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US ARMY PUBLIC HEALTH COMMAND (PROVISIONAL)
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12 MAR 2010

MEMORANDUM FOR Office of the Command Surgeon (LTC (b) (6)), US Central Command, 7115 South Boundary Boulevard, MacDill Air Force Base, FL 33621-5101

SUBJECT: Deployment Occupational and Environmental Health Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 September 2009, U_AFG_PAYNE_CM_SQA_20090905

1. The enclosed report details the occupational and environmental health (OEH) risk characterization for three soil samples collected by Marine Expeditionary Brigade personnel from Payne, Afghanistan, 4-5 September 2009.

2. The OEH risk estimate for exposure to the soil and associated dust at the sampled areas of Payne, Afghanistan is **low**. One chemical, 2-nitrophenol, was detected above its military exposure guideline at the burn pit/entry control point site. However, exposure to the soil and associated dust is expected to have little or no impact on unit readiness.

FOR THE COMMANDER:

(b) (6)

Encl

(b) (6)
Director, Health Risk Management

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USAPHC-EUR (MCHB-AE-EE/CPT (b) (6)

U.S. Army Public Health Command
(Provisional)

USAPHC

DEPLOYMENT OCCUPATIONAL AND
ENVIRONMENTAL HEALTH RISK CHARACTERIZATION
SOIL AND ASSOCIATED DUST SAMPLES
PAYNE, AFGHANISTAN
4-5 SEPTEMBER 2009
U_AFG_PAYNE_CM_SQA_20090905

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Preventive Medicine Survey: 40-5f1

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DEPLOYMENT OCCUPATIONAL AND ENVIRONMENTAL
HEALTH RISK CHARACTERIZATION
SOIL AND ASSOCIATED DUST SAMPLES
PAYNE, AFGHANISTAN
4-5 SEPTEMBER 2009
U_AFG_PAYNE_CM_SQA_20090905

1. REFERENCES.

a. Department of the Army, Field Manual (FM) 5-19, Composite Risk Management 21 August 2006.

b. United States Army Center for Health Promotion and Preventive Medicine (USACHPPM) Technical Guide (TG) 230, Chemical Exposure Guidelines for Deployed Military Personnel, Version 1.3, May 2003 with the January 2004 addendum.

c. USACHPPM Reference Document (RD) 230, Chemical Exposure Guidelines for Deployed Military Personnel, Version 1.3, May 2003 with January 2004 addendum.

2. PURPOSE. According to U.S. Department of Defense medical surveillance requirements, this occupational and environmental health (OEH) risk characterization documents the identification and assessment of chemical hazards that pose potential health and operational risks to deployed troops. Specifically, the samples and information provided on the associated field data sheets were used to estimate the operational health risk associated with personnel exposure to identified chemical hazards in the soil at Payne, Afghanistan.

3. SCOPE. This assessment addresses the analytical results for three soil samples collected from Payne, Afghanistan, 4-5 September 2009. These samples are limited in time, area, and media. Therefore, this report should not be considered a complete assessment of the overall OEH hazards to which troops may be exposed at this location. However, this assessment has been performed using operational risk management (ORM) doctrine FM 5-19 and the relatively conservative (protective) assumptions and methods provided in TG 230 to facilitate decision making that can minimize the likelihood of significant risks.

4. BACKGROUND AND EXPOSURE ASSUMPTIONS. The soil samples were collected to assess the potential for adverse health effects to personnel coming into contact with the sampled soil and associated dust at Payne, Afghanistan. All three samples are composite surface samples. It was indicated that greater than 75 percent of the personnel are exposed to the soil in the sampled areas. Personnel are expected

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to remain at this location for less than 1 year. The following information describes the three samples in more detail.

a. Sample AFG_PAYNE_09247_01S. The field data sheet indicated that this was collected in the bridge area near the water treatment plant. The sample site is in close proximity to the Helmand River. Exposure to burn pit smoke was noted for this area. The degree of exposure to the soil in this area is considered low because it is a restricted traffic area for base entry/exit.

b. Sample AFG_PAYNE_09247_02S. The field data sheet indicated that this was collected at the water treatment plant. Exposure to smoke was noted for this area. The degree of exposure to the soil is considered low (that is, non traffic areas, restricted areas etc.).

c. Sample AFG_PAYNE_09248_01S. The field data sheet indicated that this was collected at the burn pit. This site is near the entry control point (ECP) and security tower. High dust levels were reported. The degree of exposure to the soil is considered medium (that is, walking area, common areas, grassy athletic fields etc.).

