HF	2/6/14 10:33 2/6/14 17:03	02/08/14	390	10.0	6	870	0.10	29.70	0.94	0	-2	8.52E-15	-4.10E-14	4.45E-15	6.60E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44	02/08/14	389	10.0	2	896	0.10	29.70	0.94	0	0	-7.12E-16	9.79E-15	4.46E-15	6.62E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33	02/08/14	387	10.0	4	930	0.10	29.70	0.94	0	4	3.93E-15	7.67E-14	4.49E-15	6.65E-14
SBHF14-045-ST01-AS-BK	2/8/14 10:25 2/8/14 20:25	02/09/14	600	10.0	22	908	0.10	29.40	0.94	2	3	2.95E-14	3.30E-14	2.89E-15	4.27E-14
SBHF14-046-ST02-AS-BK	2/8/14 10:28 2/8/14 20:28	02/09/14	600	10.0	26	994	0.10	29.40	0.94	3	11	3.55E-14	1.42E-13	2.89E-15	4.27E-14
SBHF14-047-ST03-AS-BK	2/8/14 11:25 2/8/14 16:28	02/09/14	303	10.0	17	844	0.10	29.40	0.94	2	-4	4.36E-14	-9.55E-14	5.73E-15	8.46E-14
SBHF14-048-ST04-AS-BK	2/8/14 11:11 2/8/14 16:21	02/09/14	310	10.0	16	915	0.10	29.40	0.94	2	3	3.97E-14	8.10E-14	5.60E-15	8.27E-14
SBHF14-049-ST05-AS-BK	2/8/14 10:35 2/8/14 16:14	02/09/14	339	10.0	20	995	0.10	29.40	0.94	2	11	4.70E-14	2.54E-13	5.12E-15	7.56E-14
SBHF14-050-ST06-AS-BK	2/8/14 11:03 2/8/14 16:07	02/09/14	304	10.0	11	939	0.10	29.40	0.94	1	5	2.57E-14	1.43E-13	5.71E-15	8.43E-14
SBHF14-051-ST07-AS-BK	2/8/14 11:01 2/8/14 16:04	02/09/14	303	10.0	27	959	0.10	29.40	0.94	3	7	7.33E-14	1.93E-13	5.73E-15	8.46E-14
SBHF14-052-ST08-AS-BK	2/8/14 10:59 2/8/14 16:01	02/09/14	302	10.0	16	893	0.10	29.40	0.94	2	1	4.08E-14	2.77E-14	5.75E-15	8.49E-14
SBHF14-053-ST09-AS-BK	2/8/14 10:54 2/8/14 15:56	02/09/14	302	10.0	10	902	0.10	29.40	0.94	1	2	2.29E-14	5.04E-14	5.75E-15	8.49E-14
SBHF14-054-ST10-AS-BK	2/8/14 10:51 2/8/14 15:53	02/09/14	302	10.0	12	886	0.10	29.40	0.94	1	0	2.89E-14	1.01E-14	5.75E-15	8.49E-14
SBHF14-055-ST11-AS-BK	2/8/14 10:47 2/8/14 15:49	02/09/14	302	10.0	4	876	0.10	29.40	0.94	0	-1	5.04E-15	-1.51E-14	5.75E-15	8.49E-14
SBHF14-035-ST02-AS-BK	2/7/14 8:28 2/7/14 15:08	02/09/14	400	10.0	5	925	0.10	29.40	0.94	0	4	6.06E-15	8.18E-14	4.34E-15	6.41E-14
SBHF14-037-ST04-AS-BK	2/7/14 9:58 2/7/14 15:54	02/09/14	356	10.0	6	898	0.10	29.40	0.94	0	2	9.33E-15	3.42E-14	4.88E-15	7.20E-14
SBHF14-038-ST05-AS-BK	2/7/14 8:48 2/7/14 15:51	02/09/14	423	10.0	7	855	0.10	29.40	0.94	1	-3	9.98E-15	-4.86E-14	4.11E-15	6.06E-14
SBHF14-039-ST06-AS-BK	2/7/14 9:32 2/7/14 15:46	02/09/14	374	10.0	6	900	0.10	29.40	0.94	0	2	8.88E-15	3.66E-14	4.64E-15	6.85E-14

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

	Date		Start Time Flow Rate	Stop	Stop Time Flow	Total Run Time	Total Volume		Air Sample	BKG	HE Detonation	· · ·
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	'Air Sampler #	Station #	(Day #)	(Day #)	Comments
SBHF14-038-ST05-AS-BK	02/07/14	8:48	10	15:51	10	423	4230	16833	5	3	N/A	KR-3 Tower
SBHF14-039-ST06-AS-BK	02/07/14	9:32	10	15:46	10	374	3740	16830	6	3	N/A	South Fire Break Road
SBHF14-040-ST07-AS-BK	02/07/14	9:29	10	15:43	10	374	3740	16832	7	3	N/A	South Fire Break Road
SBHF14-041-ST08-AS-BK	02/07/14	9:25	10	15:38	10	373	3730	16829	8	3	N/A	South Fire Break Road
SBHF14-042-ST09-AS-BK	02/07/14	9:18	10	15:33	10	375	3750	16831	9	3	N/A	South Fire Break Road
SBHF14-043-ST10-AS-BK	02/07/14	9:15	10	15:30	10	375	3750	16826	10	3	N/A	South Fire Break Road
SBHF14-044-ST11-AS-BK	02/07/14	9 :10	10	15:25	10	375	3750	16827	11	3	N/A	South Fire Break Road
SBHF14-045-ST01-AS-BK	02/08/14	10:25	10	20:25	10	600	6000	20248	1	4	N/A	BAX Area 3
SBHF14-046-ST02-AS-BK	02/08/14	10:28	10	20:28	10	600	6000	18205	2	4	N/A	BAX Area 3
SBHF14-047-ST03-AS-BK	02/08/14	11:25	10	16:28	10	303	3030	20249	3	4	N/A	Range Control Tower (CR-2)
SBHF14-048-ST04-AS-BK	02/08/14	11:11	10	16:21	10	310	3100	18204	4	4	N/A	KR-5
SBHF14-049-ST05-AS-BK	02/08/14	10:35	10	16:14	10	339	3390	16833	5	4	N/A	KR-3 Tower
SBHF14-050-ST06-AS-BK	02/08/14	11:03	10	16:07	10	304	3040	16830	6	4	N/A	South Fire Break Road
SBHF14-051-ST07-AS-BK	02/08/14	11:01	10	16:04	10	303	3030	16832	7	4	N/A	South Fire Break Road
SBHF14-052-ST08-AS-BK	02/08/14	10:59	10	16:01	10	302	3020	16829	8	4	N/A	South Fire Break Road
SBHF14-053-ST09-AS-BK	02/08/14	10:54	10	15:56	10	302	3020	16831	9	4	N/A	South Fire Break Road
SBHF14-054-ST10-AS-BK	02/08/14	10:51	10	15:53	10	302	3020	16826	10	4	N/A	South Fire Break Road
SBHF14-055-ST11-AS-BK	02/08/14	10:47	10	15:49	10	302	3020	16827	11	4	N/A	South Fire Break Road



Day/Date:	2/9/2014
Start/Stop:	0630 to 1700
Log No.:	007

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Partly Cloudy, Temperature ~60s-70s ° F (Max 79), Wind speed 0-7 mph

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0630 and proceeded to field office Bldg 205 at MF-1 Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0730 Cabrera deployed all 11 air monitoring devices at designated locations to collect air samples during High Explosive (HE) firing (4" diameter filter at 10 CFM flow rate).
- HE firing occurred between 0800 0830
- Weather information collected from base weather station
- 1530 Collected background air samples from all 11 air monitoring locations (Average approx. Run-time 8 hr). All air monitor start/stop times were collected to determine total air volume collected (cubic feet).
- Completed radiological screening of background air samples from previous day (2/8/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Time-permitting, Cabrera performed re-counts on sub-set of air samples from previous days sampling. Several air samples with the highest alpha reading were chosen for re-count. Although re-counts still did not allow for full radon decay, reduction in gross counts can be seen in subsequent count results.
- Offsite at 1730

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of nonmpliance, etc.)

None



- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/9/2014	Quality Control Manager



SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

	Data		Start Time	Stor	Stop Time Eleve	Total Bun Time	Tetel Velume	-	Ale Comula	PKC			
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments	
SBHE14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3	
SBHE14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3	
SBHE14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)	
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5	
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	· 10	195	1950	16833	5	1	N/A	KR-3 Tower	
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road	
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road	
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road	
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road	
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/A	South Fire Break Road	
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road	
SBHF14-012-ST01-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3	
SBHF14-013-ST02-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3	
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)	
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5	
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower	
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road	
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road	
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road	
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road	
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road	
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road	
SBHF14-023-ST01-AS-HF	02/06/14	9:45	10	10:45	10	60	600	20248	1	N/A	1	BAX Area 3	
SBHF14-024-ST02-AS-HF	02/06/14	9:48	10	16:12	10	384	3840	18205	2	N/A	1	BAX Area 3	
SBHF14-025-ST03-AS-HF	02/06/14	10:44	10	17:19	10	395	3950	20249	3	N/A	1	Range Control Tower (CR-2)	
SBHF14-026-ST04-AS-HF	02/06/14	9:53	10	17:07	10	434	4340	18204	4	N/A	1	KR-5	
SBHF14-027-ST05-AS-HF	02/06/14	10:33	10	17:03	10	390	3900	16833	5	N/A	1	KR-3 Tower	
SBHF14-028-ST06-AS-HF	02/06/14	10:27	10	16:58	10	391	3910	16830	6	N/A	1	South Fire Break Road	
SBHF14-029-ST07-AS-HF	02/06/14	10:23	10	16:56	10	393	3930	16832	7	N/A	1	South Fire Break Road	
SBHF14-030-ST08-AS-HF	02/06/14	10:19	10	16:51	10	392	3920	16829	8	N/A	1	South Fire Break Road	
SBHF14-031-ST09-AS-HF	02/06/14	10:15	10	16:44	10	389	3890	16831	9	N/A	1	South Fire Break Road	
SBHF14-032-ST10-AS-HF	02/06/14	10:10	10	16:38	10	388	3880	16826	10	N/A	1	South Fire Break Road	
SBHF14-033-ST11-AS-HF	02/06/14	10:06	10	16:33	10	387	3870	16827	11	N/A	1	South Fire Break Road	
SBHF14-034-ST01-AS-BK	02/07/14	8:26	10	15:05	10	399	3990	20248	1	33	N/A	BAX Area 3	
SBHF14-035-ST02-AS-BK	02/07/14	8:28	10	15:08	10	400	4000	18205	2	3	N/A	BAX Area 3	
SBHF14-036-ST03-AS-BK	02/07/14	10:27	10	16:05	10	338	3380	20249	3	3	N/A	Range Control Tower (CR-2)	
SBHF14-037-ST04-AS-BK	02/07/14	9:58	10	15:54	10	356	3560	18204	4	3	N/A	KR-5	





SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

Sample ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Air Sampler #	Air Sample Station #	BKG (Day #)	HE Detonation (Day #)	Comments
SBHF14-038-ST05-AS-BK	02/07/14	8:48	10	15:51	10	423	4230	16833	5	3	N/A	KR-3 Tower
SBHF14-039-ST06-AS-BK	02/07/14	9:32	10	15:46	10	· 374	3740	16830	6	3	N/A	South Fire Break Road
SBHF14-040-ST07-AS-BK	02/07/14	9:29	10	15:43	10	374	3740	16832	7	3	N/A	South Fire Break Road
SBHF14-041-ST08-AS-BK	02/07/14	9:25	10	15:38	10	373	3730	16829	8	3	N/A	South Fire Break Road
SBHF14-042-ST09-AS-BK	02/07/14	9:18	10	15:33	10	375	3750	16831	9	3	N/A	South Fire Break Road
SBHF14-043-ST10-AS-BK	02/07/14	9:15	10	15:30	10	375	3750	16826	10	3	N/A	South Fire Break Road
SBHF14-044-ST11-AS-BK	02/07/14	9:10	10	15:25	10	375	3750	16827	11	3	N/A	South Fire Break Road
SBHF14-045-ST01-AS-BK	02/08/14	10:25	10	20:25	10	600	6000	20248	1	4	N/A	BAX Area 3
SBHF14-046-ST02-AS-BK	02/08/14	10:28	10	20:28	10	600	6000	18205	2	4	N/A	BAX Area 3
SBHF14-047-ST03-AS-BK	02/08/14	11:25	10	16:28	10	303	3030	20249	3	4	N/A	Range Control Tower (CR-2)
SBHF14-048-ST04-AS-BK	02/08/14	11:11	10	16:21	10	310	3100	18204	4	4	N/A	KR-5
SBHF14-049-ST05-AS-BK	02/08/14	10:35	10	16:14	10	339	3390	16833	5	4	N/A	KR-3 Tower
SBHF14-050-ST06-AS-BK	02/08/14	11:03	10	16:07	10	304	3040	16830	6	4	N/A	South Fire Break Road
SBHF14-051-ST07-AS-BK	02/08/14	11:01	10	16:04	10	303	3030	16832	7	4	N/A	South Fire Break Road
SBHF14-052-ST08-AS-BK	02/08/14	10:59	10	16:01	10	302	3020	16829	8	4	N/A	South Fire Break Road
SBHF14-053-ST09-AS-BK	02/08/14	10:54	10	15:56	10	302	3020	16831	9	4	N/A	South Fire Break Road
SBHF14-054-ST10-AS-BK	02/08/14	10:51	10	15:53	10	302	3020	16826	10	4	N/A	South Fire Break Road
SBHF14-055-ST11-AS-BK	02/08/14	10:47	10	15:49	10	302	3020	16827	11	4	N/A	South Fire Break Road
SBHF14-056-ST01-AS-HF	02/09/14	7:14	10	14:53	10	459	4590	20248	1	N/A	2	BAX Area 3
SBHF14-057-ST02-AS-HF	02/09/14	7:17	10	14:55	10	458	4580	18205	2	N/A	2	BAX Area 3
SBHF14-058-ST03-AS-HF	02/09/14	8:21	10	15:49	10	448	4480	20249	3	N/A	2	Range Control Tower (CR-2)
SBHF14-059-ST04-AS-HF	02/09/14	7:13	10	14:56	10	463	4630	18204	4	N/A	2	KR-5
SBHF14-060-ST05-AS-HF	02/09/14	8:09	10	14:59	10	410	4100	16833	5	N/A	2	KR-3 Tower
SBHF14-061-ST06-AS-HF	02/09/14	7:54	10	15:42	10	468	4680	16830	6	N/A	2	South Fire Break Road
SBHF14-062-ST07-AS-HF	02/09/14	7:50	10	15:36	10	466	4660	16832	7	N/A	2	South Fire Break Road
SBHF14-063-ST08-AS-HF	02/09/14	7:46	10	15:34	10	468	4680	16829	8	N/A	2	South Fire Break Road
SBHF14-064-ST09-AS-HF	02/09/14	7:40	10	15:31	10	471	4710	16831	9	N/A	2	South Fire Break Road
SBHF14-065-ST10-AS-HF	02/09/14	7:35	10	15:28	10	473	4730	16826	10	N/A	2	South Fire Break Road
SBHF14-066-ST11-AS-HF	02/09/14	7:31	10	15:24	10	473	4730	16827	11	N/A	2	South Fire Break Road



Counting Instrument:	Ludlum Model 2929	Detector:	Ludlum 43-10-1	Cal. Date:	5/4/2014
Serial #:	200051	Serial #:	PR215948	Cal. Due Date OK?	OK

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Count time (min)	Backgroun d Count time (min)	Limitin Isotope c	g Alpha of Concern	Limitin	ig Beta Isotope of Concern
Alpha	0.3806	Th-230	5648-06	16,800	9/24/2012	7.70E+04	16800	30	20	lsotope	10CFR20 Occupatio nal DAC /Effluent	lsotope	10CFR20 Occupational DAC /Effluent
Beta	0.3460	Tc-99	5649-06	12,600	9/24/2012	2.13E+05	12600	30	20	U-238	1.00E-14	U-238	1.00E-14





