



Sullivan-Arrowhead Federal Services

*A Sullivan International Group, Inc. • Arrowhead Contracting, Inc.
SDVOSB Joint Venture*

Non-Time Critical Removal Actions Uranium and Lead Contaminated Soil Report, B-47 Crash Site, Abilene, TX

DECEMBER 2011

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Prepared by

Sullivan – Arrowhead Federal Services JV

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ACRONYMS AND ABBREVIATIONS

AEC	Atomic Energy Commission
AFB	Air Force Base
AFSC	Air Force Safety Center
Air Force	U.S. Air Force
AOI	Area of Interest
cm	Centimeters
CPM	Counts Per Minute
DOT	Department of Transportation
DU	Depleted Uranium
EDi	Environmental Dimensions, Inc.
FIDLER	Field Instrument for the Detection of Low-Energy Radiation
HE	High Explosives
HEU	Highly Enriched Uranium
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
mR/hour	Millirem Per Hour
P Ci/g	Average Picocuries Per Gram
PCL	Protection Concentration Limit
SPLP	Synthetic Precipitation Leaching Procedure
SSLs	Soil Screening Levels
SU	Survey Unit
SULLIVAN/AFS	Sullivan-Arrowhead Federal Programs JV
TCEQ	Texas Commission of Environmental Quality
TRRP	Texas Risk Reduction Program
USACE	U.S. Army Corps of Engineers
USAFSAM	U.S. Air Force School of Aerospace Medicine

1.0 INTRODUCTION

1.1 Introduction/Site Description

On 4 November 1958, a fire on-board a B-47 taking-off from Dyess AFB, caused a crash located approximately 4.5 miles southwest of the Dyess AFB flight line. The plane was carrying a full load of fuel and one nuclear weapon which caused on impact an explosion of the fuel and conventional high explosives (HE) in the nuclear weapon. The impact site was on private property that at the time was being cultivated for wheat. Within a couple of years after the accident and to present day, the land has supported cattle grazing operations.

Teams from Dyess AFB and the Atomic Energy Commission (AEC) responded to the accident site, and removed aircraft debris and some weapon debris that was not scattered by the HE detonation action. Contaminants dispersed by the detonation included depleted uranium (DU), highly-enriched uranium (HEU), and lead. The amount of these materials in the weapon remains classified.

Response individuals performed radiological measurements on soils with field instruments sensitive to the α -particle emissions from the uranium contaminant. Instrument readings ranged from those typical for background radiological conditions (i.e., that from naturally-occurring radioactive materials in soils) to 100 counts per minute (cpm). The highest readings were located within 100 feet of the crater produced by the HE detonation. The following conclusions were drawn from the recovery action: ground contamination had fairly low concentrations and decontamination was not necessary. These conclusions were based on the fact that the accident occurred in a fairly isolated area, the weapon contained no plutonium, and the force of the explosion apparently dispersed the radioactive material widely.

A team effort by the U.S. Air Force School of Aerospace Medicine (USAFSAM), U.S. Army Corp of Engineers, 7th Civil Engineering Squadron and the Air Force Safety Center (AFSC) conducted a Site Evaluation in winter/spring 2010 to evaluate uranium and lead concentrations in the surface and subsurface soils. Under the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance, the site was divided into 13 Survey Units (SU) and the results of those surveys indicated that small areas within Survey Units 1, and 3 would require soil removal to meet soil screening levels (SSLs) established for the project (USACE et al. 2010). All lead impacted soils were below the Texas Risk Reduction Program (TRRP) protection concentration limit (PCL) of 150 mg/kg.

1.2 Project Description

The purpose of this project was to remove uranium-contaminated soils from areas specified in the Engineering Evaluation/Cost Analysis (USACE and HQ AFSC 2010) and to restore the site to preconstruction conditions. This removal action consisted of mobilizing personnel, equipment and instrumentation to the Dyess AFB crash site to excavate and remove radioactively contaminated soils from three distinct areas: Area of Interest (AOI) 1 within SU 1; AOI 7 within SU 3; and an area encompassed by AOI 2. This data indicated that approximately 20 cubic yards of shallow soils would be removed from the site and transported to an out of state disposal facility licensed to accept the waste.

Once the areas were defined for removal, the remediation construction contractor, Sullivan – Arrowhead Federal Services (SULLIVAN/AFS) and its radiation support contractor,

Environmental Dimensions, Inc. (EDi) began to implement the removal of the contaminated soil. The soil was excavated and subsequently loaded into a waste container and then transported to an offsite disposal facility.

1.3 Remediation Activities

Sullivan/AFS was contracted through the USACE to the Air Force to conduct the soil removal actions and to transport and dispose of the waste at the Abilene, Texas crash site in the vicinity of Dyess AFB. SULLIVAN/AFS contracted to EDi to provide radiological services which included the development of the Field Sampling Plan and to conduct radiation surveys and soil sampling activities (Sullivan-Arrowhead FS 2011).

On August 15, 2011, the Air Force, SULLIVAN/AFS and EDi were deployed to the Dyess crash site and remediation activities began on Tuesday, August 16. SULLIVAN/AFS heavy equipment consisted of a Caterpillar 320 DL tracked excavator and a Caterpillar 279 C skid steer loader. SULLIVAN/AFS provided the operator, labor and supervision for this activity. Waste transportation sub-contractor G&G Transportation provided a tractor and 24 cubic yard end dump to contain contaminated soil.

EDi deployed a Senior Radiation Control Technician and a Radiation Control Supervisor along with radiation detection instrumentation for guiding the excavation and for contamination control as listed below:

- (1) Ludlum Model 19
- (1) FIDLER (low energy gamma detector)
- (1) 44-9 probe (Beta/Gamma detector)
- (1) L-M2929 Scaler counter with 43-10-1 probe (dual alpha/beta smear counter)
- (1) 43-5 probe (alpha detector)
- (2) 2221 Rate Meters (Ratemeter/Scaler for operation with Fiddler and 43-5 detectors)
- (1) Model 3 (Ratemeter for operation with 44-9 detector)
- (1) Model 2929 with 43-10-1 Dual Alpha/Beta Sample Counter
- (1) Th-230 Check source
- (1) SrY-90 Check source
- (1) Am-241 Check Source
- (1) Cs-137 Check Source

FIDLER detectors were coupled to Ludlum 2221 Scaler Rate meters. Alpha and Beta radiation detectors were coupled with rate meters. Daily response checks and background measurements were conducted on all instrumentation used at the Dyess AFB crash site to establish respective responses and to assure consistent performance (Daily Response Checks are found in Appendix B). Background was determined by a minimum of three one minute counts. Source response consisted of pre and post shift measurements of one minute counts of Americium 214, Strontium-Yttrium 90 and Thorium 230 check sources. The Ludlum Model 19 microR Meter was source checked using a Cesium 137 check source.

All equipment and vehicles entering into the excavation areas were surveyed for Alpha and Beta contamination prior to entry into and exit from the site. All other vehicles were excluded from entering the areas near the excavations and were limited to the access road berm and a pre-designated parking area away from the Areas of Interest.

The USAFSAM and the AFSC (Government Field Support Team) performed field surveys using a field instrument for detection of low energy radiation (FIDLER) in the areas planned for excavation and implemented a systematic grid over the potentially impacted areas. The grid spacing in AOI #1 was three feet and the grid spacing in AOI #2 was eight feet. The grid spacing in AOI #2 was greater because the spatial variability in the radiological measurements from the site evaluation was more uniform than AOI #1, and the planned survey area was larger. Greater details on this portion of the field work is contained in Appendix A, as prepared by the HQ AFSC, USAFSAM, and USACE (Omaha District) team.

Prior to excavation activities, the Government Field Support Team conducted in-situ FIDLER surveys and placed pin flags within each AOI to delineate elevated radioactive soil concentrations designated for removal. The initial excavation was planned to remove contaminated soils down to 30 cm (1 foot) in depth. They also set an excavation threshold for removal of soil at a count rate of 13,000 – 15,000 cpm using the FIDLERs. The Government Field Support Team compared their FIDLER background results with EDi's FIDLER background results and both units were found to be <500 cpm apart.

After the elevated contamination areas within AOI #1 in Survey Unit 1 were delineated, the SULLIVAN/AFS excavator (Caterpillar 320 DL) was moved into the area and began the soil removal activities. EDi personnel used FIDLERs to guide the excavation and Air Force personnel support confirmation that the areas removed met the excavation threshold for the instrumentation. Approximately 7 cubic yards of soil was removed from AOI #1 and placed into the waste transporter's end dump.

SULLIVAN/AFS proceeded to set up the excavator and skid steer loader at the hot spot within AOI #7; an additional cubic yard of contaminated soil was excavated and placed into the end dump from this area. Some of this area was pre-excavated with a shovel to evaluate the potential for a discrete source of contamination.

SULLIVAN/AFS then set up in AOI #2 and removed an estimated volume of 8 cubic yards of contaminated soil. The G&G Transportation Truck was surveyed for dose rates and radioactive contamination and was found to meet the minimum Department of Transportation (DOT) regulations for release as well as for Regulatory Guide 1.86 for free release. Dose rate surveys were recorded in mR/hr as denoted on the appropriate survey form.

Surveys were performed using a calibrated dose rate survey instruments and measurements were collected on each side of the vehicle on contact with the surface. The highest readings in mR/hr were documented. The survey was conducted using the vertical planes and horizontal (for the top) of the trailer as described in 49 CFR 173.441(b)(3). Surveys also included the top and underside of the vehicle. All contact reading for all sides of the vehicle were not above background. Direct and removable contamination surveys were conducted on various areas of the truck and the results of those surveys met Reg Guide 1.86 for free release. Release survey documents as completed by EDi are contained in Appendix B. The transportation vehicle arrived at the US Ecology waste disposal facility on August 19. A copy of the Certificate of Disposal, manifest, and waste profiling documents are contained in Appendix C.

1.4 Final Status Survey

After the excavations in each AOI were completed, the Government Field Support Team set up a pre-designed (systematic) grid pattern using pin flags for taking static measurements and for

collecting soil samples in the excavated areas. All soil samples were collected from 0-30 cm from the existing surface elevation of the ground, post excavation.

In Survey Unit 1, AOI #1, eight samples were collected from areas with higher count rates and those locations were determined by the Government Field Support Team.

One sample was collected from a random location that was identified to be located in the exposed ponded substrate just north and west of the crash site (towards Dyess AFB). The surface water in the former pond had evaporated due to the existing drought in the area making it accessible for sampling. Five samples were collected in AOI #2. One sample was collected as a biased sample in AOI #7, former hot spot. Four samples were split samples co-located in the same sampling location collected by personnel employed by the Texas Commission on Environmental Quality (TCEQ). These are identified as 5-point composites. All sampling locations as well as a complete evaluation of final site status is contained in Appendix A.

The following Table is the Sampling Log, with reported results for radionuclides identified by γ -spectroscopy analysis and isotopic uranium and subsequent α -spectroscopy analysis. Copies of the Test America Analytical Reports are contained in Appendix D which contains quality control reports.

Dyess AFB B-47 Soil Samples

<u>Sample ID</u>	<u>Collected</u>	<u>Gamma Spectrometry (pCi/g)</u>			<u>Alpha Spectrometry (pCi/g)</u>		
		<u>Th-232</u>	<u>Ra-226</u>	<u>U-235</u>	<u>U-238</u>	<u>U-234</u>	<u>U-235/6</u>
S1-SS-6N9E	8/17/11	0.86±0.38	0.65±0.22	1.23±0.38	1.04±0.22	22.6±2.1	0.96±0.23
S1-SS-6N27E	8/17/11	0.91±0.38	0.80±0.25	3.73±0.65	1.15±0.24	81.2±7.1	2.82±0.44
S1-SS-12N15E	8/17/11	0.83±0.31	0.45±0.18	1.47±0.036	1.13±0.23	38.4±3.5	1.44±0.30
S1-SS-12N21E	8/17/11	0.79±0.36	0.62±0.23	1.67±0.51	1.19±0.25	41.1±3.7	1.53±0.32
S1-SS-12N27E	8/17/11	0.92±0.041	0.78±0.25	0.61±0.32	0.55±0.16	11.3±1.2	0.40±0.15
S1-SS-12N9E	8/17/11	1.03±0.41	0.67±0.24	1.76±0.45	1.10±0.23	37.5±3.4	1.21±0.26
S1-SS-18N9E	8/17/11	0.88±0.40	0.64±0.24	3.77±0.64	1.77±0.31	77.9±6.8	3.08±0.48
S1-SS-18N18E	8/17/11	0.70±0.33	0.64±0.23	2.76±0.57	1.33±0.26	60.1±5.3	2.25±0.39
S5-SS-POND	8/17/11	1.41±0.53	0.72±0.25	ND	0.72±0.018	0.65±0.17	<0.055 (U)
S4-SS-8N32E	8/17/11	0.80±0.33	0.46±0.20	1.94±0.41	0.88±0.19	33.1±3.0	1.55±0.30
S4-SS-32N40E	8/17/11	0.76±0.28	0.65±0.28	7.7±1.0	1.66±0.031	131±11	4.61±0.064
S4-SS-16N40E	8/17/11	0.92±0.42	0.92±0.42	7.95±0.85	1.98±0.33	133±11	5.09±0.66
S4-SS-40N40E	8/17/11	0.86±0.41	0.71±0.22	5.37±0.73	2.05±0.34	212±18	7.66±0.91
S4-SS-32N56E	8/17/11	1.06±0.57	0.65±0.21	5.85±0.81	1.49±0.27	93.1±8.0	3.23±0.48
S4-SS-24N56E	8/17/11	1.00±0.40	0.78±0.28	2.74±0.62	1.11±0.24	62.7±5.5	2.00±0.36
S8-SS-AOI-7	8/17/11	0.99±0.50	0.70±0.25	4.76±0.67	1.88±0.33	142±12	5.52±0.72
Split		0.94±0.38	0.76±0.25	1.03±0.42	0.84±0.20	20.4±1.9	0.67±0.19
S4-SS-AOI-2	8/17/11	0.86±0.37	0.73±0.24	5.20±0.74	1.81±0.31	102±8.8	3.64±0.53
S1-SS-AOI-1	8/18/11	1.03±0.50	0.70±0.23	7.42±0.92	1.70±0.29	217±18	8.00±0.92
S4/7-SS-General AOI	8/18/11	0.77±0.49	0.47±0.20	1.24±0.38	1.00±0.22	20.5±1.9	0.86±0.22

2.0 SITE RESTORATION.

On August 18, a locally-procured subcontractor to SULLIVAN/AFS brought in clean fill top soil to the site from a local borrow site approximately 9 miles southwest of the B-47 Crash site. All excavated areas were back-filled with clean soil, and the areas were seeded with grass. Field activities were completed without any equipment failures, on the projected schedule, and without any injuries or incident. Daily quality control reports are contained in Appendix E.

3.0 CONCLUSION AND RECOMMENDATIONS.

The objectives of the Removal Actions were met, with field activities being completed on schedule and without incident.

4.0 REFERENCES

Sullivan-Arrowhead Federal Services, LLC, "Consolidate Workplans, Non-Time Critical Removal Action Uranium and Lead Contaminated Soil, 1958 B-47 Plane Crash Site, Abilene, TX, July 2011

US Army Corp of Engineers (Omaha District) and HQ Air Force Safety Center, "Engineering **Evaluation/Cost Analysis, B-47 Crash Site, Dyess AFB, TX," 3 November 2010.**

US Army Corp of Engineers (Omaha District), HQ Air Force Safety Center, USAF School of Aerospace Medicine, HQ ACC, 7th Civil Engineering Squadron, "Site Evaluation Report, B-47 Crash Site, Dyess AFB, TX," 1 November 2010.

