DEPARTMENT OF THE ARMY
US ARMY INSTITUTE OF PUBLIC HEALTH
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MARYLAND 21010-5403

MCHB-IP-RDE

18 DEC 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: Analytical Results, Ash Characterization, Taji, Iraq, 24 February 2010, U_IRQ_TAJI_CM_ASH_20100224

1. The enclosed report details the analytical results for three burn pit ash samples collected by 224th Medical Detachment personnel at Taji, Iraq, 24 February 2010.

2. According to US regulations, the ash sample did not exhibit hazardous waste toxicity characteristics using the Toxic Characteristic Leaching Procedure (TCLP) or Polychlorinated Biphenyls (PCB) analysis. Assuming that the ash exhibits none of the other characteristics of hazardous waste (such as, corrosivity, reactivity, or ignitability), the ash should be considered nonhazardous, non-PCB solid waste under US regulations. The ash should continue to be analyzed for one additional quarter to establish a 1-year baseline for TCLP and PCBs. Annual samples should be taken thereafter to ensure continued proper characterization.

FOR THE DIRECTOR:

(b) (6)

Encl

Portfolio Director, Health Risk Management

CF: (w/encl)
224th MED DET (Commander/MAJ (b) (6)
224th MED DET (XO/CPT (b) (6)
705th MP BN (Environmental Science and Safety Officer/CPT (b) (6)
USF-I (Command Surgeon Office/CPT (b) (6)
USF-I CJ148 (Commander/CDR (b) (6)
ARCENT (Command Surgeon Office/MAJ (b) (6)
ARCENT (Force Health Protection Officer/LTC (b) (6)
USAFSAM (LtCol (b)
CFLCC/USA 3d MDSC (MAJ (b) (6)
(CONT)

MCHB-TS-RDE
SUBJECT: Analytical Results, Ash Characterization, Taji, Iraq, 24 February 2010, U_IRQ_TAJI_CM_ASH_20100224

CF: (w/encl) (CONT)
1st MED BDE (Environmental Science Officer/MSG (b) (6)
1st MED BDE (Environmental Science Officer/LTC (b) (6)
118th MMB (FHP ESO/MAJ (b) (6)
61st MMB (Preventive Medicine OIC/CPT (b) (6)
61st MMB (Preventive Medicine NCO/SSG (b) (6)
926th MED DET PM (Commander/MAJ (b) (6)
MND-B (Command Surgeon Office/CPT (b) (6)

USAPHC
U.S. ARMY PUBLIC HEALTH COMMAND (Provisional)
5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

ANALYTICAL RESULTS
ASH CHARACTERIZATION
TAJI, IRAQ
24 FEBRUARY 2010
U_IRQ_TAJI_CM_ASH_20100224

Preventive Medicine Survey: 40-5f1

ANALYTICAL RESULTS
ASH CHARACTERIZATION
TAJI, IRAQ
24 FEBRUARY 2010
U_IRQ_TAJI_CM_ASH_20100224

1. REFERENCES. See Appendix A for a list of references.

2. PURPOSE AND SCOPE. This assessment documents the analytical results for three burn pit ash samples collected from Taji, Iraq, 24 February 2010. Although the analytical results for these samples were assessed to determine whether the ash is considered hazardous waste according to U.S. regulations, an occupational and environmental health (OEH) risk estimate was not derived for the samples because it was assumed there is no personnel exposure to the material as sampled (see Background and Exposure Assumptions, paragraph 3). The U.S. criteria were used because there are no local regulations on the identification and management of hazardous waste.

3. BACKGROUND AND EXPOSURE ASSUMPTIONS. Three surface composite samples were collected and submitted for toxicity characterization. Two ash samples were collected from the solid waste burn pit located on Taji, Iraq. A third sample was collected from the incinerators. Based on the burning and incineration processes, it is assumed that the ash will not exhibit the hazardous characteristics of corrosivity, reactivity, or ignitability. It is assumed that U.S. personnel have very limited or no exposure to the residual ash and, therefore, an operational risk assessment was not performed for the ash samples. The degree of exposure to ash pile is considered low (that is, exposures typical of nontraffic areas, restricted area, etc).