5. METHOD. The U.S. Army Public Health Command (Provisional) (USAPHC (Prov)), formerly U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), Deployment Environmental Surveillance Program uses the USACHPPM TG 230 methodology and associated military exposure guidelines (MEGs) to assess identified hazards and estimate risk in a manner consistent with doctrinal risk management procedures and terminology. This method includes identification of the hazard(s), assessment of the hazard severity and probability, and determination of a risk estimate and associated level of confidence. As part of the hazard identification step, the long-term (1-year) MEGs are used as screening criteria to identify those hazards that are potential health threats. These 1-year MEGs represent exposure concentrations at or below which no significant health effects (including delayed or chronic disease or significant increased risk of cancer) are anticipated even after 1 year of continuous daily exposures. Short-term MEGs are used to assess one time or intermittent exposures. The underlying toxicological basis for the MEGs is addressed in the USACHPPM RD 230. Since toxicological information about potential health effects varies among different chemicals, the determination of severity of effects when MEGs are exceeded involves professional judgment. Hazards with exposure concentrations greater than MEGs are identified as potential health threats, carried through the hazard assessment process, and assigned a risk estimate consistent with ORM methodology. Hazards that are either not detected or are present only at levels below the 1-year MEGs are not considered health threats and, therefore, are automatically assigned a low operational risk estimate.

6. HAZARD IDENTIFICATION. The samples were analyzed by the USAPHC (Prov) laboratory for metals, pesticides/polychlorinated biphenyls, herbicides, radionuclides, and semivolatile organic compounds. An information summary for the samples is contained in Appendix A. Appendix B presents a sample results summary table for all detected parameters. Appendix C presents complete analytical results for all samples. The following parameter was detected above the 1-year MEG in the laboratory analysis and therefore, was identified as a potential health threat requiring further assessment.

a. 2-Nitrophenol. The 2-Nitrophenol was detected in the sample collected at the burn pit/ECP (sample AFG_PAYNE_09248_01S), at 0.39 milligrams per kilogram (mg/kg), which is greater than the 1-year MEG of 0.0227 mg/kg. Nitrophenols are used to make dyes, paint coloring, drugs, chemicals, and fungicides and are sometimes used to darken leather. They can be also be formed by the breakdown of other chemicals including pesticides such as parathion and fluoridifen.

b. Other Parameters. None of the other parameters detected in the soil samples were present at concentrations greater than their respective MEGs. Therefore, no potential health threats were identified and the risk estimate for all other parameters is considered **low**.

7. HAZARD ASSESSMENT

a. Hazard Severity.

(1) General. Hazard severity is a function of the consequence of exposure (for example, nature of probable effect) for any given Soldier in the unit and the predicted distribution of that impact within the field unit. The estimation of the hazard severity involves the proportion of the field unit that is likely to exhibit effects relative to the specific exposure guidelines, nature of the health effect(s) associated with exposures at or above the guideline level, and confidence in the available data, given the sources of uncertainty and variability. Specifically, the hazard severity for the identified potential health threat was determined by comparing the detected concentration to MEGs published in USACHPPM TG 230, by assessing the hazard's specific health effects information, and using TG 230, Table 3-1.