Caution I Review notes associated with Filter Area Factor

Area Monitored and Air Mover Serial #/Bar Code	Sample Start Date/Tim	Air Sample End Date/Tim	Count Date	Run Time (min)	Flow Rate (CFM)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	1.11E-14	1.20E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	1.08E-14	1.17E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	1.02E-14	1.11E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	1.13E-14	1.23E-13
SBHF14-005-ST05-AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	1.17E-14	1.28E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.45E-14	1.58E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.47E-14	1.60E-13
SBHF14-008-ST08-AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	1.49E-14	1.62E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	1.52E-14	1.65E-13
SBHF14-010-ST10-AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	1.55E-14	1.68E-13
SBHF14-011-ST11-AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	1.58E-14	1.72E-13
SBHF14-012-ST01-AS-BK	2/5/14 7:36	2/5/14 15:38	02/06/14	482	10.0	4	892	0.10	29.40	0.94	0	1	3.16E-15	1.58E-14	3.60E-15	5.32E-14
SBHF14-013-ST02-AS-BK	2/5/14 7:40	2/5/14 15:40	02/06/14	480	10.0	7	895	0.10	29.40	0.94	1	1	8.80E-15	2.06E-14	3.62E-15	5.34E-14
SBHF14-014-ST03-AS-BK	2/5/14 9:00	2/5/14 16:36	02/06/14	456	10.0	7	904	0.10	29.40	0.94	1	2	9.26E-15	3.67E-14	3.81E-15	5.62E-14
SBHF14-015-ST04-AS-BK	2/5/14 8:42	2/5/14 16:24	02/06/14	462	10.0	13	945	0.10	29.40	0.94	1	6	2.08E-14	1.04E-13	3.76E-15	5.55E-14
SBHF14-016-ST05-AS-BK	2/5/14 8:36	2/5/14 16:21	02/06/14	465	10.0	4	941	0.10	29.40	0.94	0	6	3.27E-15	9.66E-14	3.74E-15	5.51E-14
SBHF14-017-ST06-AS-BK	2/5/14 8:29	2/5/14 16:17	02/06/14	468	10.0	13	898	0.10	29.40	0.94	1	2	2.06E-14	2.60E-14	3.71E-15	5.48E-14
SBHF14-018-ST07-AS-BK	2/5/14 8:24	2/5/14 16:14	02/06/14	470	10.0	12	891	0.10	29.40	0.94	1	1	1.86E-14	1.46E-14	3.70E-15	5.45E-14
SBHF14-019-ST08-AS-BK	2/5/14 8:18	2/5/14 16:12	02/06/14	474	10.0	5	898	0.10	29.40	0.94	0	2	5.11E-15	2.57E-14	3.66E-15	5.41E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11	2/5/14 16:08	02/06/14	477	10.0	23	923	0.10	29.40	0.94	2	4	3.90E-14	6.54E-14	3.64E-15	5.37E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05	2/5/14 16:03	02/06/14	478	10.0	11	903	0.10	29.40	0.94	1	2	1.64E-14	3.34E-14	3.63E-15	5.36E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58	2/5/14 16:01	02/06/14	483	10.0	13	919	0.10	29.40	0.94	1	4	1.99E-14	5.83E-14	3.60E-15	5.31E-14
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/06/14	207	10.0	4	856	0.10	29.40	0.94	0	-3	7.36E-15	-9.56E-14	8.39E-15	1.24E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/06/14	213	10.0	3	843	0.10	29.40	0.94	0	-4	2.92E-15	-1.39E-13	8.15E-15	1.20E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/06/14	225	10.0	3	875	0.10	29.40	0.94	0	-1	2.77E-15	-2.37E-14	7.72E-15	1.14E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/06/14	202	10.0	3	863	0.10	29.40	0.94	0	-2	3.08E-15	-7.16E-14	8.60E-15	1.27E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/06/14	158	10.0	2	863	0.10	29.40	0.94	0	-2	-1.75E-15	-9.15E-14	1.10E-14	1.62E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/06/14	156	10.0	2	868	0.10	29.40	0.94	0	-1	-1.77E-15	-6.83E-14	1.11E-14	1.64E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:00	2/4/14 15:38	02/06/14	151	10.0	2	853	0.10	29.40	0.94	0	-3	-1.83E-15	-1.46E-13	1.15E-14	1.70E-13
SBHF14-023-ST01-AS-HF	2/6/14 9:45	2/6/14 10:45	02/07/14	60	10.0	7	857	0.10	29.20	0.94	1	-2	7.04E-14	-2.41E-13	2.89E-14	4.26E-13
SBHF14-024-ST02-AS-HF	2/6/14 9:48	2/6/14 16:12	02/07/14	384	10.0	23	937	0.10	29.20	0.94	2	6	4.85E-14	1.21E-13	4.52E-15	6.65E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44	2/6/14 17:19	02/07/14	395	10.0	16	968	0.10	29.20	0.94	2	9	3.12E-14	1.77E-13	4.40E-15	6.47E-14
SBHF14-026-ST04-AS-HF	2/6/14 9:53	2/6/14 17:07	02/07/14	434	10.0	15	899	0.10	29.20	0.94	1	2	2.63E-14	4.03E-14	4.00E-15	5.88E-14
SBHF14-027-ST05-AS-HF	2/6/14 10:33	2/6/14 17:03	02/07/14	390	10.0	16	911	0.10	29.20	0.94	2	3	3.16E-14	6.83E-14	4.45E-15	6.55E-14
SBHF14-028-ST06-AS-HF	2/6/14 10:27	2/6/14 16:58	02/07/14	391	10.0	10	926	0.10	29.20	0.94	1	5	1.77E-14	9.74E-14	4.44E-15	6.53E-14
SBHF14-029-ST07-AS-HF	2/6/14 10:23	2/6/14 16:56	02/07/14	393	10.0	8	894	0.10	29.20	0.94	1	2	1.30E-14	3.49E-14	4.42E-15	6.50E-14

SBHF14-030-ST08-AS-HF 2/6/14 10:19 2/6/14 10:51 02/07/14 392 10.0 6 891 0.10 29.20 0.94 0 1 8.47E-15 2.91E-14 4.43E-15 6.52E SBHF14-031-ST09-AS-HF 2/6/14 10:15 2/6/14 10:44 02/07/14 389 10.0 29 950 0.10 29.20 0.94 3 7 6.17E-14 1.45E-13 4.46E-15 6.57E SBHF14-032-ST10-AS-HF 2/6/14 10:10 2/6/14 16:38 02/07/14 388 10.0 15 881 0.10 29.20 0.94 1 0 2.94E-14 9.81E-15 4.46E-15 6.57E SBHF14-032-ST10-AS-HF 2/6/14 10:30 02/07/14 388 10.0 15 881 0.10 29.20 0.94 1 0 2.94E-14 9.81E-15 4.48E-15 6.58E- SBHF14-033-ST11-AS-HF 2/6/14 10:06 2/6/14 16:33 02/07/14 387 10.0 19 903 0.10 29.20 0.94 2 3 3.8
SBHF14-031-ST09-AS-HF 2/6/14 10:15 2/6/14 10:44 02/07/14 389 10.0 29 950 0.10 29.20 0.94 3 7 6.17E-14 1.45E-13 4.46E-15 6.57E SBHF14-032-ST10-AS-HF 2/6/14 10:10 2/6/14 16:38 02/07/14 388 10.0 15 881 0.10 29.20 0.94 1 0 2.94E-14 9.81E-15 4.48E-15 6.58E- SBHF14-033-ST11-AS-HF 2/6/14 10:06 2/6/14 16:33 02/07/14 387 10.0 19 903 0.10 29.20 0.94 2 3 3.88E-14 5.31E-14 4.49E-15 6.65E-
SBHF14-032-ST10-AS-HF 2/6/14 10:10 2/6/14 10:38 02/07/14 388 10.0 15 881 0.10 29.20 0.94 1 0 2.94E-14 9.81E-15 4.48E-15 6.58E- SBHF14-033-ST11-AS-HF 2/6/14 10:30 02/07/14 387 10.0 19 903 0.10 29.20 0.94 1 0 2.94E-14 9.81E-15 4.48E-15 6.58E- SBHF14-033-ST11-AS-HF 2/6/14 10:30 02/07/14 387 10.0 19 903 0.10 29.20 0.94 2 3 3.88E-14 5.31E-14 4.49E-15 6.60E-
SBHF14-033-ST11-AS-HF 2/6/14 10:06 2/6/14 16:33 02/07/14 387 10.0 19 903 0.10 29.20 0.94 2 3 3.88E-14 5.31E-14 4.49E-15 6.60E-
SBHF14-007-ST07-AS-BK 2/5/14 8:24 2/5/14 16:14 02/07/14 470 10.0 3 899 0.10 29.20 0.94 0 2 1.33E-15 3.73E-14 3.70E-15 5.43E-
SBHF14-020-ST09-AS-BK 2/5/14 8:11 2/5/14 16:08 02/07/14 477 10.0 8 875 0.10 29.20 0.94 1 0 1.07E-14 -1.60E-15 3.64E-15 5.35E-
SBHF14-021-ST10-AS-BK 2/5/14 8:05 2/5/14 16:03 02/07/14 478 10.0 4 887 0.10 29.20 0.94 0 1 3.19E-15 1.75E-14 3.63E-15 5.34E-1
SBHF14-022-ST11-AS-BK 2/5/14 7:58 2/5/14 16:01 02/07/14 483 10.0 7 921 0.10 29.20 0.94 1 4 8.74E-15 7.09E-14 3.60E-15 5.29E-
SBHF14-034-ST01-AS-BK 2/7/14 8:26 2/7/14 15:05 02/08/14 399 10.0 11 933 0.10 29.70 0.94 1 4 1.96E-14 8.01E-14 4.35E-15 6.45E-
SBHF14-035-ST02-AS-BK 2/7/14 8:28 2/7/14 15:08 02/08/14 400 10.0 17 883 0.10 29.70 0.94 2 -1 3.30E-14 -1.52E-14 4.34E-15 6.44E-
SBHF14-036-ST03-AS-BK 2/7/14 10:27 2/7/14 10:05 02/08/14 338 10.0 15 962 0.10 29.70 0.94 1 7 3.38E-14 1.60E-13 5.14E-15 7.62E-
SBHF14-037-ST04-AS-BK 2/7/14 9:58 2/7/14 9:54 02/08/14 356 10.0 27 930 0.10 29.70 0.94 3 4 6.24E-14 8.34E-14 4.88E-15 7.23E-
SBHF14-038-ST05-AS-BK 2/7/14 8:48 2/7/14 15:51 02/08/14 423 10.0 23 905 0.10 29.70 0.94 2 1 4.40E-14 2.52E-14 4.11E-15 6.09E-
SBHF14-039-ST06-AS-BK 2/7/14 9:32 2/7/14 9:32 2/7/14 15:46 02/08/14 374 10.0 26 919 0.10 29.70 0.94 3 3 5.70E-14 5.70E-14 4.64E-15 6.89E-
SBHF14-040-ST07-AS-BK 2/7/14 9:29 2/7/14 15:43 02/08/14 374 10.0 13 851 0.10 29.70 0.94 1 -4 2.57E-14 -8.14E-14 4.64E-15 6.89E-
SBHF14-041-ST08-AS-BK 2/7/14 9:25 2/7/14 9:25 2/7/14 15:38 02/08/14 373 10.0 11 922 0.10 29.70 0.94 1 3 2.10E-14 6.33E-14 4.66E-15 6.90E-
SBHF14-042-ST09-AS-BK 2/7/14 9:18 2/7/14 15:33 02/08/14 375 10.0 12 885 0.10 29.70 0.94 1 -1 2.33E-14 -1.22E-14 4.63E-15 6.87E-
SBHF14-043-ST10-AS-BK 2/7/14 9:15 2/7/14 9:15 2/7/14 15:30 02/08/14 375 10.0 6 865 0.10 29.70 0.94 0 -3 8.86E-15 -5.28E-14 4.63E-15 6.87E-
SBHF14-044-ST11-AS-BK 2/7/14 9:10 2/7/14 9:10 2/7/14 375 10.0 14 882 0.10 29.70 0.94 1 -1 2.81E-14 -1.83E-14 4.63E-15 6.87E-
SBHF14-024-ST02-AS-HF 2/6/14 9:48 2/6/14 16:12 02/08/14 384 10.0 7 880 0.10 29.70 0.94 1 -1 1.10E-14 -2.18E-14 4.52E-15 6.71E-
SBHF14-025-ST03-AS-HF 2/6/14 10:44 2/6/14 17:19 02/08/14 395 10.0 3 856 0.10 29.70 0.94 0 -3 1.58E-15 -6.75E-14 4.40E-15 6.52E-
SBHF14-027-ST05-AS-HF 2/6/14 10:33 2/6/14 17:03 02/08/14 390 10.0 6 870 0.10 29.70 0.94 0 -2 8.52E-15 -4.10E-14 4.45E-15 6.60E-
SBHF14-031-ST09-AS-HF 2/6/14 10:15 2/6/14 10
SBHF14-033-ST11-AS-HF 2/6/14 10:06 2/6/14 10:33 02/08/14 387 10.0 4 930 0.10 29.70 0.94 0 4 3.93E-15 7.67E-14 4.49E-15 6.65E-
SBHF14-045-ST01-AS-BK 2/8/14 10:25 2/8/14 20:25 02/09/14 600 10.0 22 908 0.10 29.40 0.94 2 3 2.95E-14 3.30E-14 2.89E-15 4.27E-
SBHF14-046-ST02-AS-BK 2/8/14 10:28 2/8/14 20:28 02/09/14 600 10.0 26 994 0.10 29.40 0.94 3 11 3.55E-14 1.42E-13 2.89E-15 4.27E-
SBHF14-047-ST03-AS-BK 2/8/14 11:25 2/8/14 11:25 2/8/14 11:25 2/8/14 13:26 02/09/14 303 10.0 17 844 0.10 29.40 0.94 2 -4 4.36E-14 -9.55E-14 5.73E-15 8.46E-14
SBHF14-048-ST04-AS-BK 2/8/14 11:11 2/8/14 16:21 02/09/14 310 10.0 16 915 0.10 29.40 0.94 2 3 3.97E-14 8.10E-14 5.60E-15 8.27E-14 8.10E-14
SBHF14-049-ST05-AS-BK 2/8/14 10:35 2/8/14 10:14 02/09/14 339 10.0 20 995 0.10 29.40 0.94 2 11 4.70E-14 2.54E-13 5.12E-15 7.56E-
SBHF14-050-ST06-AS-BK 2/8/14 11:03 2/8/14 16:07 02/09/14 304 10.0 11 939 0.10 29.40 0.94 1 5 2.57E-14 1.43E-13 5.71E-15 8.43E-
SBHF14-051-ST07-AS-BK 2/8/14 11:01 2/8/14 16:04 02/09/14 303 10.0 27 959 0.10 29.40 0.94 3 7 7.33E-14 1.93E-13 5.73E-15 8.46E-
SBHF14-052-ST08-AS-BK 2/8/14 10:59 2/8/14 10:01 02/09/14 302 10.0 16 893 0.10 29.40 0.94 2 1 4.08E-14 2.77E-14 5.75E-15 8.49E-
SBHF14-053-ST09-AS-BK 2/8/14 10:54 2/8/14 15:56 02/09/14 302 10.0 10 902 0.10 29.40 0.94 1 2 2.29E-14 5.04E-14 5.75E-15 8.49E-
SBHF14-054-ST10-AS-BK 2/8/14 10:51 2/8/14 15:53 02/09/14 302 10.0 12 886 0.10 29.40 0.94 1 0 2.89E-14 1.01E-14 5.75E-15 8.49E-
SBHF14-055-ST11-AS-BK 2/8/14 10:47 2/8/14 15:49 02/09/14 302 10.0 4 876 0.10 29.40 0.94 0 -1 5.04E-15 -1.51E-14 5.75E-15 8.49E-1
SBHF14-035-ST02-AS-BK 2/7/14 8:28 2/7/14 15:08 02/09/14 400 10.0 5 925 0.10 29.40 0.94 0 4 6.06E-15 8.18E-14 4.34E-15 6.41E-
SBHF14-037-ST04-AS-BK 2/7/14 9:58 2/7/14 9:54 02/09/14 356 10.0 6 898 0.10 29.40 0.94 0 2 9.33E-15 3.42E-14 4.88E-15 7.20E-
SBHF14-038-ST05-AS-BK 2/7/14 8:48 2/7/14 1:5:1 02/09/14 423 10.0 7 855 0.10 29.40 0.94 1 -3 9.98E-15 -4.86E-14 4.11E-15 6.06E-
SBHF14-039-ST06-AS-BK 2/7/14 9:32 2/7/14 9:32 2/7/14 15:46 02/09/14 374 10.0 6 900 0.10 29.40 0.94 0 2 8.88E-15 3.66E-14 4.64E-15 6.85E-15



Day/Date:	2/10/2014
Start/Stop:	0630 to 1530
Log No.:	008

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, light rain, Temperature ~60s-70s ° F (Max 80), Wind speed 0-9 mph, Precipitation 0.02"

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0630 and proceeded to field office Bldg 205 at MF-1 Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0800 Cabrera deployed all 11 air monitoring devices at designated locations to collect air samples during High Explosive (HE) firing (4" diameter filter at 10 CFM flow rate).
- HE firing occurred between 0815 1100
- Weather information collected from base weather station
- 1300 Collected air samples from all 11 air monitoring locations (Average approx. Run-time 5 hr). All air monitor start/stop times were collected to determine total air volume collected (cubic feet).
- Completed radiological screening of air samples from previous day (2/9/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Time-permitting, Cabrera performed re-counts on sub-set of air samples from previous days sampling. Several air samples with the highest alpha reading were chosen for re-count. Although re-counts still did not allow for full radon decay, reduction in gross counts can be seen in subsequent count results.
- Offsite at 1530

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of nonmpliance, etc.)