4. ANALYTICAL RESULTS.

a. General. The ash samples were analyzed by the U.S. Army Public Health Command (Provisional) (USAPHC (Prov)), Army Institute of Public Health (AIPH), laboratory for semivolatile organic compounds (SVOCs), herbicides, pesticides, and metals using the Toxicity Characteristic Leaching Procedure (TCLP) method. The samples were separately analyzed for polychlorinated biphenyls (PCBs). An Information sampling summary is provided in Appendix B. A sample results summary table is provided in Appendix C. Detailed laboratory results are provided in Appendix D.

b. Characterization. None of the compounds in the analyses were detected at levels above their hazardous waste or PCB disposal regulatory limits. Therefore, the ash samples should be considered nonhazardous and nonPCB waste.

5. CONCLUSION. No SVOCs, herbicides, pesticides, metals, or PCBs were detected at concentrations greater than U.S. regulatory guidelines for hazardous waste. Assuming that the ash exhibits none of the other characteristics of hazardous waste (such as, corrosivity, reactivity, or ignitability), the ash should be considered nonhazardous and non-PCB solid waste under U.S. regulations. The ash should continue to be analyzed for one additional quarter to establish a 1-year baseline. Annual samples should be taken thereafter to ensure continued proper characterization.

6. RECOMMENDATIONS AND NOTES.

a. Recommendations.

(1) Manage the waste ash as solid waste; provided the content of the waste stream does not change and the burning and incineration processes are being conducted according to applicable standards and guidelines.

(2) Continue to collect samples of the ash for one additional quarter and submit them to USAPHC (Prov) for analysis. Though the samples have been shown to be nonhazardous when analyzed for metals, pesticides, herbicides, SVOCs and PCBs, the ash has not yet been analyzed for four consecutive quarters to establish a baseline. Annual samples should be taken thereafter to ensure continued proper characterization.

b. Notes.

(1) This analytical report is specific to the nonexposure scenario described in this report. If the scenario changes and personnel are exposed to the ash, an OEH risk estimate will need to be prepared to match the new exposure scenario and re-sampling may need to occur.

(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 Occupational and Environmental Health Surveillance (OEHS)-Data Portal). You can view this and other archived OEHS data at https://doehsportal.apgea.army.mil/doehrs-oehs/. If you have additional OEHS data for Taji, Iraq it can also be submitted via this Web site.

Analytical Results, Ash Characterization, Taji, Iraq, 24 Feb 10, U_IRQ_TAJI_CM_ASH_20100224

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

(b) (6)

Environmental Scientist
Deployment Environmental Surveillance Program

Approved by:

(b) (6)

MAJ, MS
Program Manager
Deployment Environmental Surveillance

APPENDIX A

REFERENCES

1. Department of Defense Directive (DODD) 6490.02E, Comprehensive Health Surveillance, 21 October 2004.

2. Department of Defense Instruction (DODI) 6490.03, Deployment Health, 11 August 2006.

3. Title 40, Code of Federal Regulations Part 261, Identification and Listing of Hazardous Waste.

4. Title 40, CFR, Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions.

5. Environmental Protection Agency Manual SW-846, Test Methods for Evaluating Solid Waste - Laboratory Manual, Physical/Chemical Methods.

6. U.S. 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.

APPENDIX B

SAMPLE INFORMATION SUMMARY
ASH CHARACTERIZATION
TAJI, IRAQ
24 FEBRUARY 2010

DOEHRS Sample ID	Field/Local Sample ID	Location	Sample Date/Time	Collection Type
0000283C	IRA TAJI 10055 03S	Burn Pit	2010/02/24 1316	Surface composite
0000283J	IRA TAJI 10055 04S	Burn Pit	2010/02/24 1319	Surface composite
00002843	IRA TAJI 10055 05S	Burn Pit/Incinerator	2010/02/24 1325	Surface composite

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

APPENDIX C

SAMPLE RESULTS SUMMARY
ASH CHARACTERIZATION
TAJI, IRAQ
24 FEBRUARY 2010

Parameter	Units	Sample Identification			Environmental Protection Agency Toxicity Characteristic Leaching Procedure Regulatory Levels (mg/L)	
		IRA TAJI 10055 03S	IRA TAJI 10055 04S	IRA TAJI 10055 05S		
		Burn Pit	Burn Pit	Burn Pit/Incinerator		
		Concentration			# > Regulatory Level	Regulatory Level[1,2]
2-Methylphenol (o-Cresol) [J]	mg/L	0	0.0057	0.0043	0	200
Cadmium	mg/L	0	0	0.1	0	1
Cresol [J]	mg/L	0	0.016	0.01	0	200
Heptachlor	mg/L	0	0	0.00024	0	0.008
Methoxychlor [J]	mg/L	0	0.00042	0	0	10