(2) The 2-Nitrophenol. The 2-Nitrophenol soil MEG is based on a Provisional Peer Reviewed Toxicity Value (PPRTV)-established subchronic reference concentration (RfC). There is very little data available on 2-Nitrophenol, so there is much uncertainty associated with the PPRTV RfC. The RfC was based on a rat study in which nasal lesions were formed. An uncertainty factor of 300 was applied to the no observed effect level (or NOEL) for the study and set as the RfC. Confidence in the RfC is low. Due to

the lack of data and the large uncertainty in setting the RfC, the sample concentration of 0.4 mg/L is well within the uncertainty bounds of the MEG and no health effects from exposure are expected. Therefore, the hazard severity for 2-Nitrophenol at this concentration is considered negligible.

b. Hazard Probability. The hazard probability was based on an approximation of the percent of personnel that would be exposed to an identified hazard above a MEG (in terms of concentration and exposure assumptions) and using TG 230, Table 3-2. The hazard probability represents the magnitude, frequency, and duration of personnel exposure to the identified hazard integrated with the expected incidence of exposure within the unit relative to associated guidelines. Although 2-Nitrophenol was detected in the soil at the burn pit/ECP where dust levels are reportedly high and more than 75 percent of the base population is exposed; the majority of those potentially exposed would be exposed for a very short period of time travelling on or off the base. Since 2-Nitrophenol was not detected in the other two samples, exposure to it is not expected to be widespread or prolonged in the base population. Therefore, the hazard probability is considered occasional.

c. Operational Risk Estimate and Confidence. The hazard severity and probability levels described above were used with the ORM matrix in TG 230, Table 3-3, and FM 5-19 to determine a hazard-specific risk estimate. The operational risk estimate is based on the highest risk estimate for the identified hazards. Table 1 illustrates the risk characterization summary for exposure to the soil at the burn pit/ECP site. Using TG 230, Table 3-5 as a guide, confidence in the risk estimate is considered low. In general, the confidence level in risk estimates is usually low to medium due to consistent lack of specific exposure information associated with troop movement and activity patterns; other routes/sources of potential OEH hazards not identified; and uncertainty regarding impacts of multiple chemicals present, particularly those affecting the same body organs/systems.

Table 1. Risk Characterization Summary for Soil Sample Collected the Burn Pit/ECP Site, Payne, Afghanistan, 4-5 September 2009

Parameter	Hazard Severity	Hazard Probability	Hazard-Specific Risk Estimate	Operational Risk Estimate	Confidence
2-Nitrophenol	NEGLIGIBLE	OCCASIONAL	LOW	LOW	LOW
Other Parameters	Not detected at concentrations greater than MEGs		LOW		

8. CONCLUSION. The OEH risk estimate for exposure to the soil and associated dust at the sampled areas of Payne, Afghanistan is **low**. The 2-Nitrophenol was detected above its MEG at the burn pit/ECP site. However, exposure to the soil and associated dust is expected to have little or no impact on unit readiness. Confidence in the risk estimate is considered low.

9. RECOMMENDATIONS AND NOTES.

a. Recommendations. Although there is a low risk of mission impact due to exposure to soil and associated dust at this location, the following general personal protection recommendations should be followed.

(1) Minimize skin exposure to the soil and associated dust, the uniform should be worn properly: roll sleeves down, tuck pants into boots, and tuck undershirt into pants.

(2) Ensure hand washing stations are readily available. Hands and face should be washed with soap and water prior to eating, drinking, or smoking.

(3) Report any symptoms to a health care provider in order to identify potential causes and implement hazard control measures.

(4) Collect additional soil samples from these sites/areas if there is a known change in or concern with the soil conditions.

b. Notes.

(1) This OEH risk assessment is specific to the exposure assumptions identified above and the sample results assessed in this report. If the assumed exposure scenario changes, provide updated information so that the risk estimate can be reassessed. If additional samples from these areas are collected, a new OEH risk assessment will be completed.

(2) As part of a Comprehensive Military Medical Surveillance Program, required by Department of Defense Directive 6490.02E and Department of Defense Instruction 6490.03, this report has been submitted to the Deployment Occupational and Environmental Health Surveillance (DOEHS)-Data Portal. You can view this and other archived DOEHS data at https://doehsportal.apgea.army.mil/doehrs-oehs/. If you have additional DOEHS data for this location it can also be submitted via this Web site.