None



- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/10/2014	Quality Control Manager



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Air Sample Log - Schofield Army Barracks, BAX Construction Support, Oahu, HI HE Detonation - FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

	Date		Start Time	Ston	Stop Time Flow	Total Run Time	Total Volume		Air Sample	BKG	HE Detonation	
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments
SBHF14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3
SBHF14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3
SBHF14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 Tower
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/A	South Fire Break Road
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road
SBHF14-012-ST01-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3
SBHF14-013-ST02-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road
SBHF14-023-ST01-AS-HF	02/06/14	9:45	10	10:45	10	60	600	20248	1	N/A	1	BAX Area 3
SBHF14-024-ST02-AS-HF	02/06/14	9:48	10	16:12	10	384	3840	18205	2	N/A	1	BAX Area 3
SBHF14-025-ST03-AS-HF	02/06/14	10:44	10	17:19	10	395	3950	20249	3	N/A	1	Range Control Tower (CR-2)
SBHF14-026-ST04-AS-HF	02/06/14	9:53	10	17:07	10	434	4340	18204	4	N/A	1	KR-5
SBHF14-027-ST05-AS-HF	02/06/14	10:33	10	17:03	10	390	3900	16833	5	N/A	1	KR-3 Tower
SBHF14-028-ST06-AS-HF	02/06/14	10:27	10	16:58	10	391	3910	16830	6	N/A	1	South Fire Break Road
SBHF14-029-ST07-AS-HF	02/06/14	10:23	10	16:56	10	393	3930	16832	7	N/A	1	South Fire Break Road
SBHF14-030-ST08-AS-HF	02/06/14	10:19	10	16:51	10	392	3920	16829	8	N/A	1	South Fire Break Road
SBHF14-031-ST09-AS-HF	02/06/14	10:15	10	16:44	10	389	3890	16831	9	N/A	1	South Fire Break Road
SBHF14-032-ST10-AS-HF	02/06/14	10:10	10	16:38	10	388	3880	16826	10	N/A	1	South Fire Break Road
SBHF14-033-ST11-AS-HF	02/06/14	10:06	10	16:33	10	387	3870	16827	11	N/A	1	South Fire Break Road
SBHF14-034-ST01-AS-BK	02/07/14	8:26	10	15:05	10	399	3990	20248	1	3	N/A	BAX Area 3
SBHF14-035-ST02-AS-BK	02/07/14	8:28	10	15:08	10	400	4000	18205	2	3	N/A	BAX Area 3
SBHF14-036-ST03-AS-BK	02/07/14	10:27	10	16:05	10	338	3380	20249	3	3	N/A	Range Control Tower (CR-2)
SBHF14-037-ST04-AS-BK	02/07/14	9:58	10	15:54	10	356	3560	18204	4	3	N/A	KR-5



SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

Samula ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Air Sampler #	Air Sample Station #	BKG	HE Detonation	Commonto
SPUE14 038 ST05 AS PK	02/07/14	8.48	10	15.51	10	422	4220	16922	5	3		KB 2 Towart
SDHF14-030-ST05-AS-DR	02/07/14	0.40	10	15:46	10	423	4230	10000	5		N/A	KR-3 lower
SBHE14-039-ST00-AS-BK	02/07/14	9.32	10	15:40	10	274	3740	16030	7	3	N/A	South Fire Break Road
SBHE14-040-ST07-AS-BK	02/07/14	9.29	10	15:43	10	373	3740	16820	8			South Fire Break Road
SBHE14-042-ST09-AS-BK	02/07/14	9.25	10	15.30	10	375	3750	16921		3	N/A	South Fire Break Road
SBHE14-043-ST10-AS-BK	02/07/14	9:15	10	15:30	10	375	3750	16826	10	3		South Fire Break Road
SBHE14-044-ST11-AS-BK	02/07/14	9:10	10	15:00	10	375	3750	16827	11	- 3	N/A	South Fire Break Road
SBHE14-045-ST01-AS-BK	02/08/14	10.25	10	20.25	10	600	6000	20248	1	4	N/A	BAX Area 3
SBHF14-046-ST02-AS-BK	02/08/14	10:28	10	20:28	10	600	6000	18205	2	4	N/A	BAX Area 3
SBHF14-047-ST03-AS-BK	02/08/14	11:25	10	16:28	10	303	3030	20249	3	4	N/A	Bange Control Tower (CB-2)
SBHF14-048-ST04-AS-BK	02/08/14	11:11	10	16:21	10	310	3100	18204	4	4	N/A	KR-5
SBHF14-049-ST05-AS-BK	02/08/14	10:35	10	16:14	10	339	3390	16833	5	4	N/A	KR-3 Tower
SBHF14-050-ST06-AS-BK	02/08/14	11:03	10	16:07	10	304	3040	16830	6	4	N/A	South Fire Break Road
SBHF14-051-ST07-AS-BK	02/08/14	11:01	10	16:04	10	303	3030	16832	7	4	N/A	South Fire Break Road
SBHF14-052-ST08-AS-BK	02/08/14	10:59	10	16:01	10	302	3020	16829	8	4	N/A	South Fire Break Road
SBHF14-053-ST09-AS-BK	02/08/14	10:54	10	15:56	10	302	3020	16831	9	4	N/A	South Fire Break Road
SBHF14-054-ST10-AS-BK	02/08/14	10:51	10	15:53	10	302	3020	16826	10	4	N/A	South Fire Break Road
SBHF14-055-ST11-AS-BK	02/08/14	10:47	10	15:49	10	302	3020	16827	11	4	N/A	South Fire Break Road
SBHF14-056-ST01-AS-HF	02/09/14	7:14	10	14:53	10	459	4590	20248	1	N/A	2	BAX Area 3
SBHF14-057-ST02-AS-HF	02/09/14	7:17	10	14:55	10	458	4580	18205	2	N/A	2	BAX Area 3
SBHF14-058-ST03-AS-HF	02/09/14	8:21	10	15:49	10	448	4480	20249	3	N/A	2	Range Control Tower (CR-2)
SBHF14-059-ST04-AS-HF	02/09/14	7:13	10	14:56	10	463	4630	18204	4	N/A	2	KR-5
SBHF14-060-ST05-AS-HF	02/09/14	8:09	10	14:59	10	410	4100	16833	5	N/A	2	KR-3 Tower
SBHF14-061-ST06-AS-HF	02/09/14	7:54	10	15:42	10	468	4680	16830	6	N/A	2	South Fire Break Road
SBHF14-062-ST07-AS-HF	02/09/14	7:50	10	15:36	10	466	4660	16832	7	N/A	2	South Fire Break Road
SBHF14-063-ST08-AS-HF	02/09/14	7:46	10	15:34	10	468	4680	16829	8	N/A	2	South Fire Break Road
SBHF14-064-ST09-AS-HF	02/09/14	7:40	10	15:31	10	471	4710	16831	9	N/A	2	South Fire Break Road
SBHF14-065-ST10-AS-HF	02/09/14	7:35	10	15:28	10	473	4730	16826	10	N/A	2	South Fire Break Road
SBHF14-066-ST11-AS-HF	02/09/14	7:31	10	15:24	10	473	4730	16827	11	N/A	2	South Fire Break Road
SBHF14-067-ST01-AS-HF	02/10/14	7:34	10	12:40	10	306	3060	20248	1	N/A	3	BAX Area 3
SBHF14-068-ST02-AS-HF	02/10/14	7:37	10	12:43	10	306	3060	18205	2	N/A	3	BAX Area 3
SBHF14-069-ST03-AS-HF	02/10/14	8:24	10	13:36	10	312	3120	20249	3	N/A	3	Range Control Tower (CR-2)
SBHF14-070-ST04-AS-HF	02/10/14	8:15	10	13:26	10	311	3110	18204	4	N/A	3	KR-5
SBHF14-071-ST05-AS-HF	02/10/14	8:11	10	13:18	10	307	3070	16833	5	N/A	3	KR-3 Tower
SBHF14-072-ST06-AS-HF	02/10/14	8:05	10	13:14	10	309	3090	16830	6	N/A	3	South Fire Break Road
SBHF14-073-ST07-AS-HF	02/10/14	8:03	10	13:11	10	308	3080	16832	7	N/A	3	South Fire Break Road
SBHF14-074-ST08-AS-HF	02/10/14	7:58	10	13:08	10	310	3100	16829	8	N/A	3	South Fire Break Road

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year ### = Sample number beginning at 001 ST# = Air Sample Station # number beginning at 01(see comments below) DD - Sample Matrix [AS (Filter Paper)] XX = Sample Phase [BK (Background), HF (HE Fire)]

Sample ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Air Sampler #	Air Sample Station #	BKG (Day #)	HE Detonation (Day #)	Comments
SBHF14-075-ST09-AS-HF	02/10/14	7:53	10	13:03	10	310	3100	16831	9	N/A	3	South Fire Break Road
SBHF14-076-ST10-AS-HF	02/10/14	7:49	10	13:00	10	311	3110	16826	10	N/A	3	South Fire Break Road
SBHF14-077-ST11-AS-HF	02/10/14	7:46	10	12:58	10	312	3120	16827	11	N/A	3	South Fire Break Road



Counting Instrument:	Ludlum Model 2929	Detector:	Ludlum 43-10-1	Cal. Date:	5/4/2014
Serial #:	200051	Serial #:	PR215948	Cal. Due Date OK?	OK

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Count time (min)	Backgroun d Count time (min)		Limitin Isotope o	g Alpha f Concern		Limitin	ig Beta Isotope of Concern
Alpha	0.3806	Th-230	5648-06	16,800	9/24/2012	7.70E+04	16800	30	20		lsotope	10CFR20 Occupatio nal DAC /Effluent		Isotope	10CFR20 Occupational DAC /Effluent
Beta	0.3460	Tc-99	5649-06	12,600	9/24/2012	2.13E+05	12600	30	20]	U-238	1.00E-14	1	U-238	1.00E-14

Filter Area Factor (Adjusts for Portion of Filter that is Counted Only)



associated with Filter Area Factor

Area Monitored and Air Mover Serial #/Bar Code	Sample Start Date/Tim	Sample End Date/Tim	Count Date	Run Time (min)	Flow Rate (CFM)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	1.11E-14	1.20E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	1.08E-14	1.17E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	1.02E-14	1.11E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	1.13E-14	1.23E-13
SBHF14-005-ST05-AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	1.17E-14	1.28E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.45E-14	1.58E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.47E-14	1.60E-13
SBHF14-008-ST08-AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	1.49E-14	1.62E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	1.52E-14	1.65E-13
SBHF14-010-ST10-AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	1.55E-14	1.68E-13
SBHF14-011-ST11-AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	1.58E-14	1.72E-13
SBHF14-012-ST01-AS-BK	2/5/14 7:36	2/5/14 15:38	02/06/14	482	10.0	4	892	0.10	29.40	0.94	0	1	3.16E-15	1.58E-14	3.60E-15	5.32E-14
SBHF14-013-ST02-AS-BK	2/5/14 7:40	2/5/14 15:40	02/06/14	480	10.0	7	895	0.10	29.40	0.94	1	1	8.80E-15	2.06E-14	3.62E-15	5.34E-14
SBHF14-014-ST03-AS-BK	2/5/14 9:00	2/5/14 16:36	02/06/14	456	10.0	7	904	0.10	29.40	0.94	1	2	9.26E-15	3.67E-14	3.81E-15	5.62E-14
SBHF14-015-ST04-AS-BK	2/5/14 8:42	2/5/14 16:24	02/06/14	462	10.0	13	945	0.10	29.40	0.94	1	6	2.08E-14	1.04E-13	3.76E-15	5.55E-14
SBHF14-016-ST05-AS-BK	2/5/14 8:36	2/5/14 16:21	02/06/14	465	10.0	4	941	0.10	29.40	0.94	0	6	3.27E-15	9.66E-14	3.74E-15	5.51E-14
SBHF14-017-ST06-AS-BK	2/5/14 8:29	2/5/14 16:17	02/06/14	468	10.0	13	898	0.10	29.40	0.94	1	2	2.06E-14	2.60E-14	3.71E-15	5.48E-14
SBHF14-018-ST07-AS-BK	2/5/14 8:24	2/5/14 16:14	02/06/14	470	10.0	12	891	0.10	29.40	0.94	1	1	1.86E-14	1.46E-14	3.70E-15	5.45E-14
SBHF14-019-ST08-AS-BK	2/5/14 8:18	2/5/14 16:12	02/06/14	474	10.0	5	898	0.10	29.40	0.94	0	2	5.11E-15	2.57E-14	3.66E-15	5.41E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11	2/5/14 16:08	02/06/14	477	10.0	23	923	0.10	29.40	0.94	2	4	3.90E-14	6.54E-14	3.64E-15	5.37E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05	2/5/14 16:03	02/06/14	478	10.0	11	903	0.10	29.40	0.94	1	2	1.64E-14	3.34E-14	3.63E-15	5.36E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58	2/5/14 16:01	02/06/14	483	10.0	13	919	0.10	29.40	0.94	1	4	1.99E-14	5.83E-14	3.60E-15	5.31E-14
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/06/14	207	10.0	4	856	0.10	29.40	0.94	0	-3	7.36E-15	-9.56E-14	8.39E-15	1.24E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/06/14	213	10.0	3	843	0.10	29.40	0.94	0	-4	2.92E-15	-1.39E-13	8.15E-15	1.20E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/06/14	225	10.0	3	875	0.10	29.40	0.94	0	-1	2.77E-15	-2.37E-14	7.72E-15	1.14E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/06/14	202	10.0	3	863	0.10	29.40	0.94	0	-2	3.08E-15	-7.16E-14	8.60E-15	1.27E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/06/14	158	10.0	2	863	0.10	29.40	0.94	0	-2	-1.75E-15	-9.15E-14	1.10E-14	1.62E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/06/14	156	10.0	2	868	0.10	29.40	0.94	0	-1	-1.77E-15	-6.83E-14	1.11E-14	1.64E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:00	2/4/14 15:38	02/06/14	151	10.0	2	853	0.10	29.40	0.94	0	-3	-1.83E-15	-1.46E-13	1.15E-14	1.70E-13
SBHF14-023-ST01-AS-HF	2/6/14 9:45	2/6/14 10:45	02/07/14	60	10.0	7	857	0.10	29.20	0.94	1	-2	7.04E-14	-2.41E-13	2.89E-14	4.26E-13
SBHF14-024-ST02-AS-HF	2/6/14 9:48	2/6/14 16:12	02/07/14	384	10.0	23	937	0.10	29.20	0.94	2	6	4.85E-14	1.21E-13	4.52E-15	6.65E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44	2/6/14 17:19	02/07/14	395	10.0	16	968	0.10	29.20	0.94	2	9	3.12E-14	1.77E-13	4.40E-15	6.47E-14
SBHF14-026-ST04-AS-HF	2/6/14 9:53	2/6/14 17:07	02/07/14	434	10.0	15	899	0.10	29.20	0.94	1	2	2.63E-14	4.03E-14	4.00E-15	5.88E-14
SBHF14-027-ST05-AS-HF	2/6/14 10:33	2/6/14 17:03	02/07/14	390	10.0	16	911	0.10	29.20	0.94	2	3	3.16E-14	6.83E-14	4.45E-15	6.55E-14
SBHF14-028-ST06-AS-HF	2/6/14 10:27	2/6/14 16:58	02/07/14	391	10.0	10	926	0.10	29.20	0.94	1	5	1.77E-14	9.74E-14	4.44E-15	6.53E-14
SBHF14-029-ST07-AS-HF	2/6/14 10:23	2/6/14 16:56	02/07/14	393	10.0	8	894	0.10	29.20	0.94	1	2	1 30E-14	3.49E-14	4 42E-15	6.50E-14