APPENDIX A
FINAL STATUS OF SITE
(COMPLETED BY THE AIR FORCE)

APPENDIX B
RELEASE SURVEY DOCUMENTS

182

Attachment 1
Form 4.00
EDI WEEKLY FIELD SOURCE CHECK LOG

Site Name Dyess AFB Week Ending 8/21/11 Bkg. Location S17c
 Scaler/Ratemeter L-2929 Serial # 182584 Cal. Date 7/28/11 Cal. Due 7/28/12
 Detector 43-10-1 Serial # 185401 Cal. Date 7/28/11 Cal. Due 7/28/12

DATE TIME	SOURCE	SERIAL #	SOURCE ACTIVITY (DPM)	SOURCE CHECK cpm (A)	BKG. cpm (B)	CAL. EFF/ RESPONSE (C)	DAILY CALCULATED EFF. (D)	HV	BATT.	SPKR	DISP.	OK BY
8-16-11 0700	Th-230	183494	25,000	7028	0.8	27.54%	28.17%	✓	✓	✓	✓	MSA
8-16-11 0700	SrY-90	2439-98	18,200	11619	3865	42.19%	42.67%	✓	✓	✓	✓	MSA
8-16-11 1800	Th-230			7140	0.2		28.67%	✓	✓	✓	✓	MSA
8-16-11 1800	SrY-90			11466	3940		41.37%	✓	✓	✓	✓	MSA
8-17-11 0645	Th-230			7169	1.0		28.77%	✓	✓	✓	✓	MSA
8-17-11 0645	SrY-90			12019	3880		44.77%	✓	✓	✓	✓	MSA
8-17-11 1830	Th-230			7220	1.0		29.97%	✓	✓	✓	✓	MSA
8-17-11 1830	SrY-90			11404	3706		42.37%	✓	✓	✓	✓	MSA
8-18-11 0700	Th-230			7099	0.8		28.47%	✓	✓	✓	✓	MSA
8-18-11 0700	SrY-90			11611	3859		42.67%	✓	✓	✓	✓	MSA
8-18-11 1830	Th-230			7001	1.0		28.07%	✓	✓	✓	✓	MSA

Comments:

Daily Calculated Efficiency:
 $\frac{(A)-(B)}{\text{Activity}} = (D)$

+ Value

- Value

± 20% of Calibrated Value:

486

SN - 991-48 Due 8/11/12 SN: PR087462
 Cal Date: ?

HV	w/o Source	w/Source
500	0	0
550	0	0
600	0	0
650	0	0
700	0	0
750	0	1
800	0	130
850	0	2321
900	0	3032
950	0	3389
1000	0	3439
1050	0	3629
1100	0	3593
1150	0	3523
1200	0	3583

5 min bkg. = 2 c / 5 min
 0.4 cpm

5 min Source = 6650 18,064 cts
~~1326~~ cpm 3613 cpm

Source - Th 230 25,000 dpm
 #1834-94
 DNS-11

729

Eff = 14.45 %



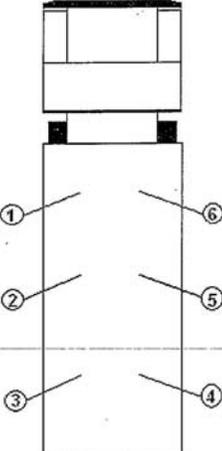
Edi RADIOLOGICAL SURVEY

PROJECT: Dyess AFB
Abilene, TX

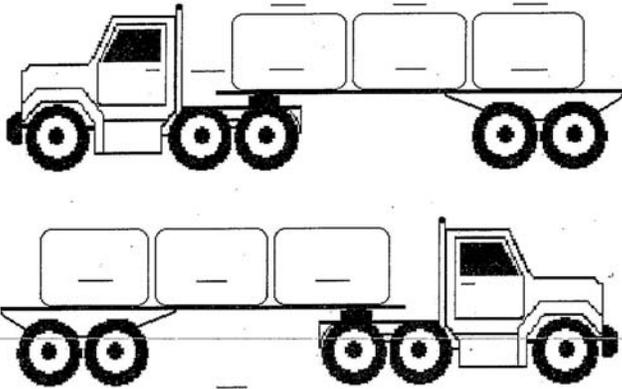
DATE/TIME: 8/16/11		TECH: Scott Baine		SURVEY#: 200					
LOCATION/PURPOSE: G&G TRANSPORT TRUCK SURVEY Incoming			TRAILER#: ID LH182						
INSTRUMENT	SN.	PROBE	SN.	BKGD α	BKGD β	EFF α	EFF β	CAL DATE	CAL DUE
L 2929	182584	43-10-1	185401	0.68	48	0.275	0.422	7/28/2011	7/28/2012
MODEL 19	214339	NA	NA	8 μ R/hr		NA	NA	6/10/2011	6/9/2012
BKG Count time	60	NA	NA	NA	NA	NA	NA	NA	NA
Smear Count Time	1	NA	NA	NA	NA	NA	NA	NA	NA

SOIL BAG TRANSPORT TRUCK

PRE LOAD



POST LOAD



TRANSFERABLE (DPM/100cm ²)						DOSE RATE AT 2 METERS	
LOC	DESCRIPTION	GROSS α	DPM	GROSS β	DPM	uR/hr	mR/hr
1	BED FRONT LEFT	0	-2	55	17	8	0.008
2	BED CENTER LEFT	2	5	45	-7	8	0.008
3	BED REAR LEFT	3	8	48	0	8	0.008
4	BED REAR RIGHT	1	1	51	7	8	0.008
5	BED CENTER RIGHT	1	1	50	5	8	0.008
6	BED FRONT RIGHT	1	1	41	-17	8	0.008
7	UNDER BED	NA	NA	NA	NA	8	0.008
8	TRAILER FRONT	NA	NA	NA	NA	8	0.008
9	TRAILER REAR	NA	NA	NA	NA	8	0.008
10	BAG TOP FRONT	NA	NA	NA	NA	8	0.008
11	BAG TOP CENTER	NA	NA	NA	NA	8	0.008
12	BAG TOP REAR	NA	NA	NA	NA	8	0.008
L2929 MDA α =		21	MDA β =	62	COMMENTS: NA		
NA							
Signature:				review:			



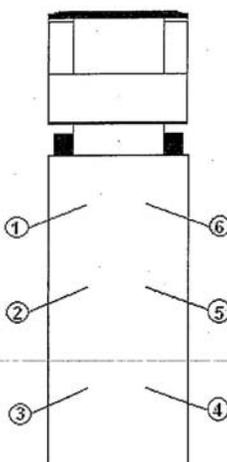
Edi RADIOLOGICAL SURVEY

PROJECT: Dyess AFB
Abilene, TX

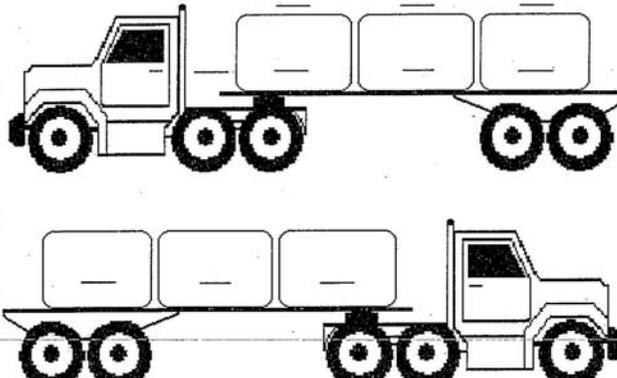
DATE/TIME: 8/16/11		TECH: Scott Baine		SURVEY#: 201					
LOCATION/PURPOSE: G&G TRANSPORT TRUCK SURVEY Outgoing				TRAILER#: ID LH182					
INSTRUMENT	SN.	PROBE	SN.	BKGD α	BKGD β	EFF α	EFF β	CAL DATE	.CAL DUE
L 2929	182584	43-10-1	185401	0.8	46	0.275	0.422	7/23/2011	7/22/2012
MODEL 19	214339	NA	NA	8 μ R/hr		NA	NA	6/10/2011	6/9/2012
BKG Count time	60	NA	NA	NA		NA	NA	NA	NA
Smear Count Time	1	NA	NA	NA		NA	NA	NA	NA

SOIL BAG TRANSPORT TRUCK

PRE LOAD



POST LOAD



TRANSFERABLE (DPM/100cm ²)					DOSE RATE AT 2 METERS		
LOC	DESCRIPTION	GROSS α	DPM	GROSS β	DPM	uR/hr	mR/hr
1	Left Front Tire	1	1	52	14	8	0.008
2	Left Fender	0	-3	55	21	8	0.008
3	Left Rear Tire	0	-3	58	28	8	0.008
4	Left Trailer Tire	0	-3	50	9	8	0.008
5	Left Trailer Side	2	4	49	7	8	0.008
6	Right Trailer Side	1	1	48	5	8	0.008
7	Right Rear Tire	0	-3	47	2	8	0.008
8	Right Rear Tire TRL	2	4	46	0	8	0.008
9	Right Front Tire TRL	0	-3	45	-2	8	0.008
10	Floorboard	0	-3	42	-9	8	0.008
11							
12							

L2929 MDA α =	22	MDA β =	60	COMMENTS: NA
----------------------	----	---------------	----	--------------

Signature: _____ review: _____

CAT - 320 DL
 TRACK HOT
 PHX - 1366
 Outgoing

Attachment 3
 Form 6.11
 VEHICLE SURVEY FORM

Surveyed By		Signature				Date			
Miche Marshall		Mc Noodle				8-18-11			
No.	Location	Direct Readings				Removable Readings			
		a/ 100cm2		bg/ 100cm2		a/ 100cm2		bg/ 100cm2	
		Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM
1	LR Track	0	NA	30	NA				
2	LF Track	0		30					
3	Rd Tracks	0		30					
4	Bucket Inside	0		30					
5	Bucket outside	0		30					
6	Burn	0		30					
7	Floor	0		30					
8	RF Track	0		30					
9	Rear (owl)	0	↓	30	↓				
10	Front (owl)	0	↓	30	↓				

Dose Rate Data		Survey Instrument Data	Direct		Removable	
Model	Cal Due	Scaler Model	α	βγ	α	βγ
	@ Cont @ 30cm	Probe Model				
1		Serial #				
2		Cal Due				
3		Bkg Counts				
4		Bkg Count Time				
5		Bkg CPM				
6		Efficiency				
7		Area Corr. Factor				
8		Sample Count Time				
9		MDA				

CAT - 320 DL
 TRACK HOE
 PHX - 1366
 Incoming

Attachment 3
 Form 6.11
 VEHICLE SURVEY FORM

Surveyed By		Signature				Date			
Scott Basne		Scott Basne				8-16-11			
No.	Location	Direct Readings				Removable Readings			
		a/ 100cm2		bg/ 100cm2		a/ 100cm2		bg/ 100cm2	
		Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM
1	LR Track	0	NA	30	NA				
2	LF Track	0		30					
3	RR Track	0		30					
4	RF Track	0		30					
5	Bucket inside	0		30					
6	Bucket outside	0		30					
7	Broom	1		30					
8	Floor	0		30					
9	Rear Cowl	0		30					
10	Front Cowl	0	↓	30	↓				

Dose Rate Data		Survey Instrument Data		Direct		Removable	
Model	Cal Due	Model	Serial #	α	βγ	α	βγ
		Scaler Model					
		Serial #					
		Cal Due					
1		Probe Model					
2		Serial #					
3		Cal Due					
4		Bkg Counts					
5		Bkg Count Time					
6		Bkg CPM					
7		Efficiency					
8		Area Corr. Factor					
9		Sample Count Time					
10		MDA					

CAT - 279C
 SKID STEER
 # MBT - 1541
 Outgoing Direct Rad Survey

Attachment 3
 Form 6.11
 VEHICLE SURVEY FORM

Surveyed By		Signature				Date			
M. Marable		M. Marable				8-18-11			
No.	Location	Direct Readings				Removable Readings			
		a/ 100cm2		bg/ 100cm2		a/ 100cm2		bg/ 100cm2	
		Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM
1	Floor	0	NA	30	NA	0	NA	30	NA
2	RS Track	6	↓	30	↓	0	↓	30	↓
3	Rear Cowl	0	↓	30	↓	0	↓	30	↓
4	LS Track	0	↓	30	↓	0	↓	30	↓
5									
6									
7									
8									
9									
10									

	Dose Rate Data	Survey Instrument Data	Direct		Removable	
			α	βγ	α	βγ
	Model	Scaler Model				
	Cal Due	Serial #				
	@ Cont @ 30cm	Cal Due				
1		Probe Model				
2		Serial #				
3		Cal Due				
4		Bkg Counts				
5		Bkg Count Time				
6		Bkg CPM				
7		Efficiency				
8		Area Corr. Factor				
9		Sample Count Time				
10		MDA				

CAT 279C
 SKID STEER
 # MBT - 1541
 Incoming Direct Rad Survey

Attachment 3
 Form 6.11

VEHICLE SURVEY FORM

Surveyed By		Signature				Date			
Michael Marable		Michael C. Marable				8-16-11			
No.	Location	Direct Readings				Removable Readings			
		a/ 100cm2		bg/ 100cm2		a/ 100cm2		bg/ 100cm2	
		Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM	Gross CPM	Sample DPM
1	Floor	0	NA	30	NA	0	NA	30	NA
2	RS Track	0	↓	35	↓	0	↓	35	↓
3	Rear Cowl	0	↓	35	↓	0	↓	35	↓
4	LS Track	0	↓	30	↓	0	↓	30	↓
5									
6									
7									
8									
9									
10									

Dose Rate Data		Survey Instrument Data	Direct		Removable	
Model	Cal Due		α	βγ	α	βγ
		Scaler Model				
		Serial #				
		Cal Due				
1		Probe Model				
2		Serial #				
3		Cal Due				
4		Bkg Counts				
5		Bkg Count Time				
6		Bkg CPM				
7		Efficiency				
8		Area Corr. Factor				
9		Sample Count Time				
10		MDA				

APPENDIX C
CERTIFICATE OF DISPOSAL, MANIFEST, AND
WASTE PROFILING DOCUMENT

CERTIFICATE OF DISPOSAL

August 22,2011

DYESS AFB TX AIR COMBAT COMMAND USAF
LAT. 32.364325 LONG. -99.85225 (WGS84)
BARKELEY, TX 79607

This is to certify that waste as defined on Waste Manifest number 26400/ was received by U.S. Ecology, Inc., on 8/19/2011 .The waste(s) were subsequently treated, if required by 40 CFR Part 26 and U.S. Ecology's permits and disposed of by 08/19/2011 in accordance with permits and laws regulating this facility.

