DEPARTMENT OF THE ARMY
US ARMY PUBLIC HEALTH COMMAND (PROVISIONAL)
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-RDE

22 SEP 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, Incinerator Ash Characterization, Taji, Iraq, 31 March 2010, U_IRQ_TAJI_CM_ASH_20100331

1. The enclosed report details the analytical results for five waste incinerator ash samples collected by 224th Medical Detachment personnel at Taji, Iraq, 31 March 2010.

2. None of the compounds in the analyses were detected at levels above regulatory thresholds for hazardous waste (toxicity characteristic) or polychlorinated biphenyl (PCB) waste. Assuming the ash exhibits none of the other characteristics of hazardous waste (such as, corrosiveness, reactivity, or ignitability), the ash should be considered nonhazardous, non PCB solid waste according to U.S. regulations. The ash should continue to be analyzed quarterly to establish a 1-year baseline characterization for the ash from this incinerator. Annual samples should be taken thereafter to ensure continued proper characterization.

FOR THE COMMANDER:

(b) (6)

Director, Health Risk Management

Encl

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, Incinerator Ash Characterization, Taji, Iraq, 31 March 2010, U_IRQ_TAJI_CM_ASH_20100331

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)

U.S. Army Public Health Command
(Provisional)

USAPHC

ANALYTICAL RESULTS
INCINERATOR ASH CHARACTERIZATION
TAJI, IRAQ
31 MARCH 2010
U_IRQ_TAJI_CM_ASH_20100331

Preventive Medicine Survey: 40-5f1

ANALYTICAL RESULTS
INCINERATOR ASH CHARACTERIZATION
TAJI, IRAQ
31 MARCH 2010
U_IRQ_TAJI_CM_ASH_20100331

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

2. PURPOSE AND SCOPE. This assessment documents the analytical results for five incinerator ash samples collected from Taji, Iraq, 31 March 2010. The analytical results for these samples were assessed to determine whether the ash is considered hazardous waste according to U.S. regulations. The U.S. criteria were used because there are no local regulations on the identification and management of hazardous waste. 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).

3. BACKGROUND AND EXPOSURE ASSUMPTIONS. Five surface composite ash samples were collected and submitted for toxicity characterization. The samples were collected from the ash produced by the incinerators at Taji, Iraq. The incinerators are located at the former burn pit site. Based on the incineration process, it is assumed the ash will not exhibit the hazardous characteristics of corrosiveness, reactivity, or ignitability. It is assumed that U.S. personnel have very limited or no exposure to the residual ash therefore, an operational risk assessment was not performed for the ash samples.

4. ANALYTICAL RESULTS.

a. Laboratory Analysis. The ash samples were analyzed by the U.S. Army Public Health Command (Provisional) (USAPHC (Prov)), formerly U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), laboratory for semivolatile organic compounds, herbicides, pesticides, and metals using the Toxicity Characteristic Leaching Procedure (TCLP). The sample was not analyzed for volatile organic compounds because it is assumed they are not present in the ash after incineration of the waste. The ash samples were separately analyzed for polychlorinated biphenyls (PCBs). A sampling information 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 regulatory thresholds for hazardous waste (toxicity characteristic) or PCB waste. Therefore, the ash samples should be considered nonhazardous and non PCB waste.

5. CONCLUSION. None of the compounds in the analyses were detected at levels above regulatory thresholds for hazardous waste (toxicity characteristic) or PCB waste. Assuming the ash exhibits none of the other characteristics of hazardous waste (such as, corrosiveness, reactivity, or ignitability), the ash should be considered nonhazardous, non PCB solid waste according to U.S. regulations. The ash should be analyzed quarterly to establish a 1-year baseline characterization for the ash from this incinerator. 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 that the content of the waste stream to the incinerator does not change and the incinerator is being operated according to applicable standards.

(2) If the use of this incinerators continues, 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. Another quarter of sampling for TCLP and total PCB content is recommended. Annual samples should be taken thereafter to ensure continued proper characterization.

b. Notes.

(1) This assessment is specific to the non exposure scenario described in this report. If the scenario changes and personnel are exposed to the ash, re-sampling may be necessary and the OEH risk may be assessed.

(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, Incinerator Ash Characterization, Taji, Iraq, 31 Mar 10, U_IRQ_TAJI_CM_ASH_20100331

7. POINTS OF CONTACT. The USAPHC (Prov) points of contact for this assessment are CPT (b) (6) and Ms. (b) (6). CPT (b) (6) may be contacted at e-mail (b) (6) and Ms. (b) (6) may be contacted at e-mail (b) (6), or DSN 312-584-6096 or commercial 001-410-436-6096.