SBHF14-030-ST08-AS-HF	2/6/14 10:19 2/6/14 16:51	02/07/14	392	10.0	6	891	0.10	29.20	0.94	0	1	8.47E-15 2.91E-14	4.43E-15 6.52E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44	02/07/14	389	10.0	29	950	0.10	29.20	0.94	3	7	6.17E-14 1.45E-13	4.46E-15 6.57E-14
SBHF14-032-ST10-AS-HF	2/6/14 10:10 2/6/14 16:38	02/07/14	388	10.0	15	881	0.10	29.20	0.94	1	0	2.94E-14 9.81E-15	4.48E-15 6.58E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33	02/07/14	387	10.0	19	903	0.10	29.20	0.94	2	3	3.88E-14 5.31E-14	4.49E-15 6.60E-14
SBHF14-007-ST07-AS-BK	2/5/14 8:24 2/5/14 16:14	02/07/14	470	10.0	3	899	0.10	29.20	0.94	0	2	1.33E-15 3.73E-14	3.70E-15 5.43E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11 2/5/14 16:08	02/07/14	477	10.0	8	875	0.10	29.20	0.94	1	0	1.07E-14 -1.60E-15	3.64E-15 5.35E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05 2/5/14 16:03	02/07/14	478	10.0	4	887	0.10	29.20	0.94	0	1	3.19E-15 1.75E-14	3.63E-15 5.34E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58 2/5/14 16:01	02/07/14	483	10.0	7	921	0.10	29.20	0.94	1	4	8.74E-15 7.09E-14	3.60E-15 5.29E-14
SBHF14-034-ST01-AS-BK	2/7/14 8:26 2/7/14 15:05	02/08/14	399	10.0	11	933	0.10	29.70	0.94	1	4	196E-14 801E-14	4 35E-15 6 45E-14
SBHE14-035-ST02-AS-BK	2/7/14 8:28 2/7/14 15:08	02/08/14	400	10.0	17	883	0.10	29.70	0.94	2	-1	3 30E-14 -1 52E-14	4 34E-15 6 44E-14
SBHE14-036-ST03-AS-BK	2/7/14 10:27 2/7/14 16:05	02/08/14	338	10.0	15	962	0.10	29.70	0.94	1	7	3 38E-14 1 60E-13	5 14E-15 7 62E-14
SBHE14-037-ST04-AS-BK	2/7/14 9:58 2/7/14 15:54	02/08/14	356	10.0	27	930	0.10	29.70	0.94	3	4	6 24E-14 8 34E-14	4 88E-15 7 23E-14
SBHE14-038-ST05-AS-BK	2/7/14 8:48 2/7/14 15:51	02/08/14	423	10.0	23	905	0.10	29.70	0.94	2	1	4.40E-14 2.52E-14	4 11E-15 6 09E-14
SBHF14-030-ST06-AS-BK	2/7/14 0:40 2/7/14 15:31	02/08/14	425	10.0	25	903	0.10	29.70	0.94	2	2	5 70E 14 5 70E 14	4.112-13 0.092-14
SBHF14-039-ST00-AS-BK	2/7/14 9:32 2/7/14 15:40	02/08/14	374	10.0	20	919	0.10	29.70	0.94	3	3	3.70E-14 3.70E-14	4.04E-15 0.09E-14
SBHF14-040-3107-AS-BK	2/7/14 9.29 2/7/14 15:43	02/08/14	374	10.0	13	022	0.10	29.70	0.94	1	-4	2.0/E-14 -0.14E-14	4.04E-15 0.09E-14
SBHF 14-041-ST00-AS-BK	2/1/14 9.25 2//14 15.36	02/08/14	373	10.0	10	922	0.10	29.70	0.94		3	2.10E-14 0.33E-14	4.00E-15 0.90E-14
SBHF14-042-ST09-AS-BK	2/7/14 9:18 2/7/14 15:33	02/08/14	375	10.0	12	685	0.10	29.70	0.94	1	-1	2.33E-14 -1.22E-14	4.03E-15 0.87E-14
SBHF14-043-ST10-AS-BK	2/7/14 9:15 2/7/14 15:30	02/08/14	375	10.0	6	865	0.10	29.70	0.94	0	-3	8.86E-15 -5.28E-14	4.63E-15 6.87E-14
SBHF14-044-ST11-AS-BK	2/7/14 9:10 2/7/14 15:25	02/08/14	375	10.0	14	882	0.10	29.70	0.94	1	-1	2.81E-14 -1.83E-14	4.63E-15 6.8/E-14
SBHF14-024-S102-AS-HF	2/6/14 9:48 2/6/14 16:12	02/08/14	384	10.0	/	880	0.10	29.70	0.94	1	-1	1.10E-14 -2.18E-14	4.52E-15 6.71E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44 2/6/14 17:19	02/08/14	395	10.0	3	856	0.10	29.70	0.94	0	-3	1.58E-15 -6.75E-14	4.40E-15 6.52E-14
SBHF14-027-S105-AS-HF	2/6/14 10:33 2/6/14 17:03	02/08/14	390	10.0	6	870	0.10	29.70	0.94	0	-2	8.52E-15 -4.10E-14	4.45E-15 6.60E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44	02/08/14	389	10.0	2	896	0.10	29.70	0.94	0	0	-7.12E-16 9.79E-15	4.46E-15 6.62E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33	02/08/14	387	10.0	4	930	0.10	29.70	0.94	0	4	3.93E-15 7.67E-14	4.49E-15 6.65E-14
SBHF14-045-ST01-AS-BK	2/8/14 10:25 2/8/14 20:25	02/09/14	600	10.0	22	908	0.10	29.40	0.94	2	3	2.95E-14 3.30E-14	2.89E-15 4.27E-14
SBHF14-046-ST02-AS-BK	2/8/14 10:28 2/8/14 20:28	02/09/14	600	10.0	26	994	0.10	29.40	0.94	3	11	3.55E-14 1.42E-13	2.89E-15 4.27E-14
SBHF14-047-ST03-AS-BK	2/8/14 11:25 2/8/14 16:28	02/09/14	303	10.0	17	844	0.10	29.40	0.94	2	-4	4.36E-14 -9.55E-14	5.73E-15 8.46E-14
SBHF14-048-ST04-AS-BK	2/8/14 11:11 2/8/14 16:21	02/09/14	310	10.0	16	915	0.10	29.40	0.94	2	3	3.97E-14 8.10E-14	5.60E-15 8.27E-14
SBHF14-049-ST05-AS-BK	2/8/14 10:35 2/8/14 16:14	02/09/14	339	10.0	20	995	0.10	29.40	0.94	2	11	4.70E-14 2.54E-13	5.12E-15 7.56E-14
SBHF14-050-ST06-AS-BK	2/8/14 11:03 2/8/14 16:07	02/09/14	304	10.0	11	939	0.10	29.40	0.94	1	5	2.57E-14 1.43E-13	5.71E-15 8.43E-14
SBHF14-051-ST07-AS-BK	2/8/14 11:01 2/8/14 16:04	02/09/14	303	10.0	27	959	0.10	29.40	0.94	3	7	7.33E-14 1.93E-13	5.73E-15 8.46E-14
SBHF14-052-ST08-AS-BK	2/8/14 10:59 2/8/14 16:01	02/09/14	302	10.0	16	893	0.10	29.40	0.94	2	1	4.08E-14 2.77E-14	5.75E-15 8.49E-14
SBHF14-053-ST09-AS-BK	2/8/14 10:54 2/8/14 15:56	02/09/14	302	10.0	10	902	0.10	29.40	0.94	1	2	2.29E-14 5.04E-14	5.75E-15 8.49E-14
SBHF14-054-ST10-AS-BK	2/8/14 10:51 2/8/14 15:53	02/09/14	302	10.0	12	886	0.10	29.40	0.94	1	0	2.89E-14 1.01E-14	5.75E-15 8.49E-14
SBHF14-055-ST11-AS-BK	2/8/14 10:47 2/8/14 15:49	02/09/14	302	10.0	4	876	0.10	29.40	0.94	0	-1	5.04E-15 -1.51E-14	5.75E-15 8.49E-14
SBHF14-035-ST02-AS-BK	2/7/14 8:28 2/7/14 15:08	02/09/14	400	10.0	5	925	0.10	29.40	0.94	0	4	6.06E-15 8.18E-14	4.34E-15 6.41E-14
SBHF14-037-ST04-AS-BK	2/7/14 9:58 2/7/14 15:54	02/09/14	356	10.0	6	898	0.10	29.40	0.94	0	2	9.33E-15 3.42E-14	4.88E-15 7.20E-14
SBHF14-038-ST05-AS-BK	2/7/14 8:48 2/7/14 15:51	02/09/14	423	10.0	7	855	0.10	29.40	0.94	1	-3	9.98E-15 -4.86E-14	4.11E-15 6.06E-14
SBHF14-039-ST06-AS-BK	2/7/14 9:32 2/7/14 15:46	02/09/14	374	10.0	6	900	0.10	29.40	0.94	0	2	8.88E-15 3.66E-14	4.64E-15 6.85E-14
SBHF14-056-ST01-AS-HF	2/9/14 7:14 2/9/14 14:53	02/10/14	459	10.0	23	926	0.10	28.90	0.94	2	6	4.06E-14 9.79E-14	3.78E-15 5.54E-14
SBHF14-057-ST02-AS-HF	2/9/14 7:17 2/9/14 14:55	02/10/14	458	10.0	21	866	0.10	28.90	0.94	2	0	3.67E-14 -1.66E-15	3.79E-15 5.55E-14
SBHF14-058-ST03-AS-HF	2/9/14 8:21 2/9/14 15:49	02/10/14	448	10.0	18	898	0.10	28.90	0.94	2	3	3.15E-14 5.27E-14	3.88E-15 5.67E-14
SBHF14-059-ST04-AS-HF	2/9/14 7:13 2/9/14 14:56	02/10/14	463	10.0	14	949	0.10	28.90	0.94	1	8	2.27E-14 1.35E-13	3.75E-15 5.49E-14
SBHF14-060-ST05-AS-HF	2/9/14 8:09 2/9/14 14:59	02/10/14	410	10.0	36	932	0.10	28.90	0.94	4	6	7.39E-14 1.21E-13	4.24E-15 6.20E-14
SBHF14-061-ST06-AS-HF	2/9/14 7:54 2/9/14 15:42	02/10/14	468	10.0	25	980	0.10	28.90	0.94	3	11	4.36E-14 1.84E-13	3.71E-15 5.43E-14
SBHF14-062-ST07-AS-HF	2/9/14 7:50 2/9/14 15:36	02/10/14	466	10.0	18	980	0.10	28.90	0.94	2	11	3.03E-14 1.85E-13	3.73E-15 5.45E-14
SBHF14-063-ST08-AS-HF	2/9/14 7:46 2/9/14 15:34	02/10/14	468	10.0	15	900	0.10	28.90	0.94	1	3	2.44E-14 5.37E-14	3.71E-15 5.43E-14
SBHF14-064-ST09-AS-HF	2/9/14 7:40 2/9/14 15:31	02/10/14	471	10.0	40	907	0.10	28.90	0.94	4	4	7.20E-14 6.47E-14	3.69E-15 5.40E-14
SBHF14-065-ST10-AS-HF	2/9/14 7:35 2/9/14 15:28	02/10/14	473	10.0	24	869	0.10	28.90	0.94	2	0	4 13E-14 3 22E-15	3.67E-15 5.37E-14
SBHF14-066-ST11-AS-HF	2/9/14 7:31 2/9/14 15:24	02/10/14	473	10.0	16	935	0.10	28.90	0.94	2	7	2 60E-14 1 09E-13	3 67E-15 5 37E-14
SBHF14-045-ST01-AS-BK	2/8/14 10:25 2/8/14 20:25	02/10/14	600	10.0	4	863	0.10	28.90	0.94	0	0	2 54E-15 -5 08E-15	2 89E-15 4 24E-14
SBHF14-046-ST02-AS-BK	2/8/14 10:28 2/8/14 20:28	02/10/14	600	10.0	3	883	0.10	28.90	0.94	0	2	104E-15 203E-14	2 89E-15 4 24E-14
SBHF14-049-ST05-AS-BK	2/8/14 10:35 2/8/14 16:14	02/10/14	339	10.0	4	841	0.10	28.90	0.94	0	-3	4 49E-15 -5 84E-14	5 12E-15 7 50E-14
SBHF14-051-ST07-AS-BK	2/8/14 11:01 2/8/14 16:04	02/10/14	303	10.0	4	877	0.10	28.90	0.94	0	1	5 02E-15 2 51E-14	573E-15 8 39E-14
	2014 11.01 2/014 10.04	02110114	000	10.0		011	0.10	20.00	0.04	0		0.022-10 2.012-14	0.10L-10 0.00E-14



Day/Date:	2/11/2014
Start/Stop:	0630 to 1700
Log No.:	009

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Cloudy, Temperature ~60s-70s ° F (Max 81), Wind speed 0-3 mph

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0630 and proceeded to field office Bldg 205 at MF-1 Cabrera held daily safety brief prior to conducting field activities
- Begin instrument daily QC of 2929/43-10-1 (20 min background counts/ 1 min source counts Th-230/Tc-99)
- 0900 Cabrera deployed all 11 air monitoring devices at designated locations to collect background air samples No HE firing occurred on this date (4" diameter filter at 10 CFM flow rate).
- Weather information collected from base weather station
- 1530 Collected background air samples from all 11 air monitoring locations (Average approx. Run-time 6 hr 30 min). All air monitor start/stop times were collected to determine total air volume collected (cubic feet).
- Completed radiological screening of background air samples from previous day (2/10/14). All 11 air samples counted for gross alpha/beta on 2929/43-10-1 (30 minute sample counts/ 1.85" diameter circle cut from 4" air filter for screening). Entire 4" diameter sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec). Note that air samples were counted the day after collection, without allowing for radon decay.
- Time-permitting, Cabrera performed re-counts on sub-set of air samples from previous days sampling. Several air samples with the highest alpha reading were chosen for re-count. Although re-counts still did not allow for full radon decay, reduction in gross counts can be seen in subsequent count results.
- Offsite at 1700

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

• None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

• None

5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)



- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)

DQCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/11/2014	Quality Control Manager

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

			Start Time					-				
	Date		Flow Rate	Stop	Stop Time Flow	Total Run Time	Total Volume		Air Sample	BKG	HE Detonation	
Sample ID #	Collected	Start Time	(CFM)	Time	Rate (CFM)	(min)	(Cubic Feet)	Air Sampler #	Station #	(Day #)	(Day #)	Comments
SBHF14-001-ST01-AS-BK	02/04/14	12:00	10	15:27	10	207	2070	20248	1	1	N/A	BAX Area 3
SBHF14-002-ST02-AS-BK	02/04/14	11:50	10	15:23	10	213	2130	18205	2	1	N/A	BAX Area 3
SBHF14-003-ST03-AS-BK	02/04/14	12:25	10	16:10	10	225	2250	20249	3	1	N/A	Range Control Tower (CR-2)
SBHF14-004-ST04-AS-BK	02/04/14	12:37	10	15:59	10	202	2020	18204	4	1	N/A	KR-5
SBHF14-005-ST05-AS-BK	02/04/14	12:42	10	15:57	10	195	1950	16833	5	1	N/A	KR-3 Tower
SBHF14-006-ST06-AS-BK	02/04/14	12:52	10	15:30	10	158	1580	16830	6	1	N/A	South Fire Break Road
SBHF14-007-ST07-AS-BK	02/04/14	12:56	10	15:32	10	156	1560	16832	7	1	N/A	South Fire Break Road
SBHF14-008-ST08-AS-BK	02/04/14	13:00	10	15:34	10	154	1540	16829	8	1	N/A	South Fire Break Road
SBHF14-009-ST09-AS-BK	02/04/14	13:07	10	15:38	10	151	1510	16831	9	1	N/A	South Fire Break Road
SBHF14-010-ST10-AS-BK	02/04/14	13:13	10	15:41	10	148	1480	16826	10	1	N/A	South Fire Break Road
SBHF14-011-ST11-AS-BK	02/04/14	13:19	10	15:44	10	145	1450	16827	11	1	N/A	South Fire Break Road
SBHF14-012-ST01-AS-BK	02/05/14	7:36	10	15:38	10	482	4820	20248	1	2	N/A	BAX Area 3
SBHF14-013-ST02-AS-BK	02/05/14	7:40	10	15:40	10	480	4800	18205	2	2	N/A	BAX Area 3
SBHF14-014-ST03-AS-BK	02/05/14	9:00	10	16:36	10	456	4560	20249	3	2	N/A	Range Control Tower (CR-2)
SBHF14-015-ST04-AS-BK	02/05/14	8:42	10	16:24	10	462	4620	18204	4	2	N/A	KR-5
SBHF14-016-ST05-AS-BK	02/05/14	8:36	10	16:21	10	465	4650	16833	5	2	N/A	KR-3 Tower
SBHF14-017-ST06-AS-BK	02/05/14	8:29	10	16:17	10	468	4680	16830	6	2	N/A	South Fire Break Road
SBHF14-018-ST07-AS-BK	02/05/14	8:24	10	16:14	10	470	4700	16832	7	2	N/A	South Fire Break Road
SBHF14-019-ST08-AS-BK	02/05/14	8:18	10	16:12	10	474	4740	16829	8	2	N/A	South Fire Break Road
SBHF14-020-ST09-AS-BK	02/05/14	8:11	10	16:08	10	477	4770	16831	9	2	N/A	South Fire Break Road
SBHF14-021-ST10-AS-BK	02/05/14	8:05	10	16:03	10	478	4780	16826	10	2	N/A	South Fire Break Road
SBHF14-022-ST11-AS-BK	02/05/14	7:58	10	16:01	10	483	4830	16827	11	2	N/A	South Fire Break Road
SBHF14-023-ST01-AS-HF	02/06/14	9:45	10	10:45	10	60	600	20248	1	N/A	1	BAX Area 3
SBHF14-024-ST02-AS-HF	02/06/14	9:48	10	16:12	10	384	3840	18205	2	N/A	1	BAX Area 3
SBHF14-025-ST03-AS-HF	02/06/14	10:44	10	17:19	10	395	3950	20249	3	N/A	1	Range Control Tower (CR-2)
SBHF14-026-ST04-AS-HF	02/06/14	9:53	10	17:07	10	434	4340	18204	4	N/A	1	KR-5
SBHF14-027-ST05-AS-HF	02/06/14	10:33	10	17:03	10	390	3900	16833	5	N/A	1	KR-3 Tower
SBHF14-028-ST06-AS-HF	02/06/14	10:27	10	16:58	10	391	3910	16830	6	N/A	1	South Fire Break Road
SBHF14-029-ST07-AS-HF	02/06/14	10:23	10	16:56	10	393	3930	16832	7	N/A	1	South Fire Break Road
SBHF14-030-ST08-AS-HF	02/06/14	10:1 9	10	16:51	10	392	3920	16829	8	N/A	1	South Fire Break Road
SBHF14-031-ST09-AS-HF	02/06/14	10:15	10	16:44	10	389	3890	16831	9	N/A	1	South Fire Break Road
SBHF14-032-ST10-AS-HF	02/06/14	10:10	10	16:38	10	388	3880	16826	10	N/A	1	South Fire Break Road
SBHF14-033-ST11-AS-HF	02/06/14	10:06	10	16:33	10	387	3870	16827	11	N/A	1	South Fire Break Road
SBHF14-034-ST01-AS-BK	02/07/14	8:26	10	15:05	10	399	3990	20248	1	3	N/A	BAX Area 3
SBHF14-035-ST02-AS-BK	02/07/14	8:28	10	15:08	10	400	4000	18205	2	3	N/A	BAX Area 3
SBHF14-036-ST03-AS-BK	02/07/14	10:27	10	16:05	10	338	3380	20249	3	3	N/A	Range Control Tower (CR-2)
SBHF14-037-ST04-AS-BK	02/07/14	9:58	10	15:54	10	356	3560	18204	4	3	N/A	KR-5



SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year ### = Sample number beginning at 001 ST# = Air Sample Station # number beginning at 01(see comments below) DD - Sample Matrix [AS (Filter Paper)] XX = Sample Phase [BK (Background), HF (HE Fire)]