Reference Number: 11081908927-26400-1-1

Material: 1 DUMP TRUCK

Process: Direct Landfill

Management Code:

Facility: U.S. ECOLOGY IDAHO, INC.
20400 LEMLEY ROAD
GRAND VIEW, ID 83624
EPA ID: IDD073114654

Waste Type: NON HAZARDOUS WASTE

Customer: ARROWHEAD CONTRACTING

Printed Name: DONNA PULLEN

Signature: Donna Pullen

Title: RECEIVING SUPERVISOR

11087908927

40900# 15yds

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 505-846-0428	4. Waste Tracking Number 26400
---------------------------------	------------------------	----------------	---	-----------------------------------

5. Generator's Name and Mailing Address Dyess AFB, TX Air Combat Command, USAF 7th CES/CEAN 710 Third St. Dyess AFB, TX	Generator's Site Address (if different than mailing address) Former Camp Berkeley, TX Lat 32.364325 Long - 99.85225 (W4584)
---	--

6. Transporter 1 Company Name US Bulk	U.S. EPA ID Number PA0987347515
--	------------------------------------

7. Transporter 2 Company Name	U.S. EPA ID Number
-------------------------------	--------------------

8. Designated Facility Name and Site Address U.S. Ecology Idaho Inc	U.S. EPA ID Number ID0023114654
--	------------------------------------

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. Radioactive material, Low specific activity (LSA-I) fissile-excepted Class 7	1	Bulk	15 cy	1.5 ton per cy
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information UN 2912

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.				
Generator's/Offoror's Printed/Typed Name Steven P. Rademacher	Signature <i>Steven P. Rademacher</i>	Month 08	Day 17	Year 11

15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.	Port of entry/exit:	Date leaving U.S.:
--	---------------------	--------------------

16. Transporter Acknowledgment of Receipt of Materials				
Transporter 1 Printed/Typed Name GARY MILLER	Signature <i>Gary Miller</i>	Month 08	Day 17	Year 11
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

17. Discrepancy	17a. Discrepancy Indication Space Sec. 11 0ml/cy in Sec. 12 0ml/cy in Sec. 13 1.5 tons per 70 87191118 W87D 26400 per schedule 87191118	<input type="checkbox"/> Residue	<input type="checkbox"/> Partial Rejection	<input type="checkbox"/> Full Rejection
17b. Alternate Facility (or Generator)	Manifest Reference Number Should be 26400, Camp Berkeley Rd, Grandview, Idaho 83604	U.S. EPA ID Number	Date 08/17/11	

17c. Signature of Alternate Facility (or Generator)	Month	Day	Year
---	-------	-----	------

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a				
Printed/Typed Name Guthrie Frederick	Signature <i>Guthrie Frederick</i>	Month 08	Day 17	Year 11



US Ecology Nevada (Beatty)

US Ecology Texas (Robstown)

Profile #: _____

Fax (775) 553-2125

Fax (361) 387-0794

US Ecology Idaho (Grand View)

Fax (208) 834-2919

A. CUSTOMER INFORMATION

*Waste as shipped will be :

Industrial

NON - Industrial

*(Texas customers only)

Generator: Dyess AFB, TX, Air Combat Command, USAF
Facility Address : Former Camp Barkeley, Texas
(No PO Box) Lat. 32.364325 Long. -99.85225 (WGS84)
Mailing Address 7th CES/CEAN, 710 Third Street
City/State/Zip: Dyess AFB, TX, 79607
Technical Contact: Dr. Steven E. Rademacher (Air Force Safety Center)
Phone: (505)846-0428 Fax: _____
NAICS# 928110 CESQG SQG LQG EPA ID# N/A State ID# N/A

Check if Billing is Same
Billing Company: Sullivan-Arrowhead Federal Serv
Billing Address: 125 South Wacker, Suite 1180
City/State/Zip: Chicago, IL, 60606
Billing Contact: Mr. Josh Phillips
Phone No.: (515)577-8373 Fax No.: _____
Email: jphillips@arrowhead-usa.com

B. SHIPPING INFORMATION

1. US DOT Shipping Name Radioactive material, low specific activity (LSA-I), fissile-excepted 2. Hazard Class 7
3. UN/NA # UN2912 4. Packaging Group IP-1 5. RQ Below 100 mCi, Reportable Quantity Limit
6. Container Type: Bulk Totes Pallet Size _____ 7. Frequency: Year QTR Month
 Boxes Bags Drums Other Indust. Pack. Quantity 15 cubic yds 1 Time Other _____

C. GENERAL MATERIAL & REGULATORY INFORMATION

1. Common name for this waste soil contaminated with dispersed uranium solids
2. Process generating the material nuclear weapon accident residues dispersed in surface soil
3. Describe physical appearance of waste brownish-red soil
4. Describe odor of waste: None Slight Strong Describe _____
5. Knowledge is from: Lab Analysis MSDS Process/Generator knowledge Yes No Is the waste restricted under EPA Land Disposal
 Yes No Is the material <500 PPMW VOC as generated? Restrictions (40 CFR 268) *If yes, please complete LDR form*
 Yes No Is the waste, or generating facility, subject to regulation under 40 CFR Part 61 Subpart FF (Benzene Rule) of NESHAPS?
If yes, complete form "attachment 4". (Note: Waste generated from chemical manufacturing, coke-by-product recovery plants, petroleum refineries or treaters of such waste are subject to these requirements.)
 Yes No State waste codes _____ Wastewater Non-wastewater Debris
 Yes No Alternative standards for Soil ?
 Yes No CERCLA Regulated (Superfund) Waste Yes No Contains UHCs/Constituents of Concern: List in section D
 Yes No EPA Haz. Waste (list codes) Yes No Has the waste been treated after the initial point of generation?
 Yes No Subpart XX (40 CFR 63.1080) Controls Required?
 Yes No Exempt Waste: If yes, list ref. 40 CFR 261.4(a)(4)
Source Code G _____ Form Code W _____ Mgt. Method H _____

D. MATERIAL COMPOSITION (Physical/Chemical)

(Range Total > or = 100%) Values are TCLP TOTALS
(include additional sheets as necessary) typical value unit range

Uranium-234	379.2	pCi/g	134-3115
Uranium-235	11.5	pCi/g	4.1-94
Uranium-238	1.9	pCi/g	1.3-6.7
Lead	50	ppm	10-125

E. Does the waste exhibit or contain the following:

Yes No Oxidizer Yes No React. Sulfides _____ ppm
 Yes No Explosive Yes No React. Cyanides _____ ppm
 Yes No Organic Peroxide Yes No Water/Air (Pyrophoric) React.
 Yes No Shock Sensitive Yes No Thermally Unstable
 Yes No Tires Yes No TSCA Regulated PCB Waste
 Yes No Pyrophoric Yes No Regulated Medical/Infectious Waste
 Yes No Radioactive** Yes No Compressed Gases
 Yes No Exempt RAD** **Additional Radiological info is provided in USEI's WAC Addendum
 Yes No Halogenated Organic Compounds? (per 40 CFR 268, Appendix III)

F. PHYSICAL CHARACTERISTICS

pH Range _____ to _____
1. Flash Point: _____ °F (if <140°F) 2. Typical pH: 7 pH Range: ≤ 2
 Yes No Possibility of incidental liquids from transportation? >2, <12.50
 Yes No Does waste pass the EPA specified paint filter test? ≥ 12.5
(Pass is a solid)

G. GENERATOR'S CERTIFICATION: Yes No I certify this material may be disposed of without further treatment.

Certification Statement: I certify under penalty of law that I am familiar with this waste stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that all known or suspected hazards have been disclosed. Furthermore, I certify that this form was completed in accordance with the instructions provided. Print Name: Dr. Steven E. Rademacher
Signature: [Signature] Title: Chief Radioact. Mat. Perm/Licen Date: 30 March 2011

Facility use only
First review _____ Second review _____ Final review _____
Date approved: _____ Date Denied: _____

APPENDIX D
LAB RESULTS FOR SOIL ANALYSES AND SPLP

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. DYESS USAF

B-47 Crash Site

Lot #: F1H200427

Josh Phillips

Arrowhead Contracting, Inc
10981 Eicher Drive
Lenexa, KS 66219

TESTAMERICA LABORATORIES, INC.



Michael C. Franks
Project Manager

September 9, 2011

Case Narrative
LOT NUMBER: F1H200427

This report contains the analytical results for the 20 samples received under chain of custody by TestAmerica St. Louis on August 19, 2011. These samples are associated with your B-47 Crash Site project.

The analytical results included in this report meet all applicable quality control procedure requirements..

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There are no observations or non-conformances associated with the analyses contained in this report.

Method Summary

Client: Arrowhead Contracting, Inc
Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Method	Method Description	Protocol	Laboratory
901.1 MOD	Gamma Cs-137 & Hits by EPA 901.1 MOD	EPA	TAL SL
A-01-R MOD	Iso URANIUM (SHORT CT) DOE A-01-R MOD	EML	TAL SL

Protocol References:

EML = "Environmental Measurements Laboratory Procedures Manual" HASL-300 27th Edition, Volume 1 US Department Of Energy (Revised February 1992)

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
F1H200427001	S1-SS-6N9E	Solid	08/17/11 15:10	08/19/11 06:50
F1H200427002	S1-SS-6N27E	Solid	08/17/11 15:25	08/19/11 06:50
F1H200427003	S1-SS-12N27E	Solid	08/17/11 15:40	08/19/11 06:50
F1H200427004	S1-SS-12N21E	Solid	08/17/11 15:45	08/19/11 06:50
F1H200427005	S1-SS-12N15E	Solid	08/17/11 15:50	08/19/11 06:50
F1H200427006	S1-SS-12N9E	Solid	08/17/11 15:55	08/19/11 06:50
F1H200427007	S1-SS-18N9E	Solid	08/17/11 16:00	08/19/11 06:50
F1H200427008	S1-SS-18N-18E	Solid	08/17/11 16:05	08/19/11 06:50
F1H200427009	S5-SS-POND	Solid	08/17/11 16:10	08/19/11 06:50
F1H200427010	S4-SS-8N-32E	Solid	08/17/11 16:15	08/19/11 06:50
F1H200427011	S4-SS-16N-40E	Solid	08/17/11 16:20	08/19/11 06:50
F1H200427012	S4-SS-32N-40E	Solid	08/17/11 16:25	08/19/11 06:50
F1H200427013	S4-SS-40N-40E	Solid	08/17/11 16:30	08/19/11 06:50
F1H200427014	S4-SS-32N-56E	Solid	08/17/11 16:35	08/19/11 06:50
F1H200427015	S4-SS-24N-56E	Solid	08/17/11 16:40	08/19/11 06:50
F1H200427016	S8-SS-AOI-7	Solid	08/17/11 16:45	08/19/11 06:50
F1H200427017	S4-SS-AOI-2	Solid	08/17/11 17:00	08/19/11 06:50
F1H200427018	S8-SS-AOI-7SPLIT	Solid	08/17/11 17:05	08/19/11 06:50
F1H200427019	S1-SS-AOI-1	Solid	08/18/11 09:45	08/19/11 06:50
F1H200427020	S4/7-SS-GENERAL AOI	Solid	08/18/11 10:45	08/19/11 06:50

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S1-SS-6N9E

Lab Sample ID: F1H200427001

Date Collected: 08/17/11 15:10

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty	Uncertainty					
			(2σ+/-)	(2σ+/-)					
Cesium 137	0.264		0.076	0.078	0.057	pCi/g	08/24/11 00:00	08/24/11 21:50	1
<i>Other Detected</i>									
			Count	Total					
			Uncertainty	Uncertainty					
			(2σ+/-)	(2σ+/-)					
Radionuclides	Result	Qualifier			MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.83		0.21	0.21	0.17	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Bismuth 214	0.50		0.14	0.15	0.15	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Lead 212	0.79		0.17	0.17	0.17	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Lead 214	0.79		0.15	0.16	0.14	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Potassium 40	11.3		1.6	1.7	1	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Thallium 208	0.345		0.093	0.096	0.085	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Uranium 235	1.23		0.37	0.38	0.43	pCi/g	08/24/11 00:00	08/24/11 21:50	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty	Uncertainty					
			(2σ+/-)	(2σ+/-)					
Uranium 234	22.6		1	2.1	0.05	pCi/g	09/01/11 00:00	09/07/11 04:08	1
Uranium 238	1.04		0.21	0.22	0.05	pCi/g	09/01/11 00:00	09/07/11 04:08	1
Uranium 235/236	0.96		0.22	0.23	0.03	pCi/g	09/01/11 00:00	09/07/11 04:08	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	91		30 - 110				09/01/11 00:00	09/07/11 04:08	1

Client Sample ID: S1-SS-6N27E

Lab Sample ID: F1H200427002

Date Collected: 08/17/11 15:25

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty	Uncertainty					
			(2σ+/-)	(2σ+/-)					
Cesium 137	0.033	U	0.051	0.051	0.086	pCi/g	08/24/11 00:00	08/24/11 21:51	1
<i>Other Detected</i>									
			Count	Total					
			Uncertainty	Uncertainty					
			(2σ+/-)	(2σ+/-)					
Radionuclides	Result	Qualifier			MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.93		0.19	0.20	0.18	pCi/g	08/24/11 00:00	08/24/11 21:51	1
Bismuth 214	0.81		0.19	0.19	0.17	pCi/g	08/24/11 00:00	08/24/11 21:51	1
Lead 212	0.95		0.16	0.17	0.15	pCi/g	08/24/11 00:00	08/24/11 21:51	1
Lead 214	0.78		0.17	0.17	0.16	pCi/g	08/24/11 00:00	08/24/11 21:51	1
Potassium 40	13.7		1.8	1.9	0.9	pCi/g	08/24/11 00:00	08/24/11 21:51	1
Thallium 208	0.307		0.095	0.096	0.086	pCi/g	08/24/11 00:00	08/24/11 21:51	1
Uranium 235	3.73		0.59	0.65	0.63	pCi/g	08/24/11 00:00	08/24/11 21:51	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty	Uncertainty					
			(2σ+/-)	(2σ+/-)					
Uranium 234	81.2		1.8	7.1	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S1-SS-6N27E

Lab Sample ID: F1H200427002

Date Collected: 08/17/11 15:25

Matrix: Solid

Date Received: 08/19/11 06:50

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD (Continued)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 238	1.15		0.22	0.24	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	2.82		0.38	0.44	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	91		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S1-SS-12N27E

Lab Sample ID: F1H200427003

Date Collected: 08/17/11 15:40

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	-0.01	U	0.16	0.16	0.14	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Other Detected									
Radionuclides	Result	Qualifier	Count Uncertainty (2σ+/-)	Total Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.61		0.25	0.25	0.39	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Bismuth 214	0.77		0.18	0.19	0.11	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Lead 212	0.86		0.16	0.17	0.15	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Lead 214	0.78		0.15	0.16	0.14	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Potassium 40	11.1		2.1	2.2	1.4	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Thallium 208	0.46		0.1	0.10	0.05	pCi/g	08/24/11 00:00	08/24/11 21:50	1
Uranium 235	0.61		0.31	0.32	0.39	pCi/g	08/24/11 00:00	08/24/11 21:50	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	11.3		0.7	1.2	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	0.55		0.15	0.16	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	0.40		0.14	0.15	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	88		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S1-SS-12N21E

Lab Sample ID: F1H200427004

Date Collected: 08/17/11 15:45

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.002	U	0.058	0.058	0.10	pCi/g	08/24/11 00:00	08/24/11 21:53	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S1-SS-12N21E

Lab Sample ID: F1H200427004

Date Collected: 08/17/11 15:45

Matrix: Solid

Date Received: 08/19/11 06:50

Other Detected			Count	Total					
Radionuclides	Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.66		0.18	0.18	0.25	pCi/g	08/24/11 00:00	08/24/11 21:53	1
Bismuth 214	0.64		0.16	0.16	0.15	pCi/g	08/24/11 00:00	08/24/11 21:53	1
Lead 212	0.75		0.15	0.15	0.15	pCi/g	08/24/11 00:00	08/24/11 21:53	1
Lead 214	0.60		0.16	0.16	0.16	pCi/g	08/24/11 00:00	08/24/11 21:53	1
Potassium 40	10.6		1.6	1.7	0.5	pCi/g	08/24/11 00:00	08/24/11 21:53	1
Thallium 208	0.349		0.094	0.096	0.084	pCi/g	08/24/11 00:00	08/24/11 21:53	1
Uranium 235	1.67		0.49	0.51	0.53	pCi/g	08/24/11 00:00	08/24/11 21:53	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte			Count	Total					
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Uranium 234	41.1		1.3	3.7	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.19		0.23	0.25	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	1.53		0.29	0.32	0.07	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	90		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S1-SS-12N15E