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

10. POINTS OF CONTACT. The USAPHC (Prov) points of contact for this assessment are Mr. (b) (6) and Mr. (b) (6). Mr. (b) (6) may be contacted at e-mail (b) (6); Mr. (b) (6) may be contacted at e-mail (b) (6), or DSN (b) (6) or commercial (b) (6).

(b) (6)
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Approved by:

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MAJ, MS
Program Manager
Deployment Environmental Surveillance

APPENDIX A

INFORMATION SUMMARY
SOIL AND ASSOCIATED DUST SAMPLES
PAYNE, AFGHANISTAN
4-5 SEPTEMBER 2009

DOEHRS Sample ID	Field/Local Sample ID	Site	Start Date/Time	Collection Type
000016OX	AFGPAYNE09247_01S	Bridge Area River	2009/09/04 0900	Soil-Composite
000016OY	AFGPAYNE09247_02S	Water Treatment Plant	2009/09/04 0925	Soil-Composite
000016OZ	AFGPAYNE09248_01S	Burn Pit/Entry Control Point	2009/09/05 0930	Soil-Composite

LEGEND:
DOEHRS Sample ID = Defense Occupational and Environmental Health Readiness System Sample Identification Number

APPENDIX B

RESULTS SUMMARY
SOIL AND ASSOCIATED DUST SAMPLES
PAYNE, AFGHANISTAN
4-5 SEPTEMBER 2009

Parameter	Units	Sample Identification[1]			Average	USACHPPM TG 230 Military Exposure Guideline[4]	
		AFGPAYE 09247_01S	AFGPAYNE 09247_02S	AFGPAYNE 09248_01S		1-year	
		Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point		# > MEG	MEG
		Concentration[2,3]					
2-Nitrophenol	mg/kg	< 0.33	< 0.33	0.39	0.24	1	0.0227
4-Nitrophenol	mg/kg	< 0.33	< 0.33	0.38	0.24	0	1697
Barium	mg/kg	29.6	58.6	66.1	51.433333	0	18000
Chromium	mg/kg	15	22.9	26.9	21.6	0	5700
Di(2-ethylhexyl)phthalate	mg/kg	< 0.33	2.3	< 0.33	0.87	0	2900
Dimethylphthalate	mg/kg	< 0.33	< 0.33	1.6	0.64	0	1000000
Di-n-octylphthalate	mg/kg	< 0.33	1.5	< 0.33	0.64	0	4200
Mercury	mg/kg	< 0.0119	0.0541	< 0.012	0.022	0	33
Nickel	mg/kg	18.5	28.1	29	25.2	0	5300
Strontium	mg/kg	64.3	148	239	150.43333	0	140000

[1]Sample Identification includes the Field/Local sample identification number and the sample site.
[2]< X.XX = Below laboratory reporting limit (X.XX)
[3]Laboratory reporting limit is parameter and sample specific.
[4]This table was created from DOEHRS on 6 October 2009. The MEGs in DOEHRS are current as of June 2009.

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

LEGEND:
mg/kg = milligram per kilogram
USACHPPM = US Army Center for Health Promotion and Preventive Medicine
TG = Technical Guide
MEG = Military Exposure Guideline