Sample ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Air Sampler #	Air Sample Station #	BKG (Day #)	HE Detonation (Day #)	Comments
SBHF14-038-ST05-AS-BK	02/07/14	8:48	10	15:51	10	423	4230	16833	5	3	N/A	KR-3 Tower
SBHF14-039-ST06-AS-BK	02/07/14	9:32	10	15:46	10	374	3740	16830	6	3	N/A	South Fire Break Road
SBHF14-040-ST07-AS-BK	02/07/14	9:29	10	15:43	10	374	3740	16832	7	3	N/A	South Fire Break Road
SBHF14-041-ST08-AS-BK	02/07/14	9:25	10	15:38	10	373	3730	16829	8	3	N/A	South Fire Break Road
SBHF14-042-ST09-AS-BK	02/07/14	9:18	10	15:33	10	375	3750	16831	9	3	N/A	South Fire Break Road
SBHF14-043-ST10-AS-BK	02/07/14	9:15	10	15:30	10	375	3750	16826	10	3	N/A	South Fire Break Road
SBHF14-044-ST11-AS-BK	02/07/14	9:10	10	15:25	10	375	3750	16827	11	3	N/A	South Fire Break Road
SBHF14-045-ST01-AS-BK	02/08/14	10:25	10	20:25	10	600	6000	20248	1	4	N/A	BAX Area 3
SBHF14-046-ST02-AS-BK	02/08/14	10:28	10	20:28	10	600	6000	18205	2	4	N/A	BAX Area 3
SBHF14-047-ST03-AS-BK	02/08/14	11:25	10	16:28	10	303	3030	20249	3	4	N/A	Range Control Tower (CR-2)
SBHF14-048-ST04-AS-BK	02/08/14	11:11	10	16:21	10	310	3100	18204	4	4	N/A	KR-5
SBHF14-049-ST05-AS-BK	02/08/14	10:35	10	16:14	10	339	3390	16833	5	4	N/A	KR-3 Tower
SBHF14-050-ST06-AS-BK	02/08/14	11:03	10	16:07	10	304	3040	16830	6	4	N/A	South Fire Break Road
SBHF14-051-ST07-AS-BK	02/08/14	11:01	10	16:04	10	303	3030	16832	7	4	N/A	South Fire Break Road
SBHF14-052-ST08-AS-BK	02/08/14	10:59	10	16:01	10	302	3020	16829	8	4	N/A	South Fire Break Road
SBHF14-053-ST09-AS-BK	02/08/14	10:54	10	15:56	10	302	3020	16831	9	4	N/A	South Fire Break Road
SBHF14-054-ST10-AS-BK	02/08/14	10:51	10	15:53	10	302	3020	16826	10	4	N/A	South Fire Break Road
SBHF14-055-ST11-AS-BK	02/08/14	10:47	10	15:49	10	302	3020	16827	11	4	N/A	South Fire Break Road
SBHF14-056-ST01-AS-HF	02/09/14	7:14	10	14:53	10	459	4590	20248	1	N/A	2	BAX Area 3
SBHF14-057-ST02-AS-HF	02/09/14	7:17	10	14:55	10	458	4580	18205	2	N/A	2	BAX Area 3
SBHF14-058-ST03-AS-HF	02/09/14	8:21	10	15:49	10	448	4480	20249	3	N/A	2	Range Control Tower (CR-2)
SBHF14-059-ST04-AS-HF	02/09/14	7:13	10	14:56	10	463	4630	18204	4	N/A	2	KR-5
SBHF14-060-ST05-AS-HF	02/09/14	8:09	10	14:59	10	410	4100	16833	5	N/A	2	KR-3 Tower
SBHF14-061-ST06-AS-HF	02/09/14	7:54	10	15:42	10	468	4680	16830	6	N/A	2	South Fire Break Road
SBHF14-062-ST07-AS-HF	02/09/14	7:50	10	15:36	10	466	4660	16832	7	N/A	2	South Fire Break Road
SBHF14-063-ST08-AS-HF	02/09/14	7:46	10	15:34	10	468	4680	16829	8	N/A	2	South Fire Break Road
SBHF14-064-ST09-AS-HF	02/09/14	7:40	10	15:31	10	471	4710	16831	9	N/A	2	South Fire Break Road
SBHF14-065-ST10-AS-HF	02/09/14	7:35	10	15:28	10	473	4730	16826	10	N/A	2	South Fire Break Road
SBHF14-066-ST11-AS-HF	02/09/14	7:31	10	15:24	10	473	4730	16827	11	N/A	2	South Fire Break Road
SBHF14-067-ST01-AS-HF	02/10/14	7:34	10	12:40	10	306	3060	20248	1	N/A	3	BAX Area 3
SBHF14-068-ST02-AS-HF	02/10/14	7:37	10	12:43	10	306	3060	18205	2	N/A	3	BAX Area 3
SBHF14-069-ST03-AS-HF	02/10/14	8:24	10	13:36	10	312	3120	20249	3	N/A	3	Range Control Tower (CR-2)
SBHF14-070-ST04-AS-HF	02/10/14	8:15	10	13:26	10	311	3110	18204	4	N/A	3	KR-5
SBHF14-071-ST05-AS-HF	02/10/14	8:11	10	13:18	10	307	3070	16833	5	N/A	3	KR-3 Tower
SBHF14-072-ST06-AS-HF	02/10/14	8:05	10	13:14	10	309	3090	16830	6	N/A	3	South Fire Break Road
SBHF14-073-ST07-AS-HF	02/10/14	8:03	10	13:11	10	308	3080	16832	7	N/A	3	South Fire Break Road
SBHF14-074-ST08-AS-HF	02/10/14	7:58	10	13:08	10	310	3100	16829	8	N/A	3	South Fire Break Road

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year ### = Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

Sample ID #	Date Collected	Start Time	Start Time Flow Rate (CFM)	Stop Time	Stop Time Flow Rate (CFM)	Total Run Time (min)	Total Volume (Cubic Feet)	Air Sampler #	Air Sample Station #	BKG (Day #)	HE Detonation (Day #)	Comments
SBHF14-075-ST09-AS-HF	02/10/14	7:53	10	13:03	10	310	3100	16831	9	N/A	3	South Fire Break Road
SBHF14-076-ST10-AS-HF	02/10/14	7:49	10	13:00	10	311	3110	16826	10	N/A	3	South Fire Break Road
SBHF14-077-ST11-AS-HF	02/10/14	7:46	10	12:58	10	312	3120	16827	11	N/A	3	South Fire Break Road
SBHF14-078-ST01-AS-BK	02/11/14	8:43	10	15:15	10	392	3920	20248	1	5	N/A	BAX Area 3
SBHF14-079-ST02-AS-BK	02/11/14	8:45	10	15:17	10	392	3920	18205	2	5	N/A	BAX Area 3
SBHF14-080-ST03-AS-BK	02/11/14	9:34	10	16:21	10	407	4070	20249	3	5	N/A	Range Control Tower (CR-2)
SBHF14-081-ST04-AS-BK	02/11/14	8:43	10	16:10	10	447	4470	18204	4	5	N/A	KR-5
SBHF14-082-ST05-AS-BK	02/11/14	8:45	10	16:08	10	443	4430	16833	5	5	N/A	KR-3 Tower
SBHF14-083-ST06-AS-BK	02/11/14	9:22	10	16:01	10	399	3990	16830	6	5	N/A	South Fire Break Road
SBHF14-084-ST07-AS-BK	02/11/14	9:20	10	15:56	10	396	3960	16832	7	5	N/A	South Fire Break Road
SBHF14-085-ST08-AS-BK	02/11/14	9:17	10	15:53	10	396	3960	16829	8	5	N/A	South Fire Break Road
SBHF14-086-ST09-AS-BK	02/11/14	9:13	10	15:46	10	393	3930	16831	9	5	N/A	South Fire Break Road
SBHF14-087-ST10-AS-BK	02/11/14	9:11	10	15:42	10	391	3910	16826	10	5	N/A	South Fire Break Road
SBHF14-088-ST11-AS-BK	02/11/14	9:08	10	15:39	10	391	3910	16827	11	5	N/A	South Fire Break Road
SBHF14-Blank-1	02/11/14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/Ă	Blank Air Sample 1
SBHF14-Blank-2	02/11/14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Blank Air Sample 2

Air Samples - Schofield Army Barracks, Oahu, HI High Explosives Detonation_FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

		Dates			Air Sam	pier Info.			A/S Location - C	Coordinates
Sample ID #	Sample Collection Date	Initial Count Date	1st Re-Count Date (if required)	2nd Re-Count Date (if required)	Hi-Q Sampler #	Cal Due Date	Reason/Purpose	Northing	Easting	Comments
SBHF14-001-ST01-AS-BK	02/04/14	02/05/14	02/06/14	. n/a	20248	9/6/2014	Background - Day 1	2377759.20	592373.47	BAX Area 3
SBHF14-002-ST02-AS-BK	02/04/14	02/05/14	02/06/14	n/a	18205	1/20/2015	Background - Day 1	2377607.24	592411.51	BAX Area 3
SBHF14-003-ST03-AS-BK	02/04/14	02/05/14	02/06/14	n/a	20249	9/6/2014	Background - Day 1	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-004-ST04-AS-BK	02/04/14	02/05/14	02/06/14	n/a	18204	1/20/2015	Background - Day 1	2376360.02	592535.24	KR-5
SBHF14-005-ST05-AS-BK	02/04/14	02/05/14	n/a	n/a	16833	1/20/2015	Background - Day 1	2376185.14	592253.14	KR-3 Tower
SBHF14-006-ST06-AS-BK	02/04/14	02/05/14	02/06/14	n/a	16830	1/20/2015	Background - Day 1	2376498.49	591191.32	South Fire Break Road
SBHF14-007-ST07-AS-BK	02/04/14	02/05/14	02/06/14	n/a	16832	1/20/2015	Background - Day 1	2376826.34	591006.11	South Fire Break Road
SBHF14-008-ST08-AS-BK	02/04/14	02/05/14	n/a	n/a	16829	6/14/2014	Background - Day 1	2377247.49	590990.84	South Fire Break Road
SBHF14-009-ST09-AS-BK	02/04/14	02/05/14	02/06/14	n/a	16831	1/20/2015	Background - Day 1	2378058.45	591334.37	South Fire Break Road
SBHF14-010-ST10-AS-BK	02/04/14	02/05/14	n/a	n/a	16826	1/20/2015	Background - Day 1	2378446.58	591419.05	South Fire Break Road
SBHF14-011-ST11-AS-BK	02/04/14	02/05/14	n/a	n/a	16827	6/28/2014	Background - Day 1	2378598.17	591424.97	South Fire Break Road
SBHF14-012-ST01-AS-BK	02/05/14	02/06/14	n/a	n/a	20248	9/6/2014	Background - Day 2	2377759.20	592373.47	BAX Area 3
SBHF14-013-ST02-AS-BK	02/05/14	02/06/14	n/a	n/a	18205	1/20/2015	Background - Day 2	2377607.24	592411.51	BAX Area 3
SBHF14-014-ST03-AS-BK	02/05/14	02/06/14	n/a	n/a	20249	9/6/2014	Background - Day 2	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-015-ST04-AS-BK	02/05/14	02/06/14	n/a	n/a	18204	1/20/2015	Background - Day 2	2376360.02	592535.24	KR-5
SBHF14-016-ST05-AS-BK	02/05/14	02/06/14	n/a	n/a	16833	1/20/2015	Background - Day 2	2376185.14	592253.14	KR-3 Tower
SBHF14-017-ST06-AS-BK	02/05/14	02/06/14	n/a	n/a	16830	1/20/2015	Background - Day 2	2376498.49	591191.32	South Fire Break Road
SBHF14-018-ST07-AS-BK	02/05/14	02/06/14	02/07/14	n/a	16832	1/20/2015	Background - Day 2	2376826.34	591006.11	South Fire Break Road
SBHF14-019-ST08-AS-BK	02/05/14	02/06/14	n/a	n/a	16829	6/14/2014	Background - Day 2	2377247.49	590990.84	South Fire Break Road
SBHF14-020-ST09-AS-BK	02/05/14	02/06/14	02/07/14	n/a	16831	1/20/2015	Background - Day 2	2378058.45	591334.37	South Fire Break Road
SBHF14-021-ST10-AS-BK	02/05/14	02/06/14	02/07/14	п/а	16826	1/20/2015	Background - Day 2	2378446.58	591419.05	South Fire Break Road
SBHF14-022-ST11-AS-BK	02/05/14	02/06/14	02/07/14	n/a	16827	6/28/2014	Background - Day 2	2378598.17	591424.97	South Fire Break Road
SBHF14-023-ST01-AS-HF	02/06/14	02/07/14	n/a	n/a	20248	9/6/2014	HE Detonation - Day 1	2377759.20	592373.47	BAX Area 3
SBHF14-024-ST02-AS-HF	02/06/14	02/07/14	02/08/14	n/a	18205	1/20/2015	HE Detonation - Day 1	2377607.24	592411.51	BAX Area 3
SBHF14-025-ST03-AS-HF	02/06/14	02/07/14	02/08/14	n/a	20249	9/6/2014	HE Detonation - Day 1	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-026-ST04-AS-HF	02/06/14	02/07/14	n/a	n/a	18204	1/20/2015	HE Detonation - Day 1	2376360.02	592535.24	KR-5
SBHF14-027-ST05-AS-HF	02/06/14	02/07/14	02/08/14	n/a	16833	1/20/2015	HE Detonation - Day 1	2376185.14	592253.14	KR-3 Tower
SBHF14-028-ST06-AS-HF	02/06/14	02/07/14	n/a	n/a	16830	1/20/2015	HE Detonation - Day 1	2376498.49	591191.32	South Fire Break Road
SBHF14-029-ST07-AS-HF	02/06/14	02/07/14	n/a	n/a	16832	1/20/2015	HE Detonation - Day 1	2376826.34	591006.11	South Fire Break Road
SBHF14-030-ST08-AS-HF	02/06/14	02/07/14	n/a	n/a	16829	6/14/2014	HE Detonation - Day 1	2377247.49	590990.84	South Fire Break Road
SBHF14-031-ST09-AS-HF	02/06/14	02/07/14	02/08/14	n/a	16831	1/20/2015	HE Detonation - Day 1	2378058.45	591334.37	South Fire Break Road
SBHF14-032-ST10-AS-HF	02/06/14	02/07/14	n/a	n/a	16826	1/20/2015	HE Detonation - Day 1	2378446.58	591419.05	South Fire Break Road
SBHF14-033-ST11-AS-HF	02/06/14	02/07/14	02/08/14	n/a	16827	6/28/2014	HE Detonation - Day 1	2378598.17	591424.97	South Fire Break Road

Air Samples - Schofield Army Barracks, Oahu, HI High Explosives Detonation_FEB 2014

SBHF14-###-ST##-DD-XX

.

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

XX = Sample Phase [BK (Background), HF (HE Fire)]

		Dates			Air San	npler info.			A/S Location - (Coordinates
Sample ID #	Sample Collection Date	Initial Count Date	1st Re-Count Date (if required)	2nd Re-Count Date (if required)	Hi-Q Sampler #	Cal Due Date	Reason/Purpose	Northing	Easting	Comments
SBHF14-034-ST01-AS-BK	02/07/14	02/08/14	n/a	n/a	20248	9/6/2014	Background - Day 3	2377759.20	592373.47	BAX Area 3
SBHF14-035-ST02-AS-BK	02/07/14	02/08/14	02/09/14	n/a	18205	1/20/2015	Background - Day 3	2377607.24	592411.51	BAX Area 3
SBHF14-036-ST03-AS-BK	02/07/14	02/08/14	n/a	n/a	20249	9/6/2014	Background - Day 3	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-037-ST04-AS-BK	02/07/14	02/08/14	02/09/14	n/a	18204	1/20/2015	Background - Day 3	2376360.02	592535.24	KR-5
SBHF14-038-ST05-AS-BK	02/07/14	02/08/14	02/09/14	n/a	16833	1/20/2015	Background - Day 3	2376185.14	592253.14	KR-3 Tower
SBHF14-039-ST06-AS-BK	02/07/14	02/08/14	02/09/14	n/a	16830	1/20/2015	Background - Day 3	2376498.49	591191.32	South Fire Break Road
SBHF14-040-ST07-AS-BK	02/07/14	02/08/14	n/a	n/a	16832	1/20/2015	Background - Day 3	2376826.34	591006.11	South Fire Break Road
SBHF14-041-ST08-AS-BK	02/07/14	02/08/14	n/a	n/a	16829	6/14/2014	Background - Day 3	2377247.49	590990.84	South Fire Break Road
SBHF14-042-ST09-AS-BK	02/07/14	02/08/14	n/a	n/a	16831	1/20/2015	Background - Day 3	2378058.45	591334.37	South Fire Break Road
SBHF14-043-ST10-AS-BK	02/07/14	02/08/14	n/a	n/a	16826	1/20/2015	Background - Day 3	2378446.58	591419.05	South Fire Break Road
SBHF14-044-ST11-AS-BK	02/07/14	02/08/14	n/a	n/a	16827	6/28/2014	Background - Day 3	2378598.17	591424.97	South Fire Break Road
SBHF14-045-ST01-AS-BK	02/08/14	02/09/14	02/10/14	n/a	20248	9/6/2014	Background - Day 4	2377759.20	592373.47	BAX Area 3
SBHF14-046-ST02-AS-BK	02/08/14	02/09/14	02/10/14	n/a	18205	1/20/2015	Background - Day 4	2377607.24	592411.51	BAX Area 3
SBHF14-047-ST03-AS-BK	02/08/14	02/09/14	n/a	n/a	20249	9/6/2014	Background - Day 4	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-048-ST04-AS-BK	02/08/14	02/09/14	n/a	n/a	18204	1/20/2015	Background - Day 4	2376360.02	592535.24	KR-5
SBHF14-049-ST05-AS-BK	02/08/14	02/09/14	02/10/14	n/a	16833	1/20/2015	Background - Day 4	2376185.14	592253.14	KR-3 Tower
SBHF14-050-ST06-AS-BK	02/08/14	02/09/14	n/a	n/a	16830	1/20/2015	Background - Day 4	2376498.49	591191.32	South Fire Break Road
SBHF14-051-ST07-AS-BK	02/08/14	02/09/14	02/10/14	n/a	16832	1/20/2015	Background - Day 4	2376826.34	591006.11	South Fire Break Road
SBHF14-052-ST08-AS-BK	02/08/14	02/09/14	n/a	n/a	16829	6/14/2014	Background - Day 4	2377247.49	590990.84	South Fire Break Road
SBHF14-053-ST09-AS-BK	02/08/14	02/09/14	02/10/14	n/a	16831	1/20/2015	Background - Day 4	2378058.45	591334.37	South Fire Break Road
SBHF14-054-ST10-AS-BK	02/08/14	02/09/14	n/a	n/a	16826	1/20/2015	Background - Day 4	2378446.58	591419.05	South Fire Break Road
SBHF14-055-ST11-AS-BK	02/08/14	02/09/14	n/a	n/a	16827	6/28/2014	Background - Day 4	2378598.17	591424.97	South Fire Break Road
SBHF14-056-ST01-AS-HF	02/09/14	02/10/14	02/11/14	n/a	20248	9/6/2014	HE Detonation - Day 2	2377759.20	592373.47	BAX Area 3
SBHF14-057-ST02-AS-HF	02/09/14	02/10/14	n/a	n/a	18205	1/20/2015	HE Detonation - Day 2	2377607.24	592411.51	BAX Area 3
SBHF14-058-ST03-AS-HF	02/09/14	02/10/14	n/a	n/a	20249	9/6/2014	HE Detonation - Day 2	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-059-ST04-AS-HF	02/09/14	02/10/14	n/a	n/a	18204	1/20/2015	HE Detonation - Day 2	2376360.02	592535.24	KR-5
SBHF14-060-ST05-AS-HF	02/09/14	02/10/14	02/11/14	n/a	16833	1/20/2015	HE Detonation - Day 2	2376185.14	592253.14	KR-3 Tower
SBHF14-061-ST06-AS-HF	02/09/14	02/10/14	n/a	n/a	16830	1/20/2015	HE Detonation - Day 2	2376498.49	591191.32	South Fire Break Road
SBHF14-062-ST07-AS-HF	02/09/14	02/10/14	n/a	n/a	16832	1/20/2015	HE Detonation - Day 2	2376826.34	591006.11	South Fire Break Road
SBHF14-063-ST08-AS-HF	02/09/14	02/10/14	n/a	n/a	16829	6/14/2014	HE Detonation - Day 2	2377247.49	590990.84	South Fire Break Road
SBHF14-064-ST09-AS-HF	02/09/14	02/10/14	02/11/14	n/a	16831	1/20/2015	HE Detonation - Day 2	2378058.45	591334.37	South Fire Break Road
SBHF14-065-ST10-AS-HF	02/09/14	02/10/14	02/11/14	n/a	16826	1/20/2015	HE Detonation - Day 2	2378446.58	591419.05	South Fire Break Road
SBHF14-066-ST11-AS-HF	02/09/14	02/10/14	n/a	n/a	16827	6/28/2014	HE Detonation - Day 2	2378598.17	591424.97	South Fire Break Road