Lab Sample ID: F1H200427005

Date Collected: 08/17/11 15:50

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte			Count	Total					
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Cesium 137	0.098		0.041	0.041	0.033	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Other Detected			Count	Total					
Radionuclides	Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.95		0.19	0.20	0.13	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Bismuth 214	0.39		0.12	0.12	0.12	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Lead 212	0.75		0.15	0.16	0.13	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Lead 214	0.51		0.14	0.14	0.12	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Potassium 40	9.8		1.4	1.5	1.1	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Thallium 208	0.280		0.063	0.065	0.047	pCi/g	08/24/11 00:00	08/24/11 21:54	1
Uranium 235	1.47		0.34	0.36	0.40	pCi/g	08/24/11 00:00	08/24/11 21:54	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte			Count	Total					
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Uranium 234	38.4		1.2	3.5	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.13		0.21	0.23	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	1.44		0.27	0.30	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	92		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S1-SS-12N9E

Lab Sample ID: F1H200427006

Date Collected: 08/17/11 15:55

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Cesium 137	0.054	U	0.059	0.059	0.095	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Actinium 228	1.36		0.27	0.28	0.10	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Bismuth 214	0.63		0.17	0.18	0.17	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Lead 212	0.87		0.14	0.15	0.13	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Lead 214	0.71		0.15	0.16	0.14	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Potassium 40	12.2		1.7	1.9	1.1	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Thallium 208	0.311		0.091	0.093	0.093	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Uranium 235	1.75		0.44	0.45	0.61	pCi/g	08/24/11 00:00	08/24/11 22:25	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	37.5		1.2	3.4	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.10		0.21	0.23	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	1.21		0.24	0.26	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	92		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S1-SS-18N9E

Lab Sample ID: F1H200427007

Date Collected: 08/17/11 16:00

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Cesium 137	0.090	U	0.075	0.075	0.12	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Actinium 228	1.0		0.23	0.24	0.16	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Bismuth 214	0.66		0.19	0.19	0.15	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Lead 212	0.80		0.18	0.19	0.18	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Lead 214	0.62		0.15	0.15	0.16	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Potassium 40	10.8		2.0	2.1	1	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Thallium 208	0.297		0.088	0.090	0.068	pCi/g	08/24/11 00:00	08/24/11 22:25	1	
Uranium 235	3.77		0.60	0.64	0.70	pCi/g	08/24/11 00:00	08/24/11 22:25	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	77.9		1.8	6.8	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S1-SS-18N9E

Lab Sample ID: F1H200427007

Date Collected: 08/17/11 16:00

Matrix: Solid

Date Received: 08/19/11 06:50

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD (Continued)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 238	1.77		0.27	0.31	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	3.08		0.40	0.48	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	87		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S1-SS-18N-18E

Lab Sample ID: F1H200427008

Date Collected: 08/17/11 16:05

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.125		0.054	0.054	0.045	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Other Detected									
Radionuclides	Result	Qualifier	Count Uncertainty (2σ+/-)	Total Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.75		0.21	0.21	0.11	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Bismuth 214	0.53		0.15	0.16	0.16	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Lead 212	0.86		0.15	0.16	0.15	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Lead 214	0.75		0.16	0.17	0.22	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Potassium 40	14.6		1.9	2.1	0.6	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Thallium 208	0.171		0.070	0.071	0.10	pCi/g	08/24/11 00:00	08/24/11 22:27	1
Uranium 235	2.76		0.52	0.57	0.49	pCi/g	08/24/11 00:00	08/24/11 22:27	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	60.1		1.6	5.3	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.33		0.24	0.26	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	2.25		0.35	0.39	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	82		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S5-SS-POND

Lab Sample ID: F1H200427009

Date Collected: 08/17/11 16:10

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.112		0.064	0.065	0.093	pCi/g	08/24/11 00:00	08/24/11 21:53	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S5-SS-POND

Lab Sample ID: F1H200427009

Date Collected: 08/17/11 16:10

Matrix: Solid

Date Received: 08/19/11 06:50

Other Detected		Count		Total		MDC	Unit	Prepared	Analyzed	Dil Fac
Radionuclides	Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Actinium 228	1.84		0.33	0.35	0.15	pCi/g	08/24/11 00:00	08/24/11 21:53	1	
Bismuth 214	0.71		0.17	0.17	0.17	pCi/g	08/24/11 00:00	08/24/11 21:53	1	
Lead 212	1.29		0.19	0.24	0.18	pCi/g	08/24/11 00:00	08/24/11 21:53	1	
Lead 214	0.72		0.18	0.19	0.19	pCi/g	08/24/11 00:00	08/24/11 21:53	1	
Potassium 40	18.6		2.0	2.4	1	pCi/g	08/24/11 00:00	08/24/11 21:53	1	
Thallium 208	0.40		0.11	0.11	0.10	pCi/g	08/24/11 00:00	08/24/11 21:53	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte		Count		Total		MDC	Unit	Prepared	Analyzed	Dil Fac
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	0.65		0.16	0.17	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1	
Uranium 238	0.72		0.17	0.18	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1	
Uranium 235/236	0.010	U	0.026	0.026	0.055	pCi/g	09/01/11 00:00	09/08/11 06:21	1	
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Uranium-232	87		30 - 110				09/01/11 00:00	09/08/11 06:21	1	

Client Sample ID: S4-SS-8N-32E

Lab Sample ID: F1H200427010

Date Collected: 08/17/11 16:15

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte		Count		Total		MDC	Unit	Prepared	Analyzed	Dil Fac
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.026	U	0.051	0.051	0.087	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Other Detected		Count		Total		MDC	Unit	Prepared	Analyzed	Dil Fac
Radionuclides	Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Actinium 228	0.88		0.20	0.20	0.09	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Bismuth 214	0.43		0.14	0.14	0.14	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Lead 212	0.79		0.14	0.15	0.12	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Lead 214	0.48		0.14	0.14	0.14	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Potassium 40	11.8		1.5	1.6	0.6	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Thallium 208	0.266		0.076	0.077	0.068	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Thorium 234	2.6		1.4	1.4	1.7	pCi/g	08/24/11 00:00	08/24/11 22:28	1	
Uranium 235	1.94		0.39	0.41	0.48	pCi/g	08/24/11 00:00	08/24/11 22:28	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte		Count		Total		MDC	Unit	Prepared	Analyzed	Dil Fac
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	33.1		1.1	3.0	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1	
Uranium 238	0.88		0.18	0.19	0.02	pCi/g	09/01/11 00:00	09/08/11 06:21	1	
Uranium 235/236	1.55		0.27	0.30	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1	
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Uranium-232	92		30 - 110				09/01/11 00:00	09/08/11 06:21	1	

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S4-SS-16N-40E

Lab Sample ID: F1H200427011

Date Collected: 08/17/11 16:20

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Cesium 137	0.20		0.11	0.11	0.1	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Actinium 228	0.85		0.26	0.26	0.22	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Bismuth 214	0.53		0.15	0.15	0.16	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Lead 212	0.97		0.15	0.17	0.14	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Lead 214	0.66		0.17	0.17	0.17	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Potassium 40	12.1		1.8	1.9	1.2	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Thallium 208	0.34		0.1	0.10	0.09	pCi/g	08/24/11 00:00	08/24/11 22:58	1	
Uranium 235	7.95		0.70	0.85	0.81	pCi/g	08/24/11 00:00	08/24/11 22:58	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	133		2	11	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.98		0.28	0.33	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	5.09		0.50	0.66	0.07	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	94		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S4-SS-32N-40E

Lab Sample ID: F1H200427012

Date Collected: 08/17/11 16:25

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Cesium 137	0.086	U	0.060	0.060	0.089	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Actinium 228	0.43		0.19	0.19	0.34	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Bismuth 214	0.65		0.18	0.19	0.17	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Lead 212	0.93		0.15	0.16	0.15	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Lead 214	0.65		0.14	0.14	0.18	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Potassium 40	10.5		1.6	1.7	0.9	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Thallium 208	0.327		0.081	0.084	0.069	pCi/g	08/24/11 00:00	08/24/11 22:59	1	
Uranium 235	7.7		0.8	1.0	0.7	pCi/g	08/24/11 00:00	08/24/11 22:59	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	131		2	11	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S4-SS-32N-40E

Lab Sample ID: F1H200427012

Date Collected: 08/17/11 16:25

Matrix: Solid

Date Received: 08/19/11 06:50

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD (Continued)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 238	1.66		0.27	0.31	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	4.61		0.51	0.64	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	82		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S4-SS-40N-40E

Lab Sample ID: F1H200427013

Date Collected: 08/17/11 16:30

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.094	U	0.089	0.089	0.15	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Other Detected									
Radionuclides	Result	Qualifier	Count Uncertainty (2σ+/-)	Total Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.92		0.25	0.25	0.17	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Bismuth 214	0.85		0.24	0.25	0.20	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Lead 212	0.82		0.18	0.19	0.17	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Lead 214	0.71		0.21	0.22	0.19	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Potassium 40	10.9		2.0	2.1	1	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Thallium 208	0.304		0.097	0.099	0.086	pCi/g	08/24/11 00:00	08/24/11 22:59	1
Uranium 235	5.37		0.66	0.73	0.66	pCi/g	08/24/11 00:00	08/24/11 22:59	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	212		3	18	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	2.05		0.30	0.34	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	7.66		0.64	0.91	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	84		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S4-SS-32N-56E

Lab Sample ID: F1H200427014

Date Collected: 08/17/11 16:35

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.002	U	0.040	0.040	0.074	pCi/g	08/24/11 00:00	08/24/11 23:01	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S4-SS-32N-56E

Lab Sample ID: F1H200427014

Date Collected: 08/17/11 16:35

Matrix: Solid

Date Received: 08/19/11 06:50

Other Detected		Count	Total						
Radionuclides	Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.88		0.22	0.22	0.14	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Bismuth 212	1.27		0.45	0.45	0.33	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Bismuth 214	0.61		0.14	0.14	0.12	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Lead 212	0.82		0.16	0.16	0.15	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Lead 214	0.68		0.15	0.16	0.14	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Potassium 40	11.4		1.6	1.7	1.1	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Thallium 208	0.373		0.093	0.096	0.072	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Uranium 235	5.85		0.67	0.81	0.60	pCi/g	08/24/11 00:00	08/24/11 23:01	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte		Count	Total						
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Uranium 234	93.1		1.9	8.0	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.49		0.24	0.27	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	3.23		0.39	0.48	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Uranium-232	95		30 - 110			09/01/11 00:00	09/08/11 06:21	1	

Client Sample ID: S4-SS-24N-56E

Lab Sample ID: F1H200427015

Date Collected: 08/17/11 16:40

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte		Count	Total						
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Cesium 137	-0.012	U	0.065	0.065	0.12	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Other Detected		Count	Total						
Radionuclides	Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	1.16		0.26	0.27	0.19	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Bismuth 214	0.85		0.19	0.20	0.17	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Lead 212	0.81		0.16	0.17	0.17	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Lead 214	0.71		0.19	0.20	0.19	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Potassium 40	13.6		1.8	2.0	0.6	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Thallium 208	0.369		0.086	0.088	0.070	pCi/g	08/24/11 00:00	08/24/11 23:01	1
Uranium 235	2.74		0.59	0.62	0.59	pCi/g	08/24/11 00:00	08/24/11 23:01	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte		Count	Total						
Result	Qualifier	Uncertainty (2σ+/-)	Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac	
Uranium 234	62.7		1.6	5.5	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.11		0.22	0.24	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	2.00		0.32	0.36	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Uranium-232	87		30 - 110			09/01/11 00:00	09/08/11 06:21	1	

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S8-SS-AOI-7

Lab Sample ID: F1H200427016

Date Collected: 08/17/11 16:45

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Cesium 137	0.016	U	0.052	0.052	0.092	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Actinium 228	0.90		0.30	0.30	0.23	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Bismuth 214	0.72		0.18	0.19	0.17	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Lead 212	0.95		0.16	0.18	0.15	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Lead 214	0.68		0.16	0.16	0.15	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Potassium 40	12.1		1.6	1.8	0.8	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Thallium 208	0.402		0.074	0.077	0.045	pCi/g	08/24/11 00:00	08/24/11 23:02	1	
Uranium 235	4.76		0.61	0.67	0.64	pCi/g	08/24/11 00:00	08/24/11 23:02	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	142		3	12	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.88		0.29	0.33	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	5.52		0.56	0.72	0.08	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	81		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S4-SS-AOI-2

Lab Sample ID: F1H200427017

Date Collected: 08/17/11 17:00

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Cesium 137	0.149		0.067	0.068	0.089	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Other Detected										
Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac	
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)						
Actinium 228	0.86		0.22	0.22	0.10	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Bismuth 214	0.65		0.15	0.16	0.15	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Lead 212	0.80		0.14	0.15	0.15	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Lead 214	0.80		0.18	0.18	0.15	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Potassium 40	13.3		1.8	2.0	1.1	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Thallium 208	0.334		0.092	0.094	0.088	pCi/g	08/24/11 00:00	08/24/11 23:33	1	
Uranium 235	5.20		0.67	0.74	0.64	pCi/g	08/24/11 00:00	08/24/11 23:33	1	

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	102		2.1	8.8	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S4-SS-AOI-2

Lab Sample ID: F1H200427017

Date Collected: 08/17/11 17:00

Matrix: Solid

Date Received: 08/19/11 06:50

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD (Continued)

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 238	1.81		0.28	0.31	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	3.64		0.44	0.53	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	90		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S8-SS-AOI-7SPLIT

Lab Sample ID: F1H200427018

Date Collected: 08/17/11 17:05

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	-0.023	U	0.056	0.057	0.098	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Other Detected									
Radionuclides	Result	Qualifier	Count Uncertainty (2σ+/-)	Total Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.88		0.20	0.21	0.24	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Bismuth 214	0.73		0.18	0.19	0.16	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Lead 212	1.03		0.15	0.16	0.12	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Lead 214	0.78		0.15	0.16	0.17	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Potassium 40	10.5		1.6	1.7	0.9	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Thallium 208	0.323		0.096	0.098	0.093	pCi/g	08/24/11 00:00	08/24/11 23:34	1
Uranium 235	1.03		0.42	0.42	0.46	pCi/g	08/24/11 00:00	08/24/11 23:34	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	20.4		0.9	1.9	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	0.84		0.18	0.20	0.04	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	0.67		0.18	0.19	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	91		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S1-SS-AOI-1

Lab Sample ID: F1H200427019

Date Collected: 08/18/11 09:45

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.129		0.068	0.068	0.064	pCi/g	08/24/11 00:00	08/24/11 23:35	1

Client Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S1-SS-AOI-1

Lab Sample ID: F1H200427019

Date Collected: 08/18/11 09:45

Matrix: Solid

Date Received: 08/19/11 06:50

Other Detected Radionuclides	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Actinium 228	1.07		0.21	0.22	0.09	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Bismuth 212	0.97		0.36	0.36	0.27	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Bismuth 214	0.49		0.14	0.14	0.14	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Lead 212	1.05		0.15	0.16	0.13	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Lead 214	0.91		0.17	0.18	0.13	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Potassium 40	14.9		1.8	2.0	0.9	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Thallium 208	0.370		0.077	0.080	0.052	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Uranium 235	7.42		0.72	0.92	0.76	pCi/g	08/24/11 00:00	08/24/11 23:35	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	217		3	18	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.70		0.26	0.29	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	8.00		0.62	0.92	0.03	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Tracer	% Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Uranium-232	95		30 - 110				09/01/11 00:00	09/08/11 06:21	1