APPENDIX C

ANALYTICAL SAMPLE RESULTS
SOIL AND ASSOCIATED DUST SAMPLES
PAYNE, AFGHANISTAN
4-5 SEPTEMBER 2009

DOEHRS Sample ID			000016OX	000016OY	000016OZ
Field/Local Sample ID			AFGPAYNE09247_01S	AFGPAYNE09247_02S	AFGPAYNE09248_01S
Site			Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point
Start Date/Time			2009/09/04 0900	2009/09/04 0925	2009/09/05 0930
Parameter	Class	Units	Concentration[1,2]		
1,2,4-Trichlorobenzene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
1,2-Dichlorobenzene	VOC	mg/kg	< 0.33	< 0.33	< 0.33
1,3-Dichlorobenzene	VOC	mg/kg	< 0.33	< 0.33	< 0.33
1,4-Dichlorobenzene	VOC	mg/kg	< 0.33	< 0.33	< 0.33
2,4,5-T	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
2,4,5-TP {Silvex}	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2,4,6-Trichlorophenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2,4-D	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
2,4-DB	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2,4-Dimethylphenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2,4-Dinitrophenol	SVOC	mg/kg	< 0.67	< 0.67	< 0.67
2,4-Dinitrotoluene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2,6-Dinitrotoluene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Chloronaphthalene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Chlorophenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Methyl-4,6-dinitrophenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Methylnaphthalene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Methylphenol {o-Cresol}	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Nitroaniline	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
2-Nitrophenol	SVOC	mg/kg	< 0.33	< 0.33	0.39
3,5-Dichlorobenzoic acid	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
3-Nitroaniline	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
4-Chloro-3-methylphenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
4-Chloroaniline	SVOC	mg/kg	< 0.33	< 0.33	< 0.33

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

DOEHRS Sample ID			000016OX	000016OY	000016OZ
Field/Local Sample ID			AFGPAYNE09247_01S	AFGPAYNE09247_02S	AFGPAYNE09248_01S
Site			Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point
Start Date/Time			2009/09/04 0900	2009/09/04 0925	2009/09/05 0930
Parameter	Class	Units	Concentration[1,2]		
4-Methylphenol {p-Cresol}	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
4-Nitroaniline	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
4-Nitrophenol	SVOC	mg/kg	< 0.33	< 0.33	0.38
Acenaphthene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Acenaphthylene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Acifluorfen	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
Actinium-228		µCi/g	< 0.00000124	< 0.00000184	< 0.0000022300
Alachlor	Herbicides	mg/kg	< 0.2	< 0.2	< 0.2
Aldrin	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
alpha-Chlordane	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
alpha-HCH {alpha-BHC}	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Anthracene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Aroclor 1016	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Aroclor 1221	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Aroclor 1232	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Aroclor 1242	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Aroclor 1248	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Aroclor 1254	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Aroclor 1260	PCB	mg/kg	< 0.2	< 0.2	< 0.2
Arsenic	Metals	mg/kg	< 40.0	< 39.6	< 39.4
Aspon	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Atrazine	Herbicides	mg/kg	< 2.0	< 2.0	< 2.0
Azinphos-ethyl	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Azinphos-methyl	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Barium	Metals	mg/kg	29.6	58.6	66.1
Benefin	Herbicides	mg/kg	< 0.1	< 0.1	< 0.1
Bentazon	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
Benz[a]anthracene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Benzo[a]pyrene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Benzo[b]fluoranthene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Benzo[g,h,i]perylene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Benzo[k]fluoranthene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Benzyl alcohol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Beryllium	Metals	mg/kg	< 2.0	< 1.98	< 1.97
beta-HCH {beta-BHC}	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Bis(2-chloroethoxy)methane	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Bis(2-chloroethyl)ether	SVOC	mg/kg	< 0.33	< 0.33	< 0.33