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Air Samples - Schofield Army Barracks, Oahu, Hl High Explosives Detonation_FEB 2014

SBHF14-###-ST##-DD-XX

SBHF14 = Schofield Barracks HE Fire and year

= Sample number beginning at 001

ST# = Air Sample Station # number beginning at 01(see comments below)

DD - Sample Matrix [AS (Filter Paper)]

		Dates			Air Sam	npier Info.		19	A/S Location - C	Coordinates
Sample ID #	Sample Collection Date	Initial Count Date	1st Re-Count Date (if required)	2nd Re-Count Date (if required)	Hi-Q Sampler #	Cal Due Date	Reason/Purpose	Northing	Easting	Comments
SBHF14-067-ST01-AS-HF	02/10/14	02/11/14	n/a	n/a	20248	9/6/2014	HE Detonation - Day 3	2377759.20	592373.47	BAX Area 3
SBHF14-068-ST02-AS-HF	02/10/14	02/11/14	n/a	n/a	18205	1/20/2015	HE Detonation - Day 3	2377607.24	592411.51	BAX Area 3
SBHF14-069-ST03-AS-HF	02/10/14	02/11/14	n/a	n/a	20249	9/6/2014	HE Detonation - Day 3	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-070-ST04-AS-HF	02/10/14	02/11/14	n/a	n/a	18204	1/20/2015	HE Detonation - Day 3	2376360.02	592535.24	KR-5
SBHF14-071-ST05-AS-HF	02/10/14	02/11/14	n/a	n/a	16833	1/20/2015	HE Detonation - Day 3	2376185.14	592253.14	KR-3 Tower
SBHF14-072-ST06-AS-HF	02/10/14	02/11/14	n/a	n/a	16830	1/20/2015	HE Detonation - Day 3	2376498.49	591191.32	South Fire Break Road
SBHF14-073-ST07-AS-HF	02/10/14	02/11/14	n/a	n/a	16832	1/20/2015	HE Detonation - Day 3	2376826.34	591006.11	South Fire Break Road
SBHF14-074-ST08-AS-HF	02/10/14	02/11/14	n/a	n/a	16829	6/14/2014	HE Detonation - Day 3	2377247.49	590990.84	South Fire Break Road
SBHF14-075-ST09-AS-HF	02/10/14	02/11/14	n/a	n/a	16831	1/20/2015	HE Detonation - Day 3	2378058.45	591334.37	South Fire Break Road
SBHF14-076-ST10-AS-HF	02/10/14	02/11/14	n/a	n/a	16826	1/20/2015	HE Detonation - Day 3	2378446.58	591419.05	South Fire Break Road
SBHF14-077-ST11-AS-HF	02/10/14	02/11/14	n/a	n/a	16827	6/28/2014	HE Detonation - Day 3	2378598.17	591424.97	South Fire Break Road
SBHF14-078-ST01-AS-BK	02/11/14	n/a	n/a	n/a	20248	9/6/2014	Background - Day 5	2377759.20	592373.47	BAX Area 3
SBHF14-079-ST02-AS-BK	02/11/14	n/a	n/a	n/a	18205	1/20/2015	Background - Day 5	2377607.24	592411.51	BAX Area 3
SBHF14-080-ST03-AS-BK	02/11/14	n/a	n/a	n/a	20249	9/6/2014	Background - Day 5	2377573.87	595077.75	Range Control Tower (CR-2)
SBHF14-081-ST04-AS-BK	02/11/14	n/a	n/a	n/a	18204	1/20/2015	Background - Day 5	2376360.02	592535.24	KR-5
SBHF14-082-ST05-AS-BK	02/11/14	n/a	n/a	n/a	16833	1/20/2015	Background - Day 5	2376185.14	592253.14	KR-3 Tower
SBHF14-083-ST06-AS-BK	02/11/14	n/a	n/a	n/a	16830	1/20/2015	Background - Day 5	2376498.49	591191.32	South Fire Break Road
SBHF14-084-ST07-AS-BK	02/11/14	n/a	n/a	n/a	16832	1/20/2015	Background - Day 5	2376826.34	591006.11	South Fire Break Road
SBHF14-085-ST08-AS-BK	02/11/14	n/a	n/a	n/a	16829	6/14/2014	Background - Day 5	2377247.49	590990.84	South Fire Break Road
SBHF14-086-ST09-AS-BK	02/11/14	n/a	n/a	n/a	16831	1/20/2015	Background - Day 5	2378058.45	591334.37	South Fire Break Road
SBHF14-087-ST10-AS-BK	02/11/14	n/a	n/a	n/a	16826	1/20/2015	Background - Day 5	2378446.58	591419.05	South Fire Break Road
SBHF14-088-ST11-AS-BK	02/11/14	n/a	n/a	n/a	16827	6/28/2014	Background - Day 5	2378598.17	591424.97	South Fire Break Road

Counting Instrument:	Ludlum Model 2929	Detector:	Ludlum 43-10-1	Cal. Date:	5/4/2014
Serial #:	200051	Serial #:	PR215948	Cal. Due Date OK?	OK

Radiation Type	Counting Efficiency (fraction)	Source Nuclide	Source Number	Original Source Activity (DPM)	Source Creation Date	T _{1/2} (yr)	Source Decayed Activity	Sample Count time (min)	Backgroun d Count time (min)
Alpha	0.3806	Th-230	5648-06	16,800	9/24/2012	7.70E+04	16800	30	20
Beta	0.3460	Tc-99	5649-06	12,600	9/24/2012	2.13E+05	12600	30	20







Filter Area Factor (Adjusts for Portion of Filter that is Counted Only)



Caution ! Review notes associated with Filter Area Factor

Area Monitored and Air Mover Serial #/Bar Code	Sample Start Date/Tim	Sample End Date/Tim	Count Date	Run Time (min)	Flow Rate (CFM)	Sample Gross Alpha (Counts)	Sample Gross Beta (Counts)	Alpha Bkg (cpm)	Beta Bkg (cpm)	Filter Efficiency (fraction)	Sample Alpha Activity (dpm)	Sample Beta Activity (dpm)	Alpha Count Concen. (uCi/cc)	Beta Count Concen. (uCi/cc)	Alpha MDA (uCi/cc)	Beta MDA (uCi/cc)
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/05/14	207	10.0	19	939	0.20	27.70	0.94	2	10	6.25E-14	3.97E-13	1.11E-14	1.20E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/05/14	213	10.0	16	891	0.20	27.70	0.94	1	6	4.81E-14	2.14E-13	1.08E-14	1.17E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/05/14	225	10.0	19	816	0.20	27.70	0.94	2	-1	5.75E-14	-5.08E-14	1.02E-14	1.11E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/05/14	202	10.0	10	854	0.20	27.70	0.94	1	2	2.40E-14	8.67E-14	1.13E-14	1.23E-13
SBHF14-005-ST05-AS-BK	2/4/14 12:42	2/4/14 15:57	02/05/14	195	10.0	4	916	0.20	27.70	0.94	0	8	-2.84E-15	3.32E-13	1.17E-14	1.28E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/05/14	158	10.0	8	860	0.20	27.70	0.94	0	3	1.93E-14	1.40E-13	1.45E-14	1.58E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/05/14	156	10.0	8	888	0.20	27.70	0.94	0	5	1.95E-14	2.78E-13	1.47E-14	1.60E-13
SBHF14-008-ST08-AS-BK	2/4/14 13:00	2/4/14 15:34	02/05/14	154	10.0	6	963	0.20	27.70	0.94	0	13	8.09E-15	6.53E-13	1.49E-14	1.62E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:07	2/4/14 15:38	02/05/14	151	10.0	10	874	0.20	27.70	0.94	1	4	3.21E-14	2.17E-13	1.52E-14	1.65E-13
SBHF14-010-ST10-AS-BK	2/4/14 13:13	2/4/14 15:41	02/05/14	148	10.0	5	868	0.20	27.70	0.94	0	4	2.34E-15	1.90E-13	1.55E-14	1.68E-13
SBHF14-011-ST11-AS-BK	2/4/14 13:19	2/4/14 15:44	02/05/14	145	10.0	2	919	0.20	27.70	0.94	0	8	-1.62E-14	4.62E-13	1.58E-14	1.72E-13
SBHF14-012-ST01-AS-BK	2/5/14 7:36	2/5/14 15:38	02/06/14	482	10.0	4	892	0.10	29.40	0.94	0	1	3.16E-15	1.58E-14	3.60E-15	5.32E-14
SBHF14-013-ST02-AS-BK	2/5/14 7:40	2/5/14 15:40	02/06/14	480	10.0	7	895	0.10	29.40	0.94	1	1	8.80E-15	2.06E-14	3.62E-15	5.34E-14
SBHF14-014-ST03-AS-BK	2/5/14 9:00	2/5/14 16:36	02/06/14	456	10.0	7	904	0.10	29.40	0.94	1	2	9.26E-15	3.67E-14	3.81E-15	5.62E-14
SBHF14-015-ST04-AS-BK	2/5/14 8:42	2/5/14 16:24	02/06/14	462	10.0	13	945	0.10	29.40	0.94	1	6	2.08E-14	1.04E-13	3.76E-15	5.55E-14
SBHF14-016-ST05-AS-BK	2/5/14 8:36	2/5/14 16:21	02/06/14	465	10.0	4	941	0.10	29.40	0.94	0	6	3.27E-15	9.66E-14	3.74E-15	5.51E-14
SBHF14-017-ST06-AS-BK	2/5/14 8:29	2/5/14 16:17	02/06/14	468	10.0	13	898	0.10	29.40	0.94	1	2	2.06E-14	2.60E-14	3.71E-15	5.48E-14
SBHF14-018-ST07-AS-BK	2/5/14 8:24	2/5/14 16:14	02/06/14	470	10.0	12	891	0.10	29.40	0.94	1	1	1.86E-14	1.46E-14	3.70E-15	5.45E-14
SBHF14-019-ST08-AS-BK	2/5/14 8:18	2/5/14 16:12	02/06/14	474	10.0	5	898	0.10	29.40	0.94	0	2	5.11E-15	2.57E-14	3.66E-15	5.41E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11	2/5/14 16:08	02/06/14	477	10.0	23	923	0.10	29.40	0.94	2	4	3.90E-14	6.54E-14	3.64E-15	5.37E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05	2/5/14 16:03	02/06/14	478	10.0	11	903	0.10	29.40	0.94	1	2	1.64E-14	3.34E-14	3.63E-15	5.36E-14
SBHF14-022-ST11-AS-BK	2/5/14 7:58	2/5/14 16:01	02/06/14	483	10.0	13	919	0.10	29.40	0.94	1	4	1.99E-14	5.83E-14	3.60E-15	5.31E-14
SBHF14-001-ST01-AS-BK	2/4/14 12:00	2/4/14 15:27	02/06/14	207	10.0	4	856	0.10	29.40	0.94	0	-3	7.36E-15	-9.56E-14	8.39E-15	1.24E-13
SBHF14-002-ST02-AS-BK	2/4/14 11:50	2/4/14 15:23	02/06/14	213	10.0	3	843	0.10	29.40	0.94	0	-4	2.92E-15	-1.39E-13	8.15E-15	1.20E-13
SBHF14-003-ST03-AS-BK	2/4/14 12:25	2/4/14 16:10	02/06/14	225	10.0	3	875	0.10	29.40	0.94	0	-1	2.77E-15	-2.37E-14	7.72E-15	1.14E-13
SBHF14-004-ST04-AS-BK	2/4/14 12:37	2/4/14 15:59	02/06/14	202	10.0	3	863	0.10	29.40	0.94	0	-2	3.08E-15	-7.16E-14	8.60E-15	1.27E-13
SBHF14-006-ST06-AS-BK	2/4/14 12:52	2/4/14 15:30	02/06/14	158	10.0	2	863	0.10	29.40	0.94	0	-2	-1.75E-15	-9.15E-14	1.10E-14	1.62E-13
SBHF14-007-ST07-AS-BK	2/4/14 12:56	2/4/14 15:32	02/06/14	156	10.0	2	868	0.10	29.40	0.94	0	-1	-1.77E-15	-6.83E-14	1.11E-14	1.64E-13
SBHF14-009-ST09-AS-BK	2/4/14 13:00	2/4/14 15:38	02/06/14	151	10.0	2	853	0.10	29.40	0.94	0	-3	-1.83E-15	-1.46E-13	1.15E-14	1.70E-13
SBHF14-023-ST01-AS-HF	2/6/14 9:45	2/6/14 10:45	02/07/14	60	10.0	7	857	0.10	29.20	0.94	1	-2	7.04E-14	-2.41E-13	2.89E-14	4.26E-13
SBHF14-024-ST02-AS-HF	2/6/14 9:48	2/6/14 16:12	02/07/14	384	10.0	23	937	0.10	29.20	0.94	2	6	4.85E-14	1.21E-13	4.52E-15	6.65E-14
SBHF14-025-ST03-AS-HF	2/6/14 10:44	2/6/14 17:19	02/07/14	395	10.0	16	968	0.10	29.20	0.94	2	9	3.12E-14	1.77E-13	4.40E-15	6.47E-14
SBHF14-026-ST04-AS-HF	2/6/14 9:53	2/6/14 17:07	02/07/14	434	10.0	15	899	0.10	29.20	0.94	1	2	2.63E-14	4.03E-14	4.00E-15	5.88E-14
SBHF14-027-ST05-AS-HF	2/6/14 10:33	2/6/14 17:03	02/07/14	390	10.0	16	911	0.10	29.20	0.94	2	3	3.16E-14	6.83E-14	4.45E-15	6.55E-14
SBHF14-028-ST06-AS-HF	2/6/14 10:27	2/6/14 16:58	02/07/14	391	10.0	10	926	0.10	29.20	0.94	1	5	1.77E-14	9.74E-14	4.44E-15	6.53E-14
SBHF14-029-ST07-AS-HF	2/6/14 10:23	2/6/14 16:56	02/07/14	393	10.0	8	894	0.10	29.20	0.94	1	2	1.30E-14	3.49E-14	4.42E-15	6.50E-14