Client Sample ID: S4/7-SS-GENERAL AOI

Lab Sample ID: F1H200427020

Date Collected: 08/18/11 10:45

Matrix: Solid

Date Received: 08/19/11 06:50

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Cesium 137	0.061	U	0.048	0.048	0.072	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Other Detected									
Radionuclides	Result	Qualifier	Count Uncertainty (2σ+/-)	Total Uncertainty (2σ+/-)	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium 228	0.79		0.20	0.21	0.10	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Bismuth 212	1.08		0.37	0.37	0.31	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Bismuth 214	0.25		0.13	0.13	0.19	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Lead 212	0.74		0.14	0.15	0.15	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Lead 214	0.69		0.15	0.15	0.13	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Potassium 40	8.6		1.4	1.5	0.5	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Thallium 208	0.165		0.067	0.067	0.093	pCi/g	08/24/11 00:00	08/24/11 23:35	1
Uranium 235	1.24		0.37	0.38	0.42	pCi/g	08/24/11 00:00	08/24/11 23:35	1

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Analyte	Result	Qualifier	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncertainty (2σ+/-)	Uncertainty (2σ+/-)					
Uranium 234	20.5		0.9	1.9	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	1.0		0.20	0.22	0.05	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	0.86		0.21	0.22	0.06	pCi/g	09/01/11 00:00	09/08/11 06:21	1

Client Sample Results

Client: Arrowhead Contracting, Inc
Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Client Sample ID: S4/7-SS-GENERAL AOI

Lab Sample ID: F1H200427020

Date Collected: 08/18/11 10:45

Matrix: Solid

Date Received: 08/19/11 06:50

<u>Tracer</u>	<u>% Yield</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Uranium-232	89		30 - 110	09/01/11 00:00	09/08/11 06:21	1

QC Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Method: 901.1 MOD - Gamma Cs-137 & Hits by EPA 901.1 MOD

Lab Sample ID: F1H240000129B
 Matrix: Solid
 Analysis Batch: 1236129

Client Sample ID: Method Blank
 Prep Type: Total
 Prep Batch: 1236129_P

Analyte	MB	MB	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	Uncert.					
Cesium 137	-0.02	U	0.23	0.23	0.11	pCi/g	08/24/11 00:00	08/24/11 23:33	1

Lab Sample ID: F1H240000129C
 Matrix: Solid
 Analysis Batch: 1236129

Client Sample ID: Lab Control Sample
 Prep Type: Total
 Prep Batch: 1236129_P

Analyte	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	Spike Added	MDC	LCS		Unit	% Rec	% Rec. Limits
					Result	Qual			
Cesium 137	1.0	2.6	37.1	0.5	40.3		pCi/g	109	90 - 122
Cobalt 60	1.4	3.9	61.4	0.4	64.8		pCi/g	105	90 - 116
Americium 241	1.6	8.1	98.8	1.2	101		pCi/g	102	85 - 118

Lab Sample ID: F1H200427001X
 Matrix: Solid
 Analysis Batch: 1236129

Client Sample ID: S1-SS-6N9E DUP
 Prep Type: Total
 Prep Batch: 1236129_P

Analyte	Sample	Sample	Count	Total	MDC	LR1	LR1	Unit	RPD
	Result	Qual	Uncert.	Uncert.		Result	Qual		
Cesium 137	0.264		0.071	0.073	0.029	0.318		pCi/g	19

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Lab Sample ID: F1I010000053B
 Matrix: Solid
 Analysis Batch: 1244053

Client Sample ID: Method Blank
 Prep Type: Total
 Prep Batch: 1244053_P

Analyte	MB	MB	Count	Total	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert.	Uncert.					
Uranium 234	0.003	U	0.022	0.022	0.060	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 238	0.010	U	0.021	0.021	0.028	pCi/g	09/01/11 00:00	09/08/11 06:21	1
Uranium 235/236	-0.0024	U	0.0048	0.0048	0.055	pCi/g	09/01/11 00:00	09/08/11 06:21	1

Tracer	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	91		30 - 110	09/01/11 00:00	09/08/11 06:21	1

Lab Sample ID: F1I010000053C
 Matrix: Solid
 Analysis Batch: 1244053

Client Sample ID: Lab Control Sample
 Prep Type: Total
 Prep Batch: 1244053_P

Analyte	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	Spike Added	MDC	LCS		Unit	% Rec	% Rec. Limits
					Result	Qual			
Uranium 234	0.52	0.77	6.53	0.05	6.68		pCi/g	102	74 - 139
Uranium 238	0.53	0.78	6.78	0.07	6.84		pCi/g	101	75 - 140

Tracer	%Yield	Qualifier	Limits
Uranium-232	92		30 - 110

QC Sample Results

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD (Continued)

Lab Sample ID: F1H200427001X

Client Sample ID: S1-SS-6N9E DUP

Matrix: Solid

Prep Type: Total

Analysis Batch: 1244053

Prep Batch: 1244053_P

Analyte	Sample Result	Sample Qual	Count	Total	MDC	LR1	LR1	Unit	RPD	
			Uncert. (2σ+/-)	Uncert. (2σ+/-)		Result	Qual		RPD	Limit
Uranium 234	22.6		0.9	2.1	0.05	22.3		pCi/g	2	40
Uranium 238	1.04		0.22	0.24	0.05	1.16		pCi/g	10	40
Uranium 235/236	0.96		0.20	0.21	0.06	0.76		pCi/g	23	
LR1										
Tracer	%Yield	Qualifier	Limits							
Uranium-232	88		30 - 110							

Tracer/Carrier Summary

Client: Arrowhead Contracting, Inc
 Project/Site: DYESS USAF

TestAmerica Job ID: F1H200427

Method: A-01-R MOD - Iso URANIUM (SHORT CT) DOE A-01-R MOD

Matrix: Solid

Prep Type: Total

Lab Sample ID	Client Sample ID	Percent Yield (Acceptance Limits)			
		U-232 (30-110)			
F1H200427001	S1-SS-6N9E	91			
F1H200427001X	S1-SS-6N9E DUP	88			
F1H200427002	S1-SS-6N27E	91			
F1H200427003	S1-SS-12N27E	88			
F1H200427004	S1-SS-12N21E	90			
F1H200427005	S1-SS-12N15E	92			
F1H200427006	S1-SS-12N9E	92			
F1H200427007	S1-SS-18N9E	87			
F1H200427008	S1-SS-18N-18E	82			
F1H200427009	S5-SS-POND	87			
F1H200427010	S4-SS-8N-32E	92			
F1H200427011	S4-SS-16N-40E	94			
F1H200427012	S4-SS-32N-40E	82			
F1H200427013	S4-SS-40N-40E	84			
F1H200427014	S4-SS-32N-56E	95			
F1H200427015	S4-SS-24N-56E	87			
F1H200427016	S8-SS-AOI-7	81			
F1H200427017	S4-SS-AOI-2	90			
F1H200427018	S8-SS-AOI-7SPLIT	91			
F1H200427019	S1-SS-AOI-1	95			
F1H200427020	S4/7-SS-GENERAL AOI	89			
F1I010000053B	Method Blank	91			
F1I010000053C	Lab Control Sample	92			

Tracer/Carrier Legend

U-232 = Uranium-232

St. Louis Chain of Custody Record

Project Manager: J. Phillips Site Contact: J. Phillips Date: 8/18/11
 Tel/Fax: 515-577-8523/515-94-8005 Lab Contact: _____ Carrier: _____
 Analysis Turnaround Time _____
 City/State/Zip: Kenya KS 66204 Calendar (C) or Work Days (W) _____
 TAT if different from Below _____
 2 weeks _____
 1 week _____
 2 days _____
 1 day _____

Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Sample Specific Notes:
S1-SS-6N9E	8-17-11	1510	SS	Soil	1	✓	SS 0-12" Depth
S1-SS-6N27E	8-17-11	1525	SS	Soil	1	✓	
S1-SS-12N27E	8-17-11	1540	SS	Soil	1	✓	
S1-SS-12N21E	8-17-11	1545	SS	Soil	1	✓	
S1-SS-12N15-E	8-17-11	1550	SS	Soil	1	✓	
S1-SS-12N9E	8-17-11	1555	SS	Soil	1	✓	
S1-SS-18N9E	8-17-11	1600	SS	Soil	1	✓	
S1-SS-18N-18E	8-17-11	1605	SS	Soil	1	✓	
SS Pond	8-17-11	1610	SS	Soil	1	✓	
S4-SS-8N-32E	8-17-11	1615	SS	Soil	1	✓	
S4-SS-16N-40E	8-17-11	1620	SS	Soil	1	✓	
S4-SS-32N40E	8-17-11	1625	SS	Soil	1	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other
 Possible Hazard Identification: _____
 Non-Hazard _____ Flammable _____ Skin Irritant _____ Poison B _____ Unknown _____
 Special Instructions/QC Requirements & Comments: _____
 Relinquished by: J. Phillips Date/Time: 8/18/11 14:00 Company: Anchorhead
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

St. Louis Cull 179

Chain of Custody Record

Contact: ~~Josh Phillips~~ **Josh Phillips** Project Manager: **Josh Phillips** Date: **8/18/11** COC No: _____
 Your Company Name here: **Armed Head Contracting** Tel/Fax: **515-577-8503 / 515-961-8005** Lab Contact: **Frank's** Carrier: **Franks** of **2** COCs
 Address: **189620 E. New Dr.** Analysis Turnaround Time: _____ Job No. _____
 City/State/Zip: **Lenexa, KS 66219** Calendar (C) or Work Days (W) _____

(913) 814-9994 Phone TAT if different from Below _____
 (913) 814-9997 FAX _____
 Project Name: **Dyess USAF**
 Site: **B-47 Crash Site**
 PO #: **1K105**

Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Sample Specific Notes:
S4-SS-40N-40E	8-17-11	1630	SS	Soil	1	✓	SS = 0-12" 14500
S4-SS-32N-56E	8-17-11	1635	SS	Soil	1	✓	
S4-SS-24N-56E	8-17-11	1640	SS	Soil	1	✓	
S8-SS-AOI-7	8-17-11	1645	SS	Soil	1	✓	
S4-SS-AOI-2	8-17-11	1700	SS	Soil	1	✓	TCEQ-SPLIT
S8-SS-AOI-7 SPLIT	8-17-11	1705	SS	Soil	1	✓	TCEQ SPLIT
S1-SS-AOI-1	8-18-11	0945	SS	Soil	1	✓	TCEQ SPLIT
S4/7-SS GENERAL AOI	8-18-11	10:45	SS	Soil	1	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other
 Possible Hazard Identification: _____

Non-Hazard: _____ Flammable: _____ Skin Irritant: _____ Poison B: _____ Unknown: _____
 Special Instructions/QC Requirements & Comments: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Josh Phillips	Armed Head	8/18/11 14:00	Josh Phillips	TH STZ	8/19/11 0630
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Lot #(s):

F1H200427

CUR Form #: 1 7 9

CONDITION UPON RECEIPT FORM

Client: ARROWHEAD CONTROLS



Quote No: 89381

COC/RFA No: N/A

Initiated By: NJD

Date: 8/19/11

Time: 0650

Shipping Information

Shipper: FedEx UPS DHL Courier Client Other: _____ Multiple Packages: Y N

Shipping # (s):*

Sample Temperature (s):**

1. <u>8756 2221 2375</u>	6. _____	1. <u>AMBIENT</u>	6. _____
2. _____	7. _____	2. _____	7. _____
3. _____	8. _____	3. _____	8. _____
4. _____	9. _____	4. _____	9. _____
5. _____	10. _____	5. _____	10. _____

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1. <u>Y</u> N	Are there custody seals present on the cooler?	8. Y <u>N</u>	Are there custody seals present on bottles?
2. Y <u>N</u> N/A	Do custody seals on cooler appear to be tampered with?	9. Y N <u>N/A</u>	Do custody seals on bottles appear to be tampered with?
3. <u>Y</u> N	Were contents of cooler frisked after opening, but before unpacking?	10. Y N <u>N/A</u>	Was sample received with proper pH? (If not, make note below)
4. <u>Y</u> N	Sample received with Chain of Custody?	11. Y N <u>N/A</u>	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5. <u>Y</u> N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12. <u>Y</u> N	Sample received in proper containers?
6. Y <u>N</u>	Was sample received broken?	13. Y N <u>N/A</u>	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7. <u>Y</u> N	Is sample volume sufficient for analysis?	14. Y N <u>N/A</u>	Was Internal COC/Workshare received?

¹ For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

Corrective Action:

- Client Contact Name: _____
- Sample(s) processed "as is"
- Sample(s) on hold until: _____

Informed by: _____

Project Management Review: [Signature]

If released, notify: _____

Date: 08-26-11

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. DYESS USAF

B-47 Crash Site

Lot #: F1H260460

Josh Phillips

Arrowhead Contracting, Inc
10981 Eicher Drive
Lenexa, KS 66219

TESTAMERICA LABORATORIES, INC.



Michael C. Franks
Project Manager

September 24, 2011

Case Narrative
LOT NUMBER: F1H260460

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on August 26, 2011. This sample is associated with your B-47 Crash Site project.

The analytical results included in this report meet all applicable quality control procedure requirements, except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There are no observations or non-conformances associated with the analyses contained in this report.

METHODS SUMMARY

F1H260460

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Gamma Spectroscopy - Cesium-137 & Hits	EPA 901.1 MOD	
Isotopic Uranium by Alpha Spectroscopy	EML A-01-R MOD	

References:

EML "ENVIRONMENTAL MEASUREMENTS LABORATORY PROCEDURES MANUAL"
HASL-300 28TH EDITION, VOLUME I and II DEPARTMENT OF ENERGY

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY
PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984

SAMPLE SUMMARY

F1H260460

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
ML3EP	001	S4-SS-32N-40E	08/17/11	16:25

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



REANALYSIS / SUB-CONTRACT / CLIENT RETURN FORM

Request Initiated by: M. Franks
 Request Date: 08/26/11
 Quote Number: 89381
 Client Number: 1353864
 SDG Number: _____

Request is for (check one):

- Return to Client -- (Client FedEx #)
- Reanalysis
- Sub-Contract Sample
- Additional Analysis

New Lot (check one):

- Yes
- No

Old Lot Number: F1H200427-012

Client ID	Sampled date/time*	Shelf Location	Line item from quote (include Rad Screen if required)
S4-SS-32N-40E	08/17/11 1625	RAD	SOLID, SPLP EXTRACTION SOLID, 901.1, Gamma Spec. (SPLP) SOLID, A-01-R, Iso Uranium (SPLP)

* or attach original Chain of Custody

Due Date for New Login:

Analytical 09/15/11	Report 09/16/11
------------------------	--------------------

For Sub-Contract or Return to Client ONLY

Shipping Address: _____

Contact Person: _____
 Phone Number: _____

Project Manager Signature: *M. Franks*

DO NOT HAVE LAB PULL ORIGINAL SAMPLE

Completed by: *B-E* Date: 8/26/11

New Login Lot Number: F1H200460 (place copy of this form in old file)

Initial that Containers were Re-labeled: *60* (place below lot number of old label)

Chain of Custody Record

Project Manager: J. Phillips Site Contact: Ph: 1-477 Date: 8/18/11 COC No: 1 of 2 COCs
 Tel/Fax: 515-577-8503/515-96-8005 Carrier: _____
 Lab Contact: _____ Job No. _____
 Analysis Turnaround Time _____ Filtered Sample _____
 TAT if different from Below _____
 2 weeks _____
 1 week _____
 2 days _____
 1 day _____

City/State/Zip: Levyka KS 66201 Calendar (C) or Work Days (W) _____
 Phone: (417) 499-4198
 FAX: (417) 999-7497
 Project Name: Dyess GSAP
 Site: B-47 Creek Site
 PO#: 11-105

Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:
S1-SS-6N9E	8-17-11	1510	SS	Soil	1	SS 0-12" Depth
S1-SS-6N27E	8-17-11	1525	SS	Soil	1	
S1-SS-12N27E	8-17-11	1540	SS	Soil	1	
S1-SS-12N71E	8-17-11	1545	SS	Soil	1	
S1-SS-12N15-E	8-17-11	1550	SS	Soil	1	
S1-SS-12N9E	8-17-11	1555	SS	Soil	1	
S1-SS-18N9E	8-17-11	1600	SS	Soil	1	
S1-SS-18N-18E	8-17-11	1605	SS	Soil	1	
SS-SS Pond	8-17-11	1610	SS	Soil	1	
S4-SS-8N-32E	8-17-11	1615	SS	Soil	1	
S4-SS-16N-40E	8-17-11	1620	SS	Soil	1	
S4-SS-32N-40E	8-17-11	1625	SS	Soil	1	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____
 Possible Hazard Identification: _____
 Non-Hazard _____ Flammable _____ Skin Irritant _____ Poison B _____ Unknown _____
 Return To Client _____ Disposal By Lab _____ Archive For _____ Months _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
<u>Josh Phillips</u>	<u>Amorhead</u>	<u>8/18/11 14:00</u>	<u>[Signature]</u>	<u>TA STL</u>	<u>8/19/11 06:50</u>
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Special Instructions/QC Requirements & Comments: _____
 Sample Disposal (A fee may be assessed if samples are retained) _____

St. Louis CUL 179 Chain of Custody Record

Site Contact: Josh Phillips Date: 8/18/11 Site Contact: Josh Phillips Date: 8/18/11
 Project Manager: Josh Phillips Lab Contact: Frank's Carrier: FDK
 Your Company Name here: Arrowhead Contracting Tel/Fax: 575-577-8503 / 575-961-8005

Address: 189620 Echever Dr. Analysis Turnaround Time: _____
 City/State/Zip: Lenexa, KS 66219 Calendar (C) or Work Days (W) _____
 TAT if different from Below _____

Project Name: Dyess USAF
 Site: B-47 Crash Site
 P O #: 11-105

Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Sample Specific Notes:
S4-SS-40N-40E	8-17-11	1630	SS	Soil	1	✓	SS = 0-12" 1182
S4-SS-32N-56E	8-17-11	1635	SS	Soil	1	✓	
S4-SS-24N-56E	8-17-11	1640	SS	Soil	1	✓	
S8-SS-AOI-7	8-17-11	1645	SS	Soil	1	✓	
S4-SS-AOI-2	8-17-11	1700	SS	Soil	1	✓	TCEQ-SPLIT
S8-SS-AOI-7 SPLIT	8-17-11	1705	SS	Soil	1	✓	TCEQ SPLIT
S1-SS-AOI-1	8-18-11	0945	SS	Soil	1	✓	TCEQ SPLIT
S47-SS GENERAL AOI	8-18-11	10:45	SS	Sarc	1	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other
 Possible Hazard Identification: _____

Non-Hazard: _____ Flammable: _____ Skin Irritant: _____ Poison B: _____ Unknown: _____
 Sample Disposal (A fee may be assessed if samples are retained): _____
 Return To Client: _____ Disposal By Lab: _____ Archive For: _____ Months

Relinquished by: Josh Phillips Date/Time: 8/18/11 14:00
 Relinquished by: Armedhead Date/Time: 8/18/11
 Relinquished by: _____ Date/Time: _____
 Received by: Walter Dyess Date/Time: 8/19/11 06:50
 Received by: Frank's Date/Time: _____
 Received by: _____ Date/Time: _____

Company: Arrowhead
 Company: TA STZ
 Company: _____
 Company: _____

Lot #(s):

F1H200427

CUR Form #: 1 7 9

CONDITION UPON RECEIPT FORM

Client: ARROWHEAD CONTROLS



Quote No: 89381

COC/RFA No: N/A

Initiated By: NJD

Date: 8/19/11

Time: 0650

Shipping Information

Shipper: FedEx UPS DHL Courier Client Other: _____ Multiple Packages: Y N

Shipping # (s):*		Sample Temperature (s):**	
1. <u>8756 2221 2375</u>	6. _____	1. <u>AMBIENT</u>	6. _____
2. _____	7. _____	2. _____	7. _____
3. _____	8. _____	3. _____	8. _____
4. _____	9. _____	4. _____	9. _____
5. _____	10. _____	5. _____	10. _____

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Are there custody seals present on the cooler?	8. Y <input checked="" type="radio"/> N	Are there custody seals present on bottles?
2. Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Do custody seals on cooler appear to be tampered with?	9. Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Do custody seals on bottles appear to be tampered with?
3. <input checked="" type="radio"/> Y <input type="radio"/> N	Were contents of cooler frisked after opening, but before unpacking?	10. Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Was sample received with proper pH? (If not, make note below)
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?	11. Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5. <input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Does the Chain of Custody match sample ID's on the container(s)?	12. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?
6. Y <input checked="" type="radio"/> N	Was sample received broken?	13. Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7. <input checked="" type="radio"/> Y <input type="radio"/> N	Is sample volume sufficient for analysis?	14. Y <input type="radio"/> N <input checked="" type="radio"/> N/A	Was Internal COC/Workshare received?

¹ For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

Corrective Action:

- Client Contact Name: _____
- Sample(s) processed "as is"
- Sample(s) on hold until: _____

Informed by: _____

Project Management Review: [Signature]

If released, notify: _____

Date: 08-26-11

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

Arrowhead Contracting, Inc

Client Sample ID: S4-SS-32N-40E

Radiochemistry

Lab Sample ID: F1H260460-001
 Work Order: ML3EP
 Matrix: SOLID

Date Collected: 08/17/11 1625
 Date Received: 08/26/11 0900

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	mdc	Prep Date	Analysis Date
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L		Batch # 1249109	Yld %
Cesium 137	-1.2	U	7.4	20.0	14	09/06/11	09/21/11
Iso URANIUM (SHORT CT) DOE A-01-R MOD				PCI/L		Batch # 1257044	Yld % 81
Uranium 234	53.4		5.0	1.0	0.1	09/14/11	09/14/11
Uranium 235/236	1.97		0.50	1.00	0.07	09/14/11	09/14/11
Uranium 238	0.62	J	0.25	1.00	0.14	09/14/11	09/14/11

Soil Sampling Results for S4-SS-32N-40E.
 U-234: 131 +/- 11 pCi/g (95.4 %)
 U-235: 4.61 +/- 0.64 pCi/g (3.4 %)
 U-238: 1.66 +/- 0.31 pCi/g (1.2 %)
 Total Uranium: 137.3 +/- 11.0 pCi/g

Water Total Uranium: 56.0 pCi/L
 (U-234: 95.4 %, U-235: 3.5 %, U-238: 1.1 %)
 Therefore partition coefficient: 2450 mL/g
 RESRAD Runs Used Default of 50 mL/g (fifty times more conservative than result)
 EPA in 540-R-00-006-TBD recommends a default of 0.4 mL/g (6,000 times more conservative than result)

Uranium Concentration by Mass:
 U-234: 0.0086 µg/L (0.3 %)
 U-235: 0.91 µg/L (33 %)
 U-238: 1.85 µg/L (66.7 %)
 Total: 2.77 µg/L (SDWA limit: 30 µg/L)
 (Note: EPA recommends dilution factor of 20)

SA:
 U-234 - 6.21 E-03 Ci/g
 U-235 - 2.16 E-06 Ci/g
 U-238 - 3.35 E-07 Ci/g

NOTE (S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.

Bold results are greater than the MDC.

J Result is greater than sample detection limit but less than stated reporting limit.

U Result is less than the sample detection limit.

Ground Water Committed Effective Dose Equivalent under Radiological Considerations*

Isotope	Water Concentration (pCi/L)	Fraction	Intake (L/d)	Intake (L/y)	FGR11 CEDE (Sv/Bq)	Bq-y per pCi-Sv	CEDE (mrem/y) for given Dilution Factors	
							1	20
U-234	53.4	0.954	2	730	7.66E-08	3700	11.05	0.55
U-235	1.97	0.035	2	730	7.19E-08	3700	0.38	0.02
U-238	0.62	0.012	2	730	6.88E-08	3700	0.12	0.01
Total =							11.5	0.58

* Note: SDWA recognizes a chemical toxicity limit only for uranium. SDWA recognizes a 4 mrem in a year limit for β/γ -emitters, based on ICRP 2 procedures.

METHOD BLANK REPORT

Radiochemistry

Client Lot ID: F1H260460
 Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 σ +/-)	RL	MDC	Prep Date	Lab Sample ID Analysis Date
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/L	Batch #	1249109	Yld %	F1I060000-109B
Cesium 137	1	U	6.1	20.0	11	09/06/11	09/22/11
Iso URANIUM (SHORT CT) DOE A-01-R MOD			PCI/L	Batch #	1257044	Yld %	93 F1I140000-044B
Uranium 234	0.005	U	0.041	1.00	0.11	09/14/11	09/14/11
Uranium 235/236	-0.009	U	0.013	1.00	0.12	09/14/11	09/14/11
Uranium 238	0.028	U	0.056	1.00	0.10	09/14/11	09/14/11

NOTE (S)

Data are incomplete without the case narrative.

MDC is determined using instrument performance only
 Bold results are greater than the MDC.

U Result is less than the sample detection limit.

Laboratory Control Sample Report

Radiochemistry

Client Lot ID: F1H260460
 Matrix: SOLID

Parameter	Spike Amount	Result	Total Uncert. (2 σ +/-)	MDC	% Yld	% Rec	Lab Sample ID QC Control Limits
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/L	901.1 MOD			F1I060000-109C
Americium 241	141000	138000	12000	400		98	(85 - 118)
Cesium 137	53100	52700	3300	200		99	(90 - 122)
Cobalt 60	87900	85200	5200	200		97	(90 - 116)
Batch #:		1249109	Analysis Date:		09/21/11		
Iso URANIUM (SHORT CT) DOE A-01-R MOD			PCI/L	A-01-R MOD			F1I140000-044C
Uranium 234	13.0	11.9	1.4	0.06	83	91	(74 - 139)
Uranium 238	13.5	12.3	1.5	0.06	83	91	(75 - 140)
Batch #:		1257044	Analysis Date:		09/14/11		

NOTE (S)

MDC is determined by instrument performance only
 Calculations are performed before rounding to avoid round-off error in calculated results

DUPLICATE EVALUATION REPORT

Radiochemistry

Client Lot ID: F1H260460
 Matrix: SOLID

Date Sampled: 08/17/11
 Date Received: 08/26/11

Parameter	SAMPLE Result	Total Uncert. (2σ+/-)	% Yld	DUPLICATE Result	Total Uncert. (2σ+/-)	% Yld	QC Sample ID Precision
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/L	901.1 MOD			F1H260460-001
Cesium 137	-1.2 U	7.4		-3.0 U	9.2		87 %RPD
	Batch #:	1249109 (Sample)		1249109 (Duplicate)			
Iso URANIUM (SHORT CT) DOE A-01-R MOD			PCI/L	A-01-R MOD			F1H260460-001
Uranium 234	53.4	5.0	81	47.3	4.4	95	12 %RPD
Uranium 235/236	1.97	0.50	81	1.56	0.41	95	23 %RPD
Uranium 238	0.62 J	0.25	81	0.89 J	0.27	95	35 %RPD
	Batch #:	1257044 (Sample)		1257044 (Duplicate)			

NOTE (S)

Data are incomplete without the case narrative.
 Calculations are performed before rounding to avoid round-off error in calculated results

- J Result is greater than sample detection limit but less than stated reporting limit.
- U Result is less than the sample detection limit.

APPENDIX E
DAILY QUALITY CONTROL REPORT



Daily Quality Control Report

REPORT NO. 1 SUBCONTRACT NO. W9128F-10-0043 Date: Monday, August 15, 2011

LOCATION OF WORK: B-47 Plane Crash Site, Dyess AFB, Abilene, TX

DESCRIPTION: Mobilization Activities Site Infrastructure Set up and Site survey

WEATHER CLASSIFICATION:

Class A	No interruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Class B	Weather occurred during this shift that caused a complete stoppage of work	Class: A
Class C	Weather occurred during this shift that caused a partial stoppage of work	Temperature
Class D	Weather overhead excellent or suitable for work during shift. Work completely stopped due to results of previous adverse weather.	Max 98°F Min. 85°F
Class E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.	Precipitation: None
Other	Explain:	Inches: 0.0"

1. **Work Performed Today:**
 Josh Phillips arrived onsite at 1100. A short meeting was conducted with Dr. Rademacher, Bret Rogers and Mike Gifford to discuss the weeks activities. Mobilization of a skid steer occurred. Josh began to assist USAF with AOI-1 Survey and excavation area delineation. All involved off site at 16:30.
2. **Work Performed Today by Subcontractors:**
 None.
3. **Type and Results of Inspection: (include Satisfactory Work Completed or Deficiencies with Action to be taken).**
 None.
4. **List Type and Location of Tests Performed and Results of These Tests:**
 None.
5. **Verbal Instructions Received:**
 None.

6. Corrective Actions Proposed/Taken:

None.

7. Remarks:

None.

8. Safety Violations Observed:

None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

Josh Phillips
Quality Control Officer



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Daily Quality Control Report

REPORT NO. 2 SUBCONTRACT NO. W9128F-10-D-0043 Date: Tuesday, August 16, 2011

LOCATION OF WORK: B-47 Plane Crash Site, Dyess AFB, Abilene, TX

DESCRIPTION: Mobilization Activities Site clearing and grubbing and Site survey

WEATHER CLASSIFICATION:

Class A	No interruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Class B	Weather occurred during this shift that caused a complete stoppage of work	Class: A
Class C	Weather occurred during this shift that caused a partial stoppage of work	Temperature
Class D	Weather overhead excellent or suitable for work during shift. Work completely stopped due to results of previous adverse weather.	Max 100°F Min. 85°F
Class E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.	Precipitation: None
Other	Explain:	Inches: 0.0"

1. Work Performed Today:

Josh Phillips (Sullivan/AFS), Jerry Craft (Sullivan/AFS), Mike Marable (EDI), Scott Baing (EDI), Steven Rademacher, Brett Rogers, Mike Gifford, arrived onsite at 0730. A tail gate safety meeting was conducted and short meeting was conducted to discuss events for the day, that included field mowing, AOI-2 area radiological survey, equipment delivery, and the weeks schedule. Additional mowing occurred that allowed for vehicle parking during intrusive activities. Josh, Mike (EDI) and Scott (EDI) joined the effort and assisted Dr. Rademacher's field crew with the AOI-2 survey. The excavator arrived on site at 0900. Upon arrival the excavator was checked into the site. During site preparation activities a low hanging power wire was noted. A revised path to the excavation area was made for the waste truck and excavation equipment. Trees impeding the haul road were removed with construction equipment. Excavation areas were delineated for excavation activities on 8/17/11. All involved were off site at 1730.

2. Work Performed Today by Subcontractors:

Mike Marable and Scott Baing with EDI Surveyed incoming construction equipment and supported Dr. Rademacher's radiological survey crew for delineation of excavation areas AOI-1 and AOI-2.

US Bulk waste truck driver (Gary) onsite to plan truck route to excavation areas.
Ed Kinny (backfill provider) onsite to plan backfill material placement and delivery.

3. Type and Results of Inspection: (include Satisfactory Work Completed or Deficiencies with Action to be taken).

None.

4. List Type and Location of Tests Performed and Results of These Tests:

Radiological surveys of incoming equipment to be used during excavation activities indicated no issues.

5. Verbal Instructions Received:

None.

6. Corrective Actions Proposed/Taken:

None.

7. Remarks:

None.