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

DOEHRS Sample ID			000016OX	000016OY	000016OZ
Field/Local Sample ID			AFGPAYNE09247_01S	AFGPAYNE09247_02S	AFGPAYNE09248_01S
Site			Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point
Start Date/Time			2009/09/04 0900	2009/09/04 0925	2009/09/05 0930
Parameter	Class	Units	Concentration[1,2]		
Bis(2-chloroisopropyl) ether	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Bismuth-214		µCi/g	1.12E-06	1.12E-06	1.62E-06
Bolstar	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Bromacil	Herbicides	mg/kg	< 0.4	< 0.4	< 0.4
Butylbenzylphthalate	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Cadmium	Metals	mg/kg	< 4.0	< 3.96	< 3.94
Carbophenothion	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Cesium-134		µCi/g	< 0.000000245	< 0.000000313	< 0.00000033
Cesium-137		µCi/g	< 0.000000252	< 0.000000374	< 0.000000296
Chlordane, technical	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Chloroneb	Fungicides	mg/kg	< 0.25	< 0.25	< 0.25
Chlorothalonil	Fungicides	mg/kg	< 0.1	< 0.1	< 0.1
Chlorpyrifos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Chlorpyrifos-methyl	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Chromium	Metals	mg/kg	15	22.9	26.9
Chrysene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
cis-Permethrin	Insecticides	mg/kg	< 0.4	< 0.4	< 0.4
Cobalt-60		µCi/g	< 0.00000029	< 0.00000040300	< 0.00000035600
Coumaphos	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Crotoxyphos	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
DCPA {Dacthal}	Herbicides	mg/kg	< 0.1	< 0.1	< 0.1
delta-HCH {delta-BHC}	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Di(2-ethylhexyl)phthalate	SVOC	mg/kg	< 0.33	2.3	< 0.33
Diazinon	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Dibenz[a,h]anthracene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Dibenzofuran	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Dicamba	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
Dichlofenthion	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Dichloroprop	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
Dichlorvos	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Dicloran	Fungicides	mg/kg	< 0.2	< 0.2	< 0.2
Dieldrin	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Diethylphthalate	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Dimethoate	Insecticides	mg/kg	< 0.4	< 0.4	< 0.4
Dimethylphthalate	SVOC	mg/kg	< 0.33	< 0.33	1.6

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

DOEHRS Sample ID			000016OX	000016OY	000016OZ
Field/Local Sample ID			AFGPAYNE09247_01S	AFGPAYNE09247_02S	AFGPAYNE09248_01S
Site			Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point
Start Date/Time			2009/09/04 0900	2009/09/04 0925	2009/09/05 0930
Parameter	Class	Units	Concentration[1,2]		
Di-n-butylphthalate	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Di-n-octylphthalate	SVOC	mg/kg	< 0.33	1.5	< 0.33
Dinoseb	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
Disulfoton	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Endosulfan I	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Endosulfan II	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Endosulfan sulfate	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Endrin	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
EPN	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Ethion	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Ethoprop	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Etridiazole	Fungicides	mg/kg	< 0.2	< 0.2	< 0.2
Europium-152		µCi/g	< 0.00000071600	< 0.0000010300	< 0.00000093800
Famphur	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Fenarimol	Fungicides	mg/kg	< 0.0501	< 0.0501	< 0.05
Fenitrothion	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Fensulfothion	Insecticides	mg/kg	< 1.0	< 1.0	< 1.0
Fenthion	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Fluchloralin	Herbicides	mg/kg	< 0.2	< 0.2	< 0.2
Fluoranthene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Fluorene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Fonofos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
gamma-Chlordane	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
gamma-HCH {gamma-BHC, Lindane}	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Heptachlor	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Heptachlor epoxide	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Hexachlorobenzene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Hexachlorobutadiene	VOC	mg/kg	< 0.33	< 0.33	< 0.33
Hexachlorocyclopentadiene	SVOC	mg/kg	< 0.67	< 0.67	< 0.67
Hexachloroethane	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Indeno[1,2,3-cd]pyrene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Isazophos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Isofenphos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Isophorone	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Lead	Metals	mg/kg	< 9.99	< 9.89	< 9.86
Leptophos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