SBHF14-030-S108-AS-HF	2/6/14 10:19 2/6/14 16:51 0	2/07/14	392	10.0	6	891	0.10	29.20	0.94	0	1	8.47E-15	2.91E-14	4.43E-15 6.52E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44 0	2/07/14	389	10.0	29	950	0.10	29.20	0.94	3	7	6.17E-14	1.45E-13	4.46E-15 6.57E-14
SBHF14-032-ST10-AS-HF	2/6/14 10:10 2/6/14 16:38 0	2/07/14	388	10.0	15	881	0.10	29.20	0.94	1	0	2.94E-14	9.81E-15	4.48E-15 6.58E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33 0	2/07/14	387	10.0	19	903	0.10	29.20	0.94	2	3	3.88E-14	5.31E-14	4.49E-15 6.60E-14
SBHF14-007-ST07-AS-BK	2/5/14 8:24 2/5/14 16:14 0	2/07/14	470	10.0	3	899	0.10	29.20	0.94	0	2	1.33E-15	3.73E-14	3.70E-15 5.43E-14
SBHF14-020-ST09-AS-BK	2/5/14 8:11 2/5/14 16:08 0	2/07/14	477	10.0	8	875	0.10	29.20	0.94	1	0	1.07E-14	-1.60E-15	3.64E-15 5.35E-14
SBHF14-021-ST10-AS-BK	2/5/14 8:05 2/5/14 16:03 0	2/07/14	478	10.0	4	887	0.10	29.20	0.94	0	1	3 19E-15	1 75E-14	3 63E-15 5 34E-14
SBHE14-022-ST11-AS-BK	2/5/14 7:58 2/5/14 16:01 0	2/07/14	483	10.0	7	021	0.10	20.20	0.04	1		9 74E 15	7.005 14	2 60E 15 5 20E 14
SPHE14 024 ST01 AS PK	2/3/14 7:30 2/3/14 10:01 0	2/00/14	200	10.0	11	022	0.10	29.20	0.94	1	4	1.00E 14	7.09E-14	3.00E-13 5.29E-14
SBHF14-034-ST01-AS-BK	2/7/14 8:20 2/7/14 15:00 0	2/00/14	399	10.0	11	933	0.10	29.70	0.94		4	1.90E-14	0.01E-14	4.35E-15 0.45E-14
SBHF14-035-S102-AS-BK	2///14 8:28 2///14 15:08 0	2/08/14	400	10.0	17	883	0.10	29.70	0.94	2	-1	3.30E-14	-1.52E-14	4.34E-15 6.44E-14
SBHF14-036-S103-AS-BK	2/7/14 10:27 2/7/14 16:05 0	2/08/14	338	10.0	15	962	0.10	29.70	0.94	1	7	3.38E-14	1.60E-13	5.14E-15 7.62E-14
SBHF14-037-ST04-AS-BK	2/7/14 9:58 2/7/14 15:54 0	2/08/14	356	10.0	27	930	0.10	29.70	0.94	3	4	6.24E-14	8.34E-14	4.88E-15 7.23E-14
SBHF14-038-ST05-AS-BK	2/7/14 8:48 2/7/14 15:51 0	2/08/14	423	10.0	23	905	0.10	29.70	0.94	2	1	4.40E-14	2.52E-14	4.11E-15 6.09E-14
SBHF14-039-ST06-AS-BK	2/7/14 9:32 2/7/14 15:46 0	2/08/14	374	10.0	26	919	0.10	29.70	0.94	3	3	5.70E-14	5.70E-14	4.64E-15 6.89E-14
SBHF14-040-ST07-AS-BK	2/7/14 9:29 2/7/14 15:43 0	2/08/14	374	10.0	13	851	0.10	29.70	0.94	1	-4	2.57E-14	-8.14E-14	4.64E-15 6.89E-14
SBHF14-041-ST08-AS-BK	2/7/14 9:25 2/7/14 15:38 0	2/08/14	373	10.0	11	922	0.10	29.70	0.94	1	3	2.10E-14	6.33E-14	4.66E-15 6.90E-14
SBHF14-042-ST09-AS-BK	2/7/14 9:18 2/7/14 15:33 0	2/08/14	375	10.0	12	885	0.10	29.70	0.94	1	-1	2.33E-14	-1 22E-14	4 63E-15 6 87E-14
SBHF14-043-ST10-AS-BK	2/7/14 9:15 2/7/14 15:30 0	2/08/14	375	10.0	6	865	0.10	29.70	0.94	0	-3	8 86E-15	-5 28E-14	4.63E-15 6.87E-14
SBHE14-044-ST11-AS-BK	2/7/14 9:10 2/7/14 15:25 0	2/08/14	375	10.0	14	882	0.10	29.70	0.04	1	-1	2.815-14	-1.83E-14	4.63E-15 6.87E-14
SBHE14-024-ST02-AS-HE	2/6/14 0:48 2/6/14 16:12 0	2/08/14	384	10.0	7	890	0.10	20.70	0.04		-	1 105 14	-1.03E-14	4.032-13 0.072-14
SPHE14 025 ST02 AS HE	2/0/14 9.40 2/0/14 10.12 0	2/00/14	304	10.0	1	956	0.10	29.70	0.94		-1	1.102-14	-2.10E-14	4.52E-15 0.71E-14
SBHF 14-023-ST05-AS-HF	2/6/14 10.44 2/6/14 17.19 0	2/00/14	395	10.0	3	000	0.10	29.70	0.94	0	-3	1.58E-15	-0./SE-14	4.40E-15 6.52E-14
SBHF14-027-S105-AS-HF	2/6/14 10:33 2/6/14 17:03 0	2/08/14	390	10.0	6	870	0.10	29.70	0.94	0	-2	8.52E-15	-4.10E-14	4.45E-15 6.60E-14
SBHF14-031-ST09-AS-HF	2/6/14 10:15 2/6/14 16:44 0	2/08/14	389	10.0	2	896	0.10	29.70	0.94	0	0	-7.12E-16	9.79E-15	4.46E-15 6.62E-14
SBHF14-033-ST11-AS-HF	2/6/14 10:06 2/6/14 16:33 0	2/08/14	387	10.0	4	930	0.10	29.70	0.94	0	4	3.93E-15	7.67E-14	4.49E-15 6.65E-14
SBHF14-045-ST01-AS-BK	2/8/14 10:25 2/8/14 20:25 0	2/09/14	600	10.0	22	908	0.10	29.40	0.94	2	3	2.95E-14	3.30E-14	2.89E-15 4.27E-14
SBHF14-046-ST02-AS-BK	2/8/14 10:28 2/8/14 20:28 0	2/09/14	600	10.0	26	994	0.10	29.40	0.94	3	11	3.55E-14	1.42E-13	2.89E-15 4.27E-14
SBHF14-047-ST03-AS-BK	2/8/14 11:25 2/8/14 16:28 0	2/09/14	303	10.0	17	844	0.10	29.40	0.94	2	-4	4.36E-14	-9.55E-14	5.73E-15 8.46E-14
SBHF14-048-ST04-AS-BK	2/8/14 11:11 2/8/14 16:21 0	2/09/14	310	10.0	16	915	0.10	29.40	0.94	2	3	3.97E-14	8.10E-14	5.60E-15 8.27E-14
SBHF14-049-ST05-AS-BK	2/8/14 10:35 2/8/14 16:14 0	2/09/14	339	10.0	20	995	0.10	29.40	0.94	2	11	4.70E-14	2.54E-13	5.12E-15 7.56E-14
SBHF14-050-ST06-AS-BK	2/8/14 11:03 2/8/14 16:07 0	2/09/14	304	10.0	11	939	0.10	29.40	0.94	1	5	2 57E-14	1 43E-13	571E-15 843E-14
SBHF14-051-ST07-AS-BK	2/8/14 11:01 2/8/14 16:04 0	2/09/14	303	10.0	27	959	0.10	29.40	0.94	3	7	7 33E-14	1 93E-13	5.73E-15 8.46E-14
SBHE14-052-ST08-AS-BK	2/8/14 10:59 2/8/14 16:01 0	2/09/14	302	10.0	16	803	0.10	20.40	0.04	2	1	4.08E-14	2 775-14	5 75E-15 8 40E-14
SBHE14-053-ST09-AS-BK	2/8/14 10:54 2/8/14 15:56 0	2/00/14	302	10.0	10	000	0.10	20.40	0.94	1	2	2.00E-14	5.04E 14	5.75E-15 0.49E-14
SPHE14 054 ST10 AS PK	2/0/14 10:54 2/0/14 15:50 0	2/00/14	302	10.0	10	902	0.10	29.40	0.94		2	2.29E-14	3.04E-14	5.75E-15 6.49E-14
SBHF14-054-ST10-AS-BK	2/8/14 10.51 2/8/14 15.53 0	2/09/14	302	10.0	12	000	0.10	29.40	0.94		0	2.89E-14	1.01E-14	5.75E-15 8.49E-14
SBHF 14-035-ST 11-AS-BK		2/09/14	302	10.0	4	876	0.10	29.40	0.94	0	-1	5.04E-15	-1.51E-14	5.75E-15 8.49E-14
SBHF14-035-S102-AS-BK	2/7/14 8:28 2/7/14 15:08 0	2/09/14	400	10.0	5	925	0.10	29.40	0.94	0	4	6.06E-15	8.18E-14	4.34E-15 6.41E-14
SBHF14-037-S104-AS-BK	2/7/14 9:58 2/7/14 15:54 0	2/09/14	356	10.0	6	898	0.10	29.40	0.94	0	2	9.33E-15	3.42E-14	4.88E-15 7.20E-14
SBHF14-038-S105-AS-BK	2/7/14 8:48 2/7/14 15:51 0	2/09/14	423	10.0	7	855	0.10	29.40	0.94	1	-3	9.98E-15	-4.86E-14	4.11E-15 6.06E-14
SBHF14-039-ST06-AS-BK	2/7/14 9:32 2/7/14 15:46 0	2/09/14	374	10.0	6	900	0.10	29.40	0.94	0	2	8.88E-15	3.66E-14	4.64E-15 6.85E-14
SBHF14-056-ST01-AS-HF	2/9/14 7:14 2/9/14 14:53 0	2/10/14	459	10.0	23	926	0.10	28.90	0.94	2	6	4.06E-14	9.79E-14	3.78E-15 5.54E-14
SBHF14-057-ST02-AS-HF	2/9/14 7:17 2/9/14 14:55 0	2/10/14	458	10.0	21	866	0.10	28.90	0.94	2	0	3.67E-14	-1.66E-15	3.79E-15 5.55E-14
SBHF14-058-ST03-AS-HF	2/9/14 8:21 2/9/14 15:49 0	2/10/14	448	10.0	18	898	0.10	28.90	0.94	2	3	3.15E-14	5.27E-14	3.88E-15 5.67E-14
SBHF14-059-ST04-AS-HF	2/9/14 7:13 2/9/14 14:56 0	2/10/14	463	10.0	14	949	0.10	28.90	0.94	1	8	2.27E-14	1.35E-13	3.75E-15 5.49E-14
SBHF14-060-ST05-AS-HF	2/9/14 8:09 2/9/14 14:59 0	2/10/14	410	10.0	36	932	0.10	28.90	0.94	4	6	7.39E-14	1.21E-13	4.24E-15 6.20E-14
SBHF14-061-ST06-AS-HF	2/9/14 7:54 2/9/14 15:42 0	2/10/14	468	10.0	25	980	0.10	28.90	0.94	3	11	4.36E-14	1.84E-13	3.71E-15 5.43E-14
SBHF14-062-ST07-AS-HF	2/9/14 7:50 2/9/14 15:36 0	2/10/14	466	10.0	18	980	0.10	28.90	0.94	2	11	3.03E-14	1.85E-13	3 73E-15 5 45E-14
SBHF14-063-ST08-AS-HF	2/9/14 7:46 2/9/14 15:34 0	2/10/14	468	10.0	15	900	0.10	28.90	0.94	1	3	2 44F-14	5 37E-14	371E-15 543E-14
SBHE14-064-ST09-AS-HE	2/9/14 7:40 2/9/14 15:31 0	2/10/14	471	10.0	40	907	0.10	28.00	0.04	1	4	7 20E 14	6 47E 14	2 60E 15 5 40E 14
SBHE14-065-ST10-AS-HE	2/0/14 7:35 2/0/14 15:31 0	2/10/14	471	10.0	40	960	0.10	20.90	0.94	4	4	1.202-14	0.4/E-14	0.05E-10 0.40E-14
	2/0/14 7:21 2/0/14 15:28 0	2/10/14	4/3	10.0	24	009	0.10	20.90	0.94	2	0	4.13E-14	3.22E-15	3.0/E-15 5.3/E-14
SDHF 14-000-5111-AS-HF	2/9/14 / .31 2/9/14 15:24 0	2/10/14	4/3	10.0	10	935	0.10	28.90	0.94	2	/	2.00E-14	1.09E-13	3.0/E-15 5.3/E-14
3000 14-043-5101-A5-BK	2/8/14 10:25 2/8/14 20:25 0	2/10/14	600	10.0	4	863	0.10	28.90	0.94	0	0	2.54E-15	-5.08E-15	2.89E-15 4.24E-14
SBHF14-046-S102-AS-BK	2/8/14 10:28 2/8/14 20:28 0	2/10/14	600	10.0	3	883	0.10	28.90	0.94	0	2	1.04E-15	2.03E-14	2.89E-15 4.24E-14
SBHF14-049-ST05-AS-BK	2/8/14 10:35 2/8/14 16:14 0	2/10/14	339	10.0	4	841	0.10	28.90	0.94	0	-3	4.49E-15	-5.84E-14	5.12E-15 7.50E-14
SBHF14-051-ST07-AS-BK	2/8/14 11:01 2/8/14 16:04 0	2/10/14	303	10.0	4	877	0.10	28.90	0.94	0	1	5.02E-15	2.51E-14	5.73E-15 8.39E-14
SBHF14-067-ST01-AS-HF	2/10/14 7:34 2/10/14 12:40 0	2/11/14	306	10.0	9	885	0.20	28.60	0.94	0	3	1.29E-14	6.72E-14	7.48E-15 8.26E-14
SBHF14-068-ST02-AS-HF	2/10/14 7:37 2/10/14 12:43 0	2/11/14	306	10.0	6	909	0.20	28.60	0.94	0	5	4.07E-15	1.27E-13	7.48E-15 8.26E-14
SBHF14-069-ST03-AS-HF	2/10/14 8:24 2/10/14 13:36 0	2/11/14	312	10.0	12	945	0.20	28.60	0.94	1	8	2.13E-14	2.12E-13	7.34E-15 8.10E-14
SBHF14-070-ST04-AS-HF	2/10/14 8:15 2/10/14 13:26 0	2/11/14	311	10.0	18	942	0.20	28.60	0.94	2	8	3.87E-14	2.06E-13	7.36E-15 8.13E-14
SBHF14-071-ST05-AS-HF	2/10/14 8:11 2/10/14 13:18 0	2/11/14	307	10.0	12	891	0.20	28.60	0.94	1	3	2 16E-14	8 18E-14	7 46E-15 8 23E-14
									0.01					



SBHF14-088-ST11-AS-BK

2/11/14 9:08 2/11/14 15:39

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Day/Date:	2/12/2014
Start/Stop:	0630 to 1630
Log No.:	010

DAILY QUALITY CONTROL REPORT (DQCR) AIR MONITORING OF DU DURING HIGH EXPLOSIVE FIRE

Project No. 08-3123.00

Cabrera PM:	Rob Flowers	Area:	Schofield Barracks, Oahu, HI
FSM:	Jon Cote	Safety Incidents:	None

Weather: Partly Cloudy, Temperature ~60s-70s ° F (Max 78)

1.0 Personnel On-site (including subcontractors):

Name	Company	Tasks Performed/Reason for Visit
Jon Cote	Cabrera Services	Site Manager
Pat Horkman	Cabrera Services	Senior Radiological Technician
Stephan Owe	Cabrera Services	Quality Control/SSHO/Radiological Technician
Steve Burton	Cabrera Services	Radiological Technician

2.0 Work Performed (Briefly describe project tasks that were performed. Reference appropriate attachments as necessary

- All Cabrera personnel onsite at Schofield Barracks at 0630 and proceeded to field office Bldg 205 at MF-1 Cabrera held daily safety brief prior to conducting field activities
- Cabrera completed Chain of Custody and packaging of all Air filter samples for shipment to laboratory ALS Fort Collins, CO (Total of 88 samples 4" Diameter filter). Sample filter will be sent to laboratory for radiological analysis (Isotopic Uranium/ Alpha spec).
- Several blank (non-used) filters were sent to laboratory for use in laboratory control samples.
- Completed packaging all field equipment for Fedex shipment
- Returned (9) Honda Generators to vendor
- Dropped off packages to Fedex location
- Offsite at 1630

3.0 Project Schedule (Describe impact of day's work, if any, on overall project schedule):

• None

4.0 Problems, Non-Conformances, Corrective Actions, Notifications (Describe any hazards, injuries, regulatory or procedural issues, items of noncompliance, etc.)

None

5.0 Equipment onsite

- 2929/43-10-1 (Qnty 1)
- Hi-Q High Volume Air Sampler (Qnty 12)
- Vehicles (Qnty 2) (Ford F-150/ Jeep Wrangler)
- Honda Generator 2500w (Qnty 9)
- Trimble GPS Unit ProXRT/Nomad (Qnty 1)
- Verizon Internet MiFi (Qnty 2)



QCR prepared by:

Print Name	Signature	Title
Stephan Owe	Stephan Owe - 2/12/2014	Quality Control Manager

Daily Tailgate Safety Meetings



SIX QUESTIONS FOR SUCCESS - Take two minutes to think through and answer these questions:

- What are we about to do?
 - What equipment are we going to use?
 - Have I/we been trained to use this equipment?
 - Have I/we been trained to do this job?
 - How can I/we be hurt?
 - How can I/we prevent this incident?

If you and your team aren't prepared to do the assigned work, STOP WORK, and take time to properly prepare.

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6.

This sign-in log documents the topics of the safety meeting and individual attendance. Personnel who perform work operations onsite are required to attend and acknowledge their ability to ask questions and receipt of such briefings daily. Please provide a brief narrative of the selected topics as applicable to the Project in the comment box (ex. Name of AHA reviewed).

PROJECT NAME & LOCATION

Rad	Surveys	& Construction	Support	Schofield Barracks	Oahu, Hawaii
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PROJECT NO.	DATE/TIME		WEATHER CONDITIONS			
08-3123.00		2-4-14		70-80 light rain		
		Toj Discussion -	D ic - <u>check one</u>			
Today's Scope of Work (All tasks)	Vyes	🗌 n/a	Access / Egress / Sli	ps, Trips, & Falls	[]_yes	🗋 n/a
Schedule / New Work / Scope Changes	(LY yes	🔲 n/a	Smoking, Eating, & D	Drinking	V yes	🗍 n/a
Reviewed Procedures, AHA, etc.	(Y yes	🔲 n/a	Washroom / Facilities	s Location	⊡ yes	🔲 n/a
Emergency Action Plan & Procedures	🛛 yes	🗋 n/a	Heat/Cold Stress		🗌 yes	Ū n∕a
Communications Protocol	🗗 yes	🔲 n/a	Exclusion Areas Barr	icades / Cones	P yes	🗋 n/a
Required PPE	🗌 yes	[G- n/a	Required Permits, Pa	asses, Keys, etc.	Vyes	🗌 n/a
Required Monitoring / Instruments	🖸-yes	🗋 n/a	Decon Procedures / I	IDW Mgmt.	🗋 yes	1 n/a
Site Control / Work Zones / Security	Dyes	🗋 n/a	Eqpmt. Inspections/S	afety Checklists	🗹 yes	🗍 n/a

OTHER/COMMENTS:

Safety M	leeting Attendees
PAT NORKMAN Sture Buntan Stephan Owe	Signature Ste Ste
Jon A Cote	Meeting Leader
Name of Meeting Leader	Signature





SIX QUESTIONS FOR SUCCESS - Take two minutes to think through and answer these questions:

What are we about to do?