[1]See 40 CFR 261.24
[2]This table was created from DOEHRS on 30 August 2010. The MEGs in DOEHRS are current as of June 2009.
[J] indicates an estimated value. Value was detected above Method Detection Limit but below Method Reporting Limit (also known as Limit of Quantitation or Practical Quantitation Limit).

LEGEND:
mg/L = milligram per liter
MEG = military exposure guideline

APPENDIX D

DETAILED LABORATORY RESULTS
ASH CHARACTERIZATION
TAJI, IRAQ
24 FEBRUARY 2010

DOEHRS Sample ID			0000283C	0000283J	2843
Field/Local Sample ID			IRA TAJI 10055 03S	IRA TAJI 10055 04S	IRA TAJI 10055 05S
Location			TAJI	TAJI	TAJI
Sample Date/Time			2010/02/24 1316	2010/02/24 1319	2010/02/24 1325
Parameter	Class	Units	Concentration[1,2]		
1,4-Dichlorobenzene	VOC	mg/L	0	0	0
2,4,5-TP (Silvex)	Herbicides	mg/L	0	0	0
2,4,5-Trichlorophenol	SVOC	mg/L	0	0	0
2,4,6-Trichlorophenol	SVOC	mg/L	0	0	0
2,4-D	Herbicides	mg/L	0	0	0
2,4-Dinitrotoluene	SVOC	mg/L	0	0	0
2-Methylphenol (o-Cresol)	SVOC	mg/L	0	0.0057	0.0043
Aroclor 1016	PCB	µg/g	0	0	0
Aroclor 1221	PCB	µg/g	0	0	0
Aroclor 1232	PCB	µg/g	0	0	0
Aroclor 1242	PCB	µg/g	0	0	0
Aroclor 1248	PCB	µg/g	0	0	0
Aroclor 1254	PCB	µg/g	0	0	0
Aroclor 1260	PCB	µg/g	0	0	0
Arsenic	Metals	mg/L	0	0	0
Barium	Metals	mg/L	0	0	0
Cadmium	Metals	mg/L	0	0	0.1
Chlordane	Insecticides	mg/L	0	0	0
Chromium	Metals	mg/L	0	0	0
Cresol		mg/L	0	0.016	0.01
Endrin	Insecticides	mg/L	0	0	0
gamma-HCH (gamma-BHC, Lindane)	Insecticides	mg/L	0	0	0
Heptachlor	Insecticides	mg/L	0	0	0.00024
Heptachlor epoxide	Insecticides	mg/L	0	0	0
Hexachlorobenzene	SVOC	mg/L	0	0	0
Hexachlorobutadiene	VOC	mg/L	0	0	0
Hexachloroethane	SVOC	mg/L	0	0	0
Lead	Metals	mg/L	0	0	0

Analytical Results, Ash Characterization, Taji, Iraq, 24 Feb 10,
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DOEHRS Sample ID			0000283C	0000283J	2843
Field/Local Sample ID			IRA TAJI 10055 03S	IRA TAJI 10055 04S	IRA TAJI 10055 05S
Location			TAJI	TAJI	TAJI
Sample Date/Time			2010/02/24 1316	2010/02/24 1319	2010/02/24 1325
Parameter	Class	Units	Concentration[1,2]		
Mercury	Metals	mg/L	0	0	0
Methoxychlor	Insecticides	mg/L	0	0.00042	0
Nitrobenzene	SVOC	mg/L	0	0	0
Pentachlorophenol	SVOC	mg/L	0	0	0
Pyridine	SVOC	mg/L	0	0	0
Selenium	Metals	mg/L	0	0	0
Silver	Metals	mg/L	0	0	0
Toxaphene	Insecticides	mg/L	0	0	0

[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
PCB = polychlorinated biphenyl
mg/kg = milligrams per kilogram
mg/L = milligrams per liter