8. Safety Violations Observed:

None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

Josh Phillips

Quality Control Officer



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DAILY TAILGATE SAFETY MEETING LOG

Date: 8/16/11 Client: U.S. Corps of Engineers, Omaha

Location: Abilene, TX Job No.: 10-114

Meeting conducted by: J. Phillips

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: Level D

Contaminants: Uranium

Physical Hazards: Slips trips falls, Snakes, Heavy Equipment

Other: _____

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:
Josh Phillips
1st Lt Mike Gifford
JERRY CRAFT
SCOTT BAING
MICHAEL MARABLE
Bret Rogers

Signature:
Josh Phillips
Mike Gifford
Jerry Craft
Scott Baing
Michael C Marable
Bret Rogers



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HEAVY EQUIPMENT INITIAL INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Type and Make of Equipment <i>Excavator</i>	Model <i>CAT 320</i>	Serial No.

CHECKLIST	Yes	No	N/A
1. Are adequate and serviceable fire extinguishers provided? (09.E.01 through 09.E.03)	✓		
2. Are all wire rope cables in good condition? (15.B.01 and 15.B.02)			✓
3. Are wire rope, sockets, splices, thimbles, and clips adequate and properly applied? (15.B.03 through 15.B.08)			✓
4. Are hooks, safety nooks, shackles, rings, etc., in good condition? (?)			✓
5. Are necessary platforms, foot-walks, etc., provided? (22.A.01 and 22.A.02)			✓
6. Are access steps, platforms, etc., provided with non-slip surfaces? (21.A.13)	✓		
7. Is operator protected against the elements, falling or flying objects, swinging loads, and similar hazards? (16.B.10, 16.B.11, and 21.A.11)	✓		
8. Are all glasses in operator's compartment safety glass and in good repair? (16.B.10 and 18.A.07)	✓		
9. Is suitable access provided at lubrication points? (16.B.13)	✓		
10. Do all modifications, extensions, replacement parts, and/or repairs to equipment maintain the same factor of safety as original designed equipment? (16.A.18)			✓
11. Are drums for load lines equipped with at least one positive holding device, applied directly to the motor shaft or some part of the train gear? (?)			✓
12. Is there sufficient cable to allow three full wraps of cable on drums at all working positions? (16.C.10)			✓
13. Are adequate headlights, taillights, and turn signals provided and are they in proper operating condition (16.A.07 and 18.A.02 through 18.A.04)	✓		
14. Are all approved brakes on wheeled equipment and in good operating condition? (16.A.07, 18.A.02, and 18.A.05)			✓
15. Do windshields have wipers in proper operating condition? (16.A.07, 18.A.02, and 18.A.06)	✓		

CHECKLIST	Yes	No	N/A
16. Are rear view mirrors provided? (18.A.02 and 18.A.06)	/		
17. Are operating levers equipped with latch and other devices to prevent accidental starting? (18.A.10)	/		
18. Is engine equipped with power-operated starting device in operative condition? (18.A.06)	/		
19. Do all pressure vessels have valid inspection certificates? (20.A.03)			/
20. Are reverse signal alarms on equipment? (16.B.01)	/		
21. Are belts, gears, shafts, electrical contacts, etc., adequately guarded? (16.B.03)	/		
22. Are all hot pipes and surfaces suitably guarded? (16.B.03)	/		
23. Are fuel tanks located so that spills or overflows will not come in contact with engine or exhaust? (16.B.04)	/		
24. Are exhausts and discharges so directed as not to endanger workmen or obstruct view of operator? (16.B.05)	/		
25. Are guards in place on equipment with drop type skip pans? (16.B.03)			/
26. Are adequate seats provided for all riders? (16.A.07 and 18.C.01)			/
27. Are tires in serviceable condition? Are testing/inspections documented? (18.A.02)			/
28. Are steering linkage and tie rod in good operating condition? Are testing/inspections documented? (18.A.02)			/
29. Are dump bodies provided with holding device or other suitable device for locking body in raised position? (18.A.10)			/
30. Are tailgate dumping devices so arranged that operator will be in the clear while dumping loads? (18.A.10)			/
31. Are trip handles provided on tailgates to facilitate handling? (18.A.10)			/
32. Is the air hose free from leaks or defects? (? 20.B.03)			/
33. Are safety lashing for quick make-up type connections provided? (20.A.16)			/
34. Is an acceptable spark arrestor installed and working? (?)	/		
35. Do heating devices comply with references? (?)			/
36. Does welding equipment comply with code requirements? (10.A.10 and 10.E.01)			/
37. Is equipment adequately grounded? (10.E.04 and 10.E.07)			/
38. Do electrical components comply with code? (10.E.01)			/
39. Are required pressure, temperature, or relief gages and valves installed and operable? (20.A.10 through 20.A.13 and 20.B.02)			/
40. Are approved seat belts and roll-over protection provided? (16.B.08, 16.B.12, and 18.B.02)	/		
41. Is recommended preventive maintenance being followed? (16.A.08 and 18.A.02)	/		

CHECKLIST	Yes	No	N/A
42. Do helicopter cranes meet construction requirements (16.J.01)			✓
43. Does hydraulic equipment meet special safety conditions (? 11.H.08, 11.H.09, and 13.A.09)			✓
44. Is concrete equipment fitted with adequate safety devices? (27.A.04)			✓
45. Are elevating and rotating work platforms in conformance with ANSI A92.2? (22.K.01)			✓
46. Do conveyors, cableways, and related equipment conform to ANSI 320.01? (?)			✓
47. Are pile drivers equipped with all appropriate safety devices? (16.L)			✓
48. Do material hoists conform to ANSI A10.5? (16.K.01)			✓
49. Do passenger elevators conform to ANSI A10.4? Do temporary hoists conform to ANSI A10.22: (21.H)			✓
50. Do hand and power tools comply with applicable ANSI standards (13.A through 13.G)			✓
51. Is high voltage sign posted? (?)			✓
52. Is equipment fitted with positive stops for rotation when near power lines? (11.E and 16.D.06)			✓
53. Is there any visible evidence of damage to boom? (16.C.12 and Appendix H)			✓
54. Is the boom position indicator operating and visible to operator? (16.D.01 and 16.D.04)			✓
55. Have all operators had a current physical examination? (1.C and 16.C.04)	✓		
56. Is braking equipment capable of effectively braking, lowering, and safely holding a load of at least the full rated load as required? (?)			✓
Remarks:			
<p>Certification: I hereby certify that this item of equipment is in good operating condition and that it meets all above requirements except as noted in the remarks.</p>			
<p><i>Jerry Craft</i> _____ Signature of Competent Mechanic</p>		<p><i>8/14/11</i> _____ Date</p>	
<p><i>John P. Kelly</i> _____ Signature of Superintendent/Quality Control Engineer</p>		<p><i>8/14/11</i> _____ Date</p>	



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HEAVY EQUIPMENT INITIAL INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Type and Make of Equipment <i>SKIPSTEER</i>	Model <i>CAT 279C</i>	Serial No.

CHECKLIST	Yes	No	N/A
1. Are adequate and serviceable fire extinguishers provided? (09.E.01 through 09.E.03)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are all wire rope cables in good condition? (15.B.01 and 15.B.02)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are wire rope, sockets, splices, thimbles, and clips and adequate and properly applied? (15.B.03 through 15.B.08)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are hooks, safety nooks, shackles, rings, etc., in good condition? (?)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Are necessary platforms, foot-walks, etc., provided? (22.A.01 and 22.A.02)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Are access steps, platforms, etc., provided with non-slip surfaces? (21.A.13)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is operator protected against the elements, falling or flying objects, swinging loads, and similar hazards? (16.B.10, 16.B.11, and 21.A.11)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are all glasses in operator's compartment safety glass and in good repair? (16.B.10 and 18.A.07)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is suitable access provided at lubrication points? (16.B.13)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Do all modifications, extensions, replacement parts, and/or repairs to equipment maintain the same factor of safety as original designed equipment? (16.A.18)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Are drums for load lines equipped with at least one positive holding device, applied directly to the motor shaft or some part of the train gear? (?)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Is there sufficient cable to allow three full wraps of cable on drums at all working positions? (16.C.10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Are adequate headlights, taillights, and turn signals provided and are they in proper operating condition (16.A.07 and 18.A.02 through 18.A.04)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Are all approved brakes on wheeled equipment and in good operating condition? (16.A.07, 18.A.02, and 18.A.05)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Do windshields have wipers in proper operating condition? (16.A.07, 18.A.02, and 18.A.06)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CHECKLIST	Yes	No	N/A
16. Are rear view mirrors provided? (18.A.02 and 18.A.06)	/		
17. Are operating levers equipped with latch and other devices to prevent accidental starting? (18.A.10)	/		
18. Is engine equipped with power-operated starting device in operative condition? (18.A.06)	/		
19. Do all pressure vessels have valid inspection certificates? (20.A.03)			/
20. Are reverse signal alarms on equipment? (16.B.01)	/		
21. Are belts, gears, shafts, electrical contacts, etc., adequately guarded? (16.B.03)	/		
22. Are all hot pipes and surfaces suitably guarded? (16.B.03)	/		
23. Are fuel tanks located so that spills or overflows will not come in contact with engine or exhaust? (16.B.04)	/		
24. Are exhausts and discharges so directed as not to endanger workmen or obstruct view of operator? (16.B.05)	/		
25. Are guards in place on equipment with drop type skip pans? (16.B.03)			/
26. Are adequate seats provided for all riders? (16.A.07 and 18.C.01)			/
27. Are tires in serviceable condition? Are testing/inspections documented? (18.A.02)			/
28. Are steering linkage and tie rod in good operating condition? Are testing/inspections documented? (18.A.02)			/
29. Are dump bodies provided with holding device or other suitable device for locking body in raised position? (18.A.10)			/
30. Are tailgate dumping devices so arranged that operator will be in the clear while dumping loads? (18.A.10)			/
31. Are trip handles provided on tailgates to facilitate handling? (18.A.10)			/
32. Is the air hose free from leaks or defects? (? 20.B.03)			/
33. Are safety lashing for quick make-up type connections provided? (20.A.16)			/
34. Is an acceptable spark arrestor installed and working? (?)	/		
35. Do heating devices comply with references? (?)			/
36. Does welding equipment comply with code requirements? (10.A.10 and 10.E.01)			/
37. Is equipment adequately grounded? (10.E.04 and 10.E.07)			/
38. Do electrical components comply with code? (10.E.01)			/
39. Are required pressure, temperature, or relief gages and valves installed and operable? (20.A.10 through 20.A.13 and 20.B.02)			/
40. Are approved seat belts and roll-over protection provided? (16.B.08, 16.B.12, and 18.B.02)	/		
41. Is recommended preventive maintenance being followed? (16.A.08 and 18.A.02)	/		

CHECKLIST	Yes	No	N/A
42. Do helicopter cranes meet construction requirements (16.J.01)			✓
43. Does hydraulic equipment meet special safety conditions (? 11.H.08, 11.H.09, and 13.A.09)			✓
44. Is concrete equipment fitted with adequate safety devices? (27.A.04)			✓
45. Are elevating and rotating work platforms in conformance with ANSI A92.2? (22.K.01)			✓
46. Do conveyors, cableways, and related equipment conform to ANSI 320.01? (?)			✓
47. Are pile drivers equipped with all appropriate safety devices? (16.L)			✓
48. Do material hoists conform to ANSI A10.5? (16.K.01)			✓
49. Do passenger elevators conform to ANSI A10.4? Do temporary hoists conform to ANSI A10.22: (21.H)			✓
50. Do hand and power tools comply with applicable ANSI standards (13.A through 13.G)			✓
51. Is high voltage sign posted? (?)			✓
52. Is equipment fitted with positive stops for rotation when near power lines? (11.E and 16.D.06)			✓
53. Is there any visible evidence of damage to boom? (16.C.12 and Appendix H)			✓
54. Is the boom position indicator operating and visible to operator? (16.D.01 and 16.D.04)			✓
55. Have all operators had a current physical examination? (1.C and 16.C.04)	✓		
56. Is braking equipment capable of effectively braking, lowering, and safely holding a load of at least the full rated load as required? (?)			✓
Remarks:			
<p>Certification: I hereby certify that this item of equipment is in good operating condition and that it meets all above requirements except as noted in the remarks.</p> <p>  Signature of Competent Mechanic </p> <p>  Signature of Superintendent/Quality Control Engineer </p> <p> 8-16-11 Date </p> <p> 8/16/11 Date </p>			



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HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Equipment Description: <i>Excavator</i>	Model No.(s): <i>CAT 320</i>	Serial No.(s):

CHECKLIST	OK	Not OK	N/A
1. Fuel	/		
2. Lubrication, engine oil	/		
3. Brakes			/
4. Tires, tracks	/		
5. Air systems	/		
6. Horn	/		
7. Safety guards	/		
8. Mirrors	/		
9. Steering mechanism	/		
10. Cooling water	/		
11. Operation controls	/		
12. Lights and reflectors	/		
13. Windshield wipers, defroster	/		
14. Backup alarm	/		
15. Fire extinguisher	/		
16. Seat belts	/		
17. Filters (air, oil, fuel, hydraulic)	/		
18. Lift arm and bucket	/		
19. Grab handles	/		
20. Steps (tread, no slip hazards)	/		
21. Parking brake	/		
22. General condition	/		

Remarks:

Certification

[Signature] _____
 Signature of Certified Operator

8/14/11 _____
 Date



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HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Equipment Description: <i>Skid Steer</i>	Model No.(s): <i>CAT 279</i>	Serial No.(s):

CHECKLIST	OK	Not OK	N/A
1. Fuel	/		
2. Lubrication, engine oil	/		
3. Brakes			/
4. Tires, tracks	/		
5. Air systems	/		
6. Horn	/		
7. Safety guards	/		
8. Mirrors	/		
9. Steering mechanism	/		
10. Cooling water	/		
11. Operation controls	/		
12. Lights and reflectors	/		
13. Windshield wipers, defroster	/		
14. Backup alarm	/		
15. Fire extinguisher	/		
16. Seat belts	/		
17. Filters (air, oil, fuel, hydraulic)	/		
18. Lift arm and bucket	/		
19. Grab handles	/		
20. Steps (tread, no slip hazards)	/		
21. Parking brake	/		
22. General condition	/		

Remarks:

Certification

Jerry Craft

 Signature of Certified Operator

8/16/11

 Date



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Sheet 1 of 1

DFW Inspection Checklist				
Definable Feature of Work (DFW): <i>Site Preparation</i>		Date: <i>8/16/11</i>	Contract No:	
		Time: <i>08:00</i>	<i>W9128F-10-D-0043</i>	
InspectionType (circle one): Initial Follow-Up				
Task	Yes	No	NA	Remarks
Is the work being performed in accordance with the Work Plan?	<input checked="" type="checkbox"/>			
Is the work being performed cautiously and with acceptable levels of workmanship?	<input checked="" type="checkbox"/>			
Is equipment being operated properly?	<input checked="" type="checkbox"/>			
Is the work being performed using proper methods and procedures?	<input checked="" type="checkbox"/>			
Have any defective or damaged materials been identified?	<input checked="" type="checkbox"/>			
Are results of applicable tests within acceptable levels?	<input checked="" type="checkbox"/>			
Is the work being performed in accordance with the SSHP?	<input checked="" type="checkbox"/>			
Have pertinent records been completed or collected?	<input checked="" type="checkbox"/>			
Have any nonconformances been identified, corrected, and re-inspected?	<input checked="" type="checkbox"/>			
Notes:				



Daily Quality Control Report

REPORT NO. 3 SUBCONTRACT NO. W9128F-10-D-0043 Date: Wednesday, August 17, 2011

LOCATION OF WORK: B-47 Plane Crash Site, Dyess AFB, Abilene, TX

DESCRIPTION: Excavation Activities and Excavation Conformation Sampling

WEATHER CLASSIFICATION:

Class A	No interruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Class B	Weather occurred during this shift that caused a complete stoppage of work	Class: A
Class C	Weather occurred during this shift that caused a partial stoppage of work	Temperature
Class D	Weather overhead excellent or suitable for work during shift. Work completely stopped due to results of previous adverse weather.	Max 102°F Min. 85°F
Class E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.	Precipitation: None
Other	Explain:	Inches: 0.0"

1. Work Performed Today:

Josh Phillips (Sullivan/AFS), Jerry Craft (Sullivan/AFS), Mike Marable (EDI), Scott Baing (EDI), Steven Rademacher, Brett Rogers, Mike Gifford, Judy Overby arrived onsite at 0730. A tail gate safety meeting was conducted and short meeting was conducted to discuss events for the day, that included AOI-1 and AOI-2 excavation activities and excavation conformation sampling.