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- What equipment are we going to use?
- Have I/we been trained to use this equipment?
- Have I/we been trained to do this job?
- How can I/we be hurt? 5.
 - How can I/we prevent this incident?

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PROJECT NAME & LOCATION

Rad Surveys & Construction Support Schofield Barracks Oahu, Hawaii

		naono o ana, manan			
PROJECT NO.	DATE/TIME	Wi	WEATHER CONDITIONS		
08-3123.00	2-5-14	6	2-72 intermitte	intermittent Rain	
	To Discussion	pic - check one			
Today's Scope of Work (All tasks)	Vyes 🗌 n/a	Access / Egress / Slips, T	rips, & Falls	Vyes	🔲 n/a
Schedule / New Work / Scope Changes	Dryes 🗌 n/a	Smoking, Eating, & Drinki	ng	🗌 yes	11Ta
Reviewed Procedures, AHA, etc.	🗌 yes 🗗 🕼	Washroom / Facilities Location		🗋 yes	🚺 n/a
Emergency Action Plan & Procedures	🗌 yes 😡 n/a	Heat/Cold Stress	!	🗌 yes	10m/a
Communications Protocol	🗹 yes 📋 n/a	Exclusion Areas Barricad	es / Cones	1 yes	🔲 n/a
Required PPE	🗌 yes 🚺 n/a	Required Permits, Passes	s, Keys, etc.	yes	🗌 ก/a
Required Monitoring / Instruments	yes Jan/a	Decon Procedures / IDW	Mgmt.	🗌 yes	🖸 n/a
Site Control / Work Zones / Security	D∕yes □ n/a	Eqpmt. Inspections/Safety Checklists			11-m/a
OTHER/COMMENTS					

Safety Meeting Attendees Print Name Signature WE

Safety Meeting Leader sit. ÷. à Jon A Cote Name of Meeting Leader

Signature

OP 555 - Saf	ety Meeting	js			
SIX QUESTIONS FOR SUCCESS – Ta 1. What are we about to do? 2. What equipment are we going 3. Have I/we been trained to use 4. Have I/we been trained to do to 5. How can I/we be hurt? 6. How can I/we prevent this	ake two minutes to th to use? this equipment? this job?	ink through and answ	er these questions		
If you and your team aren't prepared	to do the assigned	i work, STOP WORK	, and take time to	property	prepare.
required to attend and acknowledge their ab selected topics as applicable to the Project i PROJECT NAME & LOCATION Rad Surveys & Construction Su	sately meeting and indi ility to ask questions ar n the comment box (ex pport Schofield B	Would attendance. Pers Id receipt of such briefin Name of AHA reviewed Barracks Oahu, Ha	ys daily: Please prov): Waii	ork operation	arrative of th
09 2122 00	DATE/TIME	1.4			
00-3123.00	 Ti Discussion	opic n – check one	<u> </u>		<u>y</u>
Today's Scope of Work (All tasks)	🛛 yes 🔲 n/a	Access / Egress / Si	ips, Trips, & Falls	🗹 yes	📋 n/a
Schedule / New Work / Scope Changes	Vyes 🗌 n/a	Smoking, Eating, &	Drinking	Pryes	🔲 n/a
Reviewed Procedures, AHA, etc.	🗹 yes 🗌 n/a	Washroom / Facilitie	s Location	1 yes	🗌 n/a
Emergency Action Plan & Procedures	🛛 Yyes 📋 n/a	Heat/Cold Stress		🗌 yes	G h/a
Communications Protocol	🗹 yes 🗌 n/a	Exclusion Areas Ba	ricades / Cones	yes	🗌 n/a
Required PPE	🗌 yes 💽 fi/a	Required Permits, P	asses, Keys, etc.	Le yes	🗋 n/a
Required Monitoring / Instruments	🗹 yes 🗌 n/a	Decon Procedures /	IDW Mgmt.	🗌 yes	🕒 n/a
Site Control / Work Zones / Security	🖸 yes 📋 n/a	Eqpmt. Inspections/	Safety Checklists	🗌 yes	lyn/a
Print Name PAR HORKI Steve Burto Stephan Owe	Safety Meet	ting Attendees	Signature	2	
Jon A Cote	Safety Me	eting Leader	a lot		

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OP 555 - Saf	ety Meeting		ERA SERVICES
SIX QUESTIONS FOR SUCCESS – Tr 1. What are we about to do? 2. What equipment are we going 3. Have I/we been trained to use 4. Have I/we been trained to do 5. How can I/we be hurt? 6. How can I/we prevent this	ake two minutes to thi to use? this equipment? this job? s incident?	hk through and answer these question	15:
If you and your team aren't prepared	I to do the assigned	work, STOP WORK, and take time t	o properly prepare.
This sign-in log documents the topics of the required to attend and acknowledge their ab selected topics as applicable to the Project I	safety meeting and indiv illity to ask questions and in the comment box (ex. I	idual attendance. Personnel who perform receipt of such briefings daily. Please pro Name of AHA reviewed).	work operations onsite are vide a brief narrative of the
PROJECT NAME & LOCATION Rad Surveys & Construction Sur	poort Schofield Ba	arracks Oahu, Hawaii	
PROJECT NO.	DATE/TIME	WEATHER CO	NDITIONS
08-3123.00	2-7-14	4 70-80 Sc	attered Showers
	To	pic chack and	
Today's Scope of Work (All tasks)	Discussion	Access / Egress / Slips, Trips, & Falls	El Yes 🗋 n/a
Schedule / New Work / Scope Changes	Ø∕yes □ n/a	Smoking, Eating, & Drinking	ves [2] m/a
Reviewed Procedures, AHA, etc.	lil ves □ n/a	Washroom / Facilities Location	
Emergency Action Plan & Procedures	lyes □ n/a	Heat/Cold Stress	
Communications Protocol	Darves □ n/a	Exclusion Areas Barricades / Cones	⊡rves □n/a
Required PPE		Required Permits, Passes, Keys, etc.	Zerves ∏n/a
Required Monitoring / Instruments	In/a	Decon Procedures / IDW Mamt.	Tives Prin/a
Site Control / Work Zones / Security		Fanmt Inspections/Safety Checklists	ves [[]/n/a
OTHER/COMMENTS:			
	Safety Meetin	ng Attendees	
Print Name <u>PAT</u> HORKM <u>Steven</u> Bur Stephan Owe	pr tor	P Signature	
lon A Cote	Safety Mee	ting Leader	
		tonalit	
Name of Meeting Leade	er	Signature	· · ·

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OP 555 - Safe	ety Meeting	S			
SIX QUESTIONS FOR SUCCESS – Ta1.What are we about to do?2.What equipment are we going3.Have I/we been trained to use4.Have I/we been trained to do the5.How can I/we be hurt?6.How can I/we prevent this	ke two minutes to thi to use? this equipment? his job? incident?	nk through and answe	r these questions		
If you and your team aren't prepared	to do the assigned	work, STOP WORK,	and take time to	properly	prepare.
This sign-in log documents the topics of the s required to attend and acknowledge their abi selected topics as applicable to the Project in PROJECT NAME & LOCATION Rad Surveys & Construction Sur	safety meeting and individuality to ask questions and the comment box (ex.	vidual attendance. Perso I receipt of such briefing Name of AHA reviewed) Arrracks Oahu, Hav	nnel who perform w s daily. Please provi Wail	ork operatio de a brief n	ns onsite are arrative of the
PROJECT NO.	DATE/TIME	,	WEATHER CON	DITIONS	<u></u>
08-3123.00	2-8-1	4	70-80	Partly Su	nny
	Discussion	pic check one			
Today's Scope of Work (All tasks)	🕑 yes 🔲 n/a	Access / Egress / Slip	os, Trips, & Falls	U yes	🗌 n/a
Schedule / New Work / Scope Changes	🕒 yes 🔲 n/a	Smoking, Eating, & D	rinking	□ -yes	🗌 n/a
Reviewed Procedures, AHA, etc.	🕞 yes 🔲 n/a	Washroom / Facilities	Location	🗌 yes	l⊋m/a
Emergency Action Plan & Procedures	🛛 yes 🔲 n/a	Heat/Cold Stress		🗌 yes	⊡ îi/a
Communications Protocol	🛃 yes 🔲 n/a	Exclusion Areas Barr	icades / Cones	⊡ ryes	🗌 n/a
Required PPE	🗌 yes 📮 n/a	Required Permits, Pa	sses, Keys, etc.	U yes	🗍 n/a
Required Monitoring / Instruments	💭-yes 📋 n/a	Decon Procedures / I	DW Mgmt.	🗌 yes	12 h/a
Site Control / Work Zones / Security	🔂 yes 📋 n/a	Eqpmt. Inspections/S	afety Checklists	🗌 yes	₽n/a
Print Name	Safety Meeti	ing Attendees	Signature		
Steve Bur Stephan Ow	e				
Jon A Cote	Safety Mee	Signature	. W		



SAFETY MEETING FORM

SIX QUESTIONS FOR SUCCESS - Take two minutes to think through and answer these questions:

- 1. What are we about to do?
- 2. What equipment are we going to use?
- 3. Have I/we been trained to use this equipment?
- 4. Have I/we been trained to do this job?
- How can I/we be hurt?
 How can I/we prev
 - How can I/we prevent this incident?

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PROJECT NAME & LOCATION

Rad Surveys & Construction Support Schofield Barracks Oahu, Hawaii

PROJECT NO.	DATE/TIME		WEATHER CONDITIONS		_
08-3123.00	2-9-14	4	70-80) light ra	in
	To Discussion	pic – check one			
Today's Scope of Work (All tasks)	🖞 yes 🗌 n/a	Access / Egress / Sli	ps, Trips, & Falls	yes	🗌 n/a
Schedule / New Work / Scope Changes	🛛 yes 🗌 n/a	Smoking, Eating, & D	Drinking	⊟ -yes	🗌 n/a
Reviewed Procedures, AHA, etc.	🛾 yes 🔲 n/a	Washroom / Facilities	s Location	(1) yes	🗌 n/a
Emergency Action Plan & Procedures	🖞 yes 🛛 n/a	Heat/Cold Stress		🗌 yes	[]_n/a
Communications Protocol	🛛 yes 🗌 n/a	Exclusion Areas Ban	ricades / Cones	Lyes	🗌 n/a
Required PPE	🗋 yes 📴 fî/a	Required Permits, Pa	asses, Keys, etc.	-yes	🗋 n/a
Required Monitoring / Instruments	🗍 yes 🗌 n/a	Decon Procedures /	IDW Mgmt.	🗌 yes	🕒 n/a
Site Control / Work Zones / Security	🛄 yes 🗌 n/a	Eqpmt. Inspections/S	afety Checklists	🗌 yes	[□ -n/a
OTUED/COMMENTS.					

0	IH	ER/	CO	MM	EN	S:

Safety I	Meeting Attendees
Print Name PAR HORKMAN Steven Binton Stephen Owe	Sidnature
Safety	/ Meeting Leader
Jon A Cote	L. G.A.



SAFETY MEETING FORM

SIX QUESTIONS FOR SUCCESS - Take two minutes to think through and answer these questions:

- 1. What are we about to do?
- 2. What equipment are we going to use?
- 3. Have I/we been trained to use this equipment?
- 4. Have I/we been trained to do this job?
- 5. How can l/we be hurt?
- 6. How can I/we prevent this incident?

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PROJECT NAME & LOCATION

PROJECT NO.	DATE/TIME		WEATHER CONDITIONS		
08-3123.00	2-10)-14	70-80 Cloud		у
	Discussi	Fopic on – check one			
Today's Scope of Work (All tasks)	🖸 yes 🗌 n/a	Access / Egress / Slips	, Trips, & Falls	Q-yes	🗌 n/:
Schedule / New Work / Scope Changes	🕒 yes 🗌 n/a	Smoking, Eating, & Dri	nking	(1) yes	🗆 n/
Reviewed Procedures, AHA, etc.	🖞 yes 🗌 n/a	Washroom / Facilities I	Location	₽ yes	🗆 n/
Emergency Action Plan & Procedures	Ófyes □n/a	Heat/Cold Stress		🗌 yes	111
Communications Protocol	🚺 yes 🗌 n/a	Exclusion Areas Barric	ades / Cones	☐_yes	🗆 n/
Required PPE	🗌 yes 🛃 fi/a	Required Permits, Pass	ses, Keys, etc.	E ryes	🗆 n/
Required Monitoring / Instruments	🕒 yes 🗌 n/a	Decon Procedures / ID	W Mgmt.	🗆 yes	011
Site Control / Work Zones / Security	🕒 yes 🗌 n/a	Eqpmt. Inspections/Safety Checklists		🗌 yes	[]n/

Safety Meeting Attendees

Print Name Par Horkman Steven Burton	- Signature
Stephan Owe	
Safety	Meeting Leader
Jon A Cote	for a het
Name of Meeting Leader	Signature



SAFETY MEETING FORM

SIX QUESTIONS FOR SUCCESS - Take two minutes to think through and answer these questions:

- 1. What are we about to do?
- What equipment are we going to use?
- 3. Have I/we been trained to use this equipment?
- 4. Have I/we been trained to do this job?
- 5. How can I/we be hurt?
 - How can I/we prevent this incident?

If you and your team aren't prepared to do the assigned work, STOP WORK, and take time to properly prepare.

Project Information

This sign-in log documents the topics of the safety meeting and individual attendance. Personnel who perform work operations onsite are required to attend and acknowledge their ability to ask questions and receipt of such briefings daily. Please provide a brief narrative of the selected topics as applicable to the Project in the comment box (ex. Name of AHA reviewed).

PROJECT NAME & LOCATION

I AU OUIVEVAS & CONSCIONT OUDDON OCHONEN DANACKS CANA. HAVAN	Rad	Surveys	& Construction	Support Schofield	Barracks Oahu,	Hawaii
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PROJECT NO.	DATE/TIME		WEATHER COM	DITIONS	
08-3123.00	2-11-	14	70-8	30 Cloud	у
	Тс	pic			
	Discussion	- check one			
Today's Scope of Work (All tasks)	🖸 ýes 🗌 n/a	Access / Egress / Sli	ips, Trips, & Falls	[] yes	🗌 n/a
Schedule / New Work / Scope Changes	🛛 yes 🗌 n/a	Smoking, Eating, & D	Drinking	[] yes	🗌 n/a
Reviewed Procedures, AHA, etc.	i⊉nyes □n/a	Washroom / Facilities	s Location	yes	🗌 n/a
Emergency Action Plan & Procedures	🖸 yes 🗌 n/a	Heat/Cold Stress		🗌 yes	⊡_n ∕a
Communications Protocol	🛛 yes 🗌 n/a	Exclusion Areas Bar	ricades / Cones	[]_yes	🗌 n/a
Required PPE	🛛 yes 🛄 n/a	Required Permits, Pa	asses, Keys, etc.	Tyes	🗋 n/a
Required Monitoring / Instruments	lyes □ n/a	Decon Procedures /	IDW Mgmt.	🗌 yes	[l]−n/a
Site Control / Work Zones / Security	🛾 yes 🗌 n/a	Eqpmt. Inspections/S	Safety Checklists	🗌 yes	🖵-n/a
OTHER/COMMENTS:					

Safety	Meeting Attendees
Print Name PAT HORKMAN StevEN Burton Stephan Owe	
Safet	y Meeting Leader
Jon A Cote	1- a lit
	- Cinadana



6.



SAFETY MEETING FORM

SIX QUESTIONS FOR SUCCESS - Take two minutes to think through and answer these questions:

- 1. What are we about to do?
- 2. What equipment are we going to use?
- 3. Have I/we been trained to use this equipment?
- 4. Have I/we been trained to do this job?
- 5. How can I/we be hurt?
- 6. How can I/we prevent this incident?

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Project Information

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PROJECT NAME & LOCATION

Rad Surveys & Construction Support Schofield Barracks Oahu, Hawaii

PROJECT NO.	DATE/TIME		WEATHER CON	DITIONS	
08-3123.00	2-12-	14	70-8	30 Cloud	у
	T	opic			
	Discussion	n – check one			
Today's Scope of Work (All tasks)	🔁 yes 🔲 n/a	Access / Egress / Sli	ips, Trips, & Falls	🛛 yes	🗌 n/a
Schedule / New Work / Scope Changes	🛛 yes 🔲 n/a	Smoking, Eating, & [Drinking	Pyes	🗌 n/a
Reviewed Procedures, AHA, etc.	🛛 yes 🗌 n/a	Washroom / Facilitie	s Location	□ yes	🗌 n/a
Emergency Action Plan & Procedures	🕑 yes 🔲 n/a	Heat/Cold Stress		🗌 yes	l⊒n/a
Communications Protocol	₽⁄yes 🛛 n/a	Exclusion Areas Bar	ricades / Cones	19 yes	🗌 n/a
Required PPE	🛛 yes 🗗 🖓 yes	Required Permits, Pa	asses, Keys, etc.	Dyes	🗌 n/a
Required Monitoring / Instruments	🕑 yes 🗌 n/a	Decon Procedures /	IDW Mgmt.	🗌 yes	[]_n/a
Site Control / Work Zones / Security	🛛 Yes 🗌 n/a	Eqpmt. Inspections/S	Safety Checklists	🗆 yes	⊡_n/a
OTUED/COMMENTS.					

OTHER/COMMENTS:

Safety I	Meeting Attendees
PAT HORKMAN Steven Burton Stephen Owe	Signature
Safety	Meeting Leader
Jon A Cote	1 a Git
Name of Meeting Leader	Signature

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