DOEHRS Sample ID			000016OX	000016OY	000016OZ
Field/Local Sample ID			AFGPAYNE09247_01S	AFGPAYNE09247_02S	AFGPAYNE09248_01S
Site			Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point
Start Date/Time			2009/09/04 0900	2009/09/04 0925	2009/09/05 0930
Parameter	Class	Units	Concentration[1,2]		
Malathion	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
MCPA	Herbicides	mg/kg	< 5.0	< 5.0	< 5.0
MCPP	Herbicides	mg/kg	< 5.0	< 5.0	< 5.0
Mercury	Metals	mg/kg	< 0.0119	0.0541	< 0.012
Methoxychlor	Insecticides	mg/kg	< 1.0	< 1.0	< 1.0
Mevinphos	Insecticides	mg/kg	< 0.4	< 0.4	< 0.4
Mirex	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Naphthalene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Nickel	Metals	mg/kg	18.5	28.1	29
Nitrobenzene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
N-Nitrosodimethylamine	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
N-Nitrosodiphenylamine	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
N-Nitrosodipropylamine	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
o,p'-DDD	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
o,p'-DDE	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
o,p'-DDT	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Oxadiazon	Herbicides	mg/kg	< 0.0501	< 0.0501	< 0.05
Oxychlordane	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
p,p'-DDD	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
p,p'-DDE	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
p,p'-DDT	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Parathion-ethyl {Parathion}	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Parathion-methyl	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
p-Bromophenyl phenyl ether	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
p-Chlorophenyl phenyl ether	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Pentachloronitrobenzene	Fungicides	mg/kg	< 0.1	< 0.1	< 0.1
Pentachlorophenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Permethrin, trans-	Insecticides	mg/kg	< 0.4	< 0.4	< 0.4
Phenanthrene	PAH	mg/kg	< 0.33	< 0.33	< 0.33
Phenol	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Phorate	Insecticides	mg/kg	< 0.4	< 0.4	< 0.4
Phosmet	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Picloram	Herbicides	mg/kg	< 0.05	< 0.05	< 0.05
Procymidone	Fungicides	mg/kg	< 0.2	< 0.2	< 0.2
Pronamide	Herbicides	mg/kg	< 0.4	< 0.4	< 0.4

Deployment OEH Risk Characterization, Soil and Associated Dust Samples, Payne, Afghanistan, 4-5 Sep 09, U_AFG_PAYNE_CM_SQA_20090905

DOEHRS Sample ID			000016OX	000016OY	000016OZ
Field/Local Sample ID			AFGPAYNE09247_01S	AFGPAYNE09247_02S	AFGPAYNE09248_01S
Site			Bridge Area River	Water Treatment Plant	Burn Pit/Entry Control Point
Start Date/Time			2009/09/04 0900	2009/09/04 0925	2009/09/05 0930
Parameter	Class	Units	Concentration[1,2]		
Propazine	Herbicides	mg/kg	< 2.0	< 2.0	< 2.0
Propetamphos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Protactinium-234M		µCi/g	< 0.000025	< 0.000044	< 0.0000397
Protothiophos	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Pyrene	SVOC	mg/kg	< 0.33	< 0.33	< 0.33
Ronnel	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Selenium	Metals	mg/kg	< 9.99	< 9.89	< 9.86
Silver	Metals	mg/kg	< 2.0	< 1.98	< 1.97
Simazine	Herbicides	mg/kg	< 2.0	< 2.0	< 2.0
Strontium	Metals	mg/kg	64.3	148	239
Sulfotep	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Terbufos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1
Tetrachlorvinphos	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Thorium-234		µCi/g	< 0.0000030	< 0.00000438	< 0.0000050
Total solids	Characteristic	%	99.9	99.9	100
Toxaphene	Insecticides	mg/kg	< 1.0	< 1.0	< 1.0
trans-Nonachlor	Insecticides	mg/kg	< 0.0501	< 0.0501	< 0.05
Trichloronate	Insecticides	mg/kg	< 0.2	< 0.2	< 0.2
Trifluralin	Herbicides	mg/kg	< 0.1	< 0.1	< 0.1
Uranium-235		µCi/g	< 0.00000148	< 0.0000020800	< 0.0000023700
Vinclozolin	Fungicides	mg/kg	< 0.2	< 0.2	< 0.2
Zinophos	Insecticides	mg/kg	< 0.1	< 0.1	< 0.1

[1] < X.XX = Below laboratory reporting limit (X.XX)
[2]Laboratory reporting limit is parameter and sample specific

LEGEND:
DOEHRS Sample ID = Defense Occupational and Environmental Health Readiness System Sample Identification Number
SVOC = semivolatile organic compound
VOC = volatile organic compound
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
mg/kg = milligrams per kilogram
µCi/g = microcuries per gram
EPN = O-ethyl-O-4-(nitrophenyl)phenyl phosphonothioate
MCPA = 2-methyl-4-chlorophenoxyacetic acid
MCPP = m*eta*-chlorophenylpiperazine