(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 (CFR), 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
INCINERATOR ASH CHARACTERIZATION
TAJI, IRAQ
31 MARCH 2010

DOEHRS Sample ID	Field/Local Sample ID	Location	Sampling Point	Start Date/Time	Collection Type
00002DN4	IRA_TAJI_10091_06S	TAJI	Burn Pit / Incinerator	2010/03/31 1451	Ash
00002DN5	IRA_TAJI_10091_07S	TAJI	Burn Pit / Incinerator	2010/03/31 1458	Ash
00002DN6	IRA_TAJI_10091_08S	TAJI	Burn Pit / Incinerator	2010/03/31 1500	Ash
00002DN7	IRA_TAJI_10091_09S	TAJI	Burn Pit / Incinerator	2010/03/31 1502	Ash
00002DN8	IRA_TAJI_10091_10S	TAJI	Burn Pit / Incinerator	2010/03/31 1504	Ash

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

APPENDIX C

SAMPLE RESULTS SUMMARY
INCINERATOR ASH CHARACTERIZATION
TAJI, IRAQ
31 MARCH 2010

Parameter	Units	Average Concentration	Maximum Concentration of Contaminants for the Toxicity Characteristic[1]	
			# > Regulatory Levels	Regulatory Levels
Barium	mg/L	0.78	0	100
Heptachlor	mg/L	0.00003	0	0.008

Legend:
mg/L = milligram per liter

Note:
[1]See 40 CFR 261.30.

APPENDIX D

DETAILED LABORATORY RESULTS
INCINERATOR ASH CHARACTERIZATION
TAJI, IRAQ
31 MARCH 2010

DOEHRS Sample ID			00002DN4	00002DN5	00002DN6	00002DN7	00002DN8
Field/Local Sample ID			IRA_TAJI_10091_06S	IRA_TAJI_10091_07S	IRA_TAJI_10091_08S	IRA_TAJI_10091_09S	IRA_TAJI_10091_10S
Site			Incinerators	Incinerators	Incinerators	Incinerators	Incinerators
Start Date/Time			2010/03/31 1451	2010/03/31 1458	2010/03/31 1500	2010/03/31 1502	2010/03/31 1504
Parameter	Class	Units	Concentration[1,2]				
1,4-Dichlorobenzene	VOC	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP {Silvex}	Herbicides	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
2,4,5-Trichlorophenol	SVOC	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
2,4,6-Trichlorophenol	SVOC	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-D	Herbicides	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dinitrotoluene	SVOC	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylphenol {o-Cresol}	SVOC	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0
Aroclor 1016	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor 1221	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor 1232	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

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DOEHRS Sample ID			00002DN4	00002DN5	00002DN6	00002DN7	00002DN8
Field/Local Sample ID			IRA_TAJI_10091_06S	IRA_TAJI_10091_07S	IRA_TAJI_10091_08S	IRA_TAJI_10091_09S	IRA_TAJI_10091_10S
Site			Incinerators	Incinerators	Incinerators	Incinerators	Incinerators
Start Date/Time			2010/03/31 1451	2010/03/31 1458	2010/03/31 1500	2010/03/31 1502	2010/03/31 1504
Parameter	Class	Units	Concentration[1,2]				
Aroclor 1242	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor 1248	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor 1254	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Aroclor 1260	PCB	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Arsenic	Metals	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	Metals	mg/L	1.3	<1.0	<1.0	<1.0	1.1
Cadmium	Metals	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chlordane	Insecticides	mg/L	<0.003	<0.003	<0.003	<0.003	<0.003
Chromium	Metals	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Cresol		mg/L	<2.02.0	<2.02.0	<2.02.0	<2.02.0	<2.02.0
Endrin	Insecticides	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
gamma-HCH {gamma-BHC, Lindane}	Insecticides	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Heptachlor epoxide	Insecticides	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Heptachlor	Insecticides	mg/L	0.00002[J]	<0.0001	0.00002[J]	<0.0001	0.00002[J]
Hexachlorobenzene	SVOC	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Hexachlorobutadiene	VOC	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results, Incinerator Ash Characterization, Taji, Iraq, 31 Mar 10, U_IRQ_TAJI_CM_ASH_20100331

DOEHRS Sample ID			00002DN4	00002DN5	00002DN6	00002DN7	00002DN8
Field/Local Sample ID			IRA_TAJI_10091_06S	IRA_TAJI_10091_07S	IRA_TAJI_10091_08S	IRA_TAJI_10091_09S	IRA_TAJI_10091_10S
Site			Incinerators	Incinerators	Incinerators	Incinerators	Incinerators
Start Date/Time			2010/03/31 1451	2010/03/31 1458	2010/03/31 1500	2010/03/31 1502	2010/03/31 1504
Parameter	Class	Units	Concentration[1,2]				
Hexachloroethane	SVOC	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Lead	Metals	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Mercury	Metals	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Methoxychlor	Insecticides	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrobenzene	SVOC	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	SVOC	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyridine	SVOC	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Selenium	Metals	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	Metals	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene	Insecticides	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Legend:
DOEHRS Sample ID = Defense Occupational and Environmental Health Readiness System Sample Identification Number
SVOC = semivolatile organic compound
VOC = volatile organic compound
mg/kg = milligrams per kilogram
mg/L = milligrams per liter

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