Excavation activities began at AOI-1. An initial cut of soil was removed to the specified 1 ft excavation depth. After the initial 1 ft was removed, USAF and EDI began to scan AOI-1 with radiological detection equipment (Fiddlers). The results of the detection equipment indicated additional areas for excavation. These areas were removed.

Excavation Area AOI-2 began at 0915. Again, the initial 1ft of material was removed. The area was then scanned and additional material was removed were detection equipment indicated. Excavation activities ceased at approximately 1130.

Excavation of AOI-1 and AOI-2 resulted in collection of approximately 15-18 CY.

After excavation activities, the waste truck was scanned for exterior contamination. Scanning of the waste truck indicated no contamination. The waste truck was manifested and left site at 1230 for transport to US Ecology's Idaho Facility.

After excavation activities, Sullivan/AFS began collection of excavation conformation

sampling. With the assistance of the USAF sample locations were identified and correlated to the pre-excavation survey. Samples were collected.

TCEQ representatives were onsite at 1300 to perform scans of the excavation areas and perform sampling activities. TCEQ rep's were given a brief safety review prior to entering in the construction zone.

Equipment used during excavation activities were decontaminated and scanned for radiological contamination. All scanning results were negative.

All involved were off site at 1730.

2. Work Performed Today by Subcontractors:

Mike Marable and Scott Baing with EDI Surveyed incoming construction equipment and supported Dr. Rademacher's radiological survey crew for delineation of excavation areas AOI-1 and AOI-2.

US Bulk waste truck driver (Gary) onsite for loading of excavated soil.

3. Type and Results of Inspection: (include Satisfactory Work Completed or Deficiencies with Action to be taken).

None.

4. List Type and Location of Tests Performed and Results of These Tests:

Radiological surveys of incoming equipment to be used during excavation activities indicated no issues.

5. Verbal Instructions Received:

None.

6. Corrective Actions Proposed/Taken:

None.

7. Remarks:

None.

8. Safety Violations Observed:

None.

9. CERTIFICATION: I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

Josh Phillips

Quality Control Officer



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DAILY TAILGATE SAFETY MEETING LOG

Date: 8/17/11 Client: U.S. Corps of Engineers, Omaha
Location: Abilene, TX Job No.: 10-114
Meeting conducted by: Josh Phillips

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: Level D
Contaminants: LSA
Physical Hazards: Heavy Equipment, Snakes, Heat
Other: _____

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:

Josh Phillips
Steven Redemacher (USAF)
JERRY CRAFT
Lt Mike Gifford
Bret Royce

Signature:

Josh Phillips
Steven Redemacher
Jerry Craft
Mike Gifford
Bret Royce



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HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Equipment Description: <i>Skid Steer</i>	Model No.(s): <i>CAT 279</i>	Serial No.(s):

CHECKLIST	OK	Not OK	N/A
1. Fuel	/		
2. Lubrication, engine oil	/		
3. Brakes	/		
4. Tires, tracks			/
5. Air systems	/		
6. Horn	/		
7. Safety guards	/		
8. Mirrors	/		
9. Steering mechanism	/		
10. Cooling water	/		
11. Operation controls	/		
12. Lights and reflectors	/		
13. Windshield wipers, defroster	/		
14. Backup alarm	/		
15. Fire extinguisher	/		
16. Seat belts	/		
17. Filters (air, oil, fuel, hydraulic)	/		
18. Lift arm and bucket	/		
19. Grab handles	/		
20. Steps (tread, no slip hazards)	/		
21. Parking brake	/		
22. General condition	/		
Remarks:			
Certification			
<i>[Signature]</i> Signature of Certified Operator			<i>8/17/11</i> Date



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HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Equipment Description: <i>Excavator</i>	Model No.(s): <i>CAT 320</i>	Serial No.(s):

CHECKLIST	OK	Not OK	N/A
1. Fuel	/		
2. Lubrication, engine oil	/		
3. Brakes			/
4. Tires, tracks	/		
5. Air systems	/		
6. Horn	/		
7. Safety guards	/		
8. Mirrors	/		
9. Steering mechanism	/		
10. Cooling water	/		
11. Operation controls	/		
12. Lights and reflectors	/		
13. Windshield wipers, defroster	/		
14. Backup alarm	/		
15. Fire extinguisher	/		
16. Seat belts	/		
17. Filters (air, oil, fuel, hydraulic)	/		
18. Lift arm and bucket	/		
19. Grab handles	/		
20. Steps (tread, no slip hazards)	/		
21. Parking brake	/		
22. General condition	/		

Remarks:

Certification

Jerry Craft
 Signature of Certified Operator

8/17/11
 Date

INTRUSIVE ACTIVITIES PERMIT	Permit Number
------------------------------------	----------------------

Project Name: B-47 Plane Crash Site Project Number: 10-114

Clearance is permitted for intrusive activity at: B-47 Crash Site Dyess AFB

The attached map indicates the limits of the permitted intrusive activity. The area has has not been staked or clearly marked.

Utilities Locate Service Reference Number: 11227116

Limits of Work Permitted	
Description of permitted work: <u>1ft Excavation of 3 Areas @ crash site</u>	
Specific location of permitted work: <u> Hwy 277 6.6 miles south of Winkens Hwy, Turn east on County Road 257. Turn North on First Pave Rd</u>	
Precautions or comments: 	
Date Clearance Permitted: <u>8/7/11</u>	Date Clearance Terminated: <u>8/10/11</u>
Request Initiated By: <u>Sullivan AFS</u>	Phone No. <u>515-577-8503</u> Organization <u>Scollman/AFS</u>

Permission to proceed with intrusive activity granted:

Josh Phillips
Field Supervisor/Project Manager

8/16/11
Date

Permission to proceed with intrusive activity granted:

Josh Phillips
Site Safety and Health Officer

8/16/11
Date

I agree to perform work within the limits of this permit:

Supervisor/Foreman/Contractor

Date



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UTILITY CLEARANCE FORM

Project Name: B-47 Plane Crash Site

Project No. 10-114

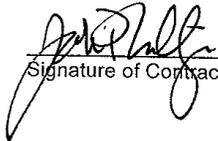
Date: 8/17/11

Location of Excavation: Abilene, TX

The undersigned personnel have *staked* or *otherwise located* existing underground utilities in order to proceed with excavation required. The Contractor shall repair any damage to the existing utilities at no cost to the Government.

Signature	Date	Utility Company Name	Utility Type
USG	8/16/11		Electric
"	8/16/11		Water and Sewer
"	8/16/11		Telephone
"	8/16/11		Fiber Optic
"	8/16/11		Cable
Texas A&S One-call 800-292-8525	8/16/11		Natural Gas
	8/15/11		

I certify that the location of excavation has been evaluated for clearance of underground utilities as well as 10-foot clearance from overhead power lines.


 Signature of Contractor Representative

8/17/11
 Date



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Sheet (of (

DFW Inspection Checklist				
Definable Feature of Work (DFW): <i>Excavation</i>		Date: <i>8/17/10</i>	Contract No:	
		Time: <i>0900</i>		
Inspection Type (circle one): Initial Follow-Up				
Task	Yes	No	NA	Remarks
Is the work being performed in accordance with the Work Plan?	/			
Is the work being performed cautiously and with acceptable levels of workmanship?	/			
Is equipment being operated properly?	/			
Is the work being performed using proper methods and procedures?	/			
Have any defective or damaged materials been identified?	/			
Are results of applicable tests within acceptable levels?	/			
Is the work being performed in accordance with the SSHP?	/			
Have pertinent records been completed or collected?	/			
Have any nonconformances been identified, corrected, and re-inspected?	/			
Notes:				



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Sheet 1 of 1

DFW Inspection Checklist				
Definable Feature of Work (DFW): <i>Soil Sampling</i>		Date: <i>13:00</i>	Contract No:	
		Time: <i>8/17/11</i>		
Inspection Type (circle one): Initial Follow-Up				
Task	Yes	No	NA	Remarks
Is the work being performed in accordance with the Work Plan?	/			
Is the work being performed cautiously and with acceptable levels of workmanship?	/			
Is equipment being operated properly?	/			
Is the work being performed using proper methods and procedures?	/			
Have any defective or damaged materials been identified?	/			
Are results of applicable tests within acceptable levels?	/			
Is the work being performed in accordance with the SSHP?	/			
Have pertinent records been completed or collected?	/			
Have any nonconformances been identified, corrected, and re-inspected?	/			
Notes:				



Daily Quality Control Report

REPORT NO. 4 SUBCONTRACT NO. W9128F-10-D-0043 Date: Thursday, August 18, 2011

LOCATION OF WORK: B-47 Plane Crash Site, Dyess AFB, Abilene, TX

DESCRIPTION: Backfilling Activities and Excavation Conformation Sampling

WEATHER CLASSIFICATION:

Class A	No interruptions of any kind from weather conditions occurring on this or previous shifts	Classification:
Class B	Weather occurred during this shift that caused a complete stoppage of work	Class: A
Class C	Weather occurred during this shift that caused a partial stoppage of work	Temperature
Class D	Weather overhead excellent or suitable for work during shift. Work completely stopped due to results of previous adverse weather.	Max 102°F Min. 85°F
Class E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.	Precipitation: None
Other	Explain:	Inches: 0.0"

1. Work Performed Today:

Josh Phillips (Sullivan/AFS), Jerry Craft (Sullivan/AFS), Mike Marable (EDI), Scott Baing (EDI), Steven Rademacher, Brett Rogers, Mike Gifford, Judy Overby arrived onsite at 0730. A tail gate safety meeting was conducted and short meeting was conducted to discuss events for the day, that included AOI-1 and AOI-2 backfilling activities and excavation conformation sampling.

TCEQ representatives were onsite at 0800 to perform scans of the excavation areas and complete sampling activities. TCEQ rep's were given a brief safety review prior to entering in the construction zone. TCEQ also invited local and regional representatives to the site.

Ed Kinney Trucking Co. mobilized 2 truckloads of topsoil to the site for use as backfill in the excavated areas. Once onsite the excavation areas were backfilled, raked, and seeded.

Equipment used during backfill activities was cleaned and prepared for demobilization. All involved were off site at 1230.

- 2. Work Performed Today by Subcontractors:**
Mike Marable and Scott Baing with EDI continued to collect split samples with TCEQ rep's. Ed Kinney Trucking Co, mobilized 2 loads of topsoil for backfill.
- 3. Type and Results of Inspection: (include Satisfactory Work Completed or Deficiencies with Action to be taken).**
None.
- 4. List Type and Location of Tests Performed and Results of These Tests:**
None
- 5. Verbal Instructions Received:**
None.
- 6. Corrective Actions Proposed/Taken:**
None.
- 7. Remarks:**
None.
- 8. Safety Violations Observed:**
None.
- 9. CERTIFICATION:** I certify that the above report is complete and correct and that I, or my authorized representative, have inspected all work performed this day by the contractor and each subcontractor and have determined that all materials, equipment, and workmanship are in strict compliance with the plans and specifications, except as may be noted above.

Josh Phillips

Quality Control Officer



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DAILY TAILGATE SAFETY MEETING LOG

Date: 8/18/11 Client: U.S. Corps of Engineers, Omaha

Location: Abilene, TX Job No.: 10-114

Meeting conducted by: J. Phillips

Details of safety meeting presented (use back of sheet if necessary):

Level of Protection: Level D

Contaminants: LSA

Physical Hazards: Heavy Equipment, snakes, heat

Other:

Are any permits/clearances required on this day?:

ATTENDEES:

Printed Name:
Josh Phillips
JERRY CRAFT
Mike Marable
Brook Rogers
Scott Davis
Lt Mike Gifford

Signature:
Josh Phillips
Jerry Craft
Mike Marable
Brook Rogers
Scott Davis
Mike Gifford



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HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Equipment Description: <i>Skid Steer</i>	Model No.(s): <i>CAT 279</i>	Serial No.(s):

CHECKLIST	OK	Not OK	N/A
1. Fuel	/		
2. Lubrication, engine oil	/		
3. Brakes	/		
4. Tires, tracks			/
5. Air systems	/		
6. Horn	/		
7. Safety guards	/		
8. Mirrors	/		
9. Steering mechanism	/		
10. Cooling water	/		
11. Operation controls	/		
12. Lights and reflectors	/		
13. Windshield wipers, defroster	/		
14. Backup alarm	/		
15. Fire extinguisher	/		
16. Seat belts	/		
17. Filters (air, oil, fuel, hydraulic)	/		
18. Lift arm and bucket	/		
19. Grab handles	/		
20. Steps (tread, no slip hazards)	/		
21. Parking brake	/		
22. General condition	/		

Remarks:

Certification

Jerry Craft
 Signature of Certified Operator

9/10/10
 Date



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HEAVY EQUIPMENT DAILY INSPECTION CHECKLIST

Project Name: B-47 Plane Crash Site	Project Number: 10-114	Client: USACE Omaha
Project: Excavation of Contaminated Soils	Contractor: Sullivan-AFS.	Contract No.: Subcontract No. W9128F-10-D-0043
Equipment Description: <i>Excavator</i>	Model No.(s): <i>CAT 320</i>	Serial No.(s):

CHECKLIST	OK	Not OK	N/A
1. Fuel	/		
2. Lubrication, engine oil	/		
3. Brakes			/
4. Tires, tracks	/		
5. Air systems	/		
6. Horn	/		
7. Safety guards	/		
8. Mirrors	/		
9. Steering mechanism	/		
10. Cooling water	/		
11. Operation controls	/		
12. Lights and reflectors	/		
13. Windshield wipers, defroster	/		
14. Backup alarm	/		
15. Fire extinguisher	/		
16. Seat belts	/		
17. Filters (air, oil, fuel, hydraulic)	/		
18. Lift arm and bucket	/		
19. Grab handles	/		
20. Steps (tread, no slip hazards)	/		
21. Parking brake	/		
22. General condition	/		

Remarks:

Certification

[Signature]
 Signature of Certified Operator

3/18/11
 Date



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Sheet _____ of _____

DFW Inspection Checklist				
Definable Feature of Work (DFW): <i>Backfill and site Restoration</i>		Date: <i>8/18/11</i>	Contract No:	
		Time: <i>0900</i>		
Inspection Type (circle one): Initial Follow-Up				
Task	Yes	No	NA	Remarks
Is the work being performed in accordance with the Work Plan?	/			
Is the work being performed cautiously and with acceptable levels of workmanship?	/			
Is equipment being operated properly?	/			
Is the work being performed using proper methods and procedures?	/			
Have any defective or damaged materials been identified?	/			
Are results of applicable tests within acceptable levels?	/			
Is the work being performed in accordance with the SSHP?	/			
Have pertinent records been completed or collected?	/			
Have any nonconformances been identified, corrected, and re-inspected?	/			
Notes:				