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MCHB-IP-RDE

04 FEB 2013

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

SUBJECT: Deployment Occupational and Environmental Health Surveillance Sample Report, Soil, Khowst, Afghanistan, 3 December 2012,
U_AFG_KHOWST_IP_SQA_20121203

1. The enclosed report details the assessment of three soil samples collected by 626th Brigade Support Battalion, 3d Brigade Combat Team, 101st Airborne Division personnel, Khowst, Afghanistan, 3 December 2012.
2. None of the chemicals detected in the samples were identified as potential hazards.

FOR THE DIRECTOR:

(b) (6)

Encl

Portfolio Director, Health Risk Management

CF: (w/encl)

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U.S. ARMY PUBLIC HEALTH COMMAND

5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

**Deployment Occupational and Environmental Health Surveillance
Sample Report, U_AFG_KHOWST_IP_SQA_20121203
Health Risk Management Portfolio**

Soil, Khowst, Afghanistan

Prepared by (b) (6)
Deployment Environmental Surveillance Program

PHC FORM 433-E (MCHB-CS-IP), NOV 12

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Preventive Medicine Surveys: 40-5f1

ACKNOWLEDGEMENTS

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**Deployment Occupational and Environmental
Health Surveillance Sample Report
Soil
Khowst, Afghanistan
3 December 2012
U_AFG_KHOWST_IP_SQA_20121203**

1 References

See Appendix A for a list of references.

2 Purpose

This report provides the U.S. Army Public Health Command (USAPHC), Army Institute of Public Health (AIPH) assessment of the laboratory analytical results and exposure information associated with the samples collected by 626th Brigade Support Battalion, 3d Brigade Combat Team, 101st Airborne Division personnel on 3 December 2012 at Khowst, Afghanistan according to the U.S. Department of Defense deployment occupational and environmental health (DOEH) surveillance requirements. The assessment serves several purposes. It identifies DOEH hazards that may be related to acute health effects that could occur in personnel during their deployment. It provides an official record of observed exposure conditions for use in future site evaluations. It identifies whether or not there is a potential for chronic health concerns which may require additional characterization. Finally, this report includes preventive steps to reduce or eliminate occupational and environmental exposures, and surveillance and/or sampling recommendations, as necessary.

3 Scope

The assessment of sample results and exposure information in this report follows the process published in the USAPHC Technical Guide (TG) 230 "Environmental Health Risk Assessment and Chemical Exposure Guidelines for Deployed Military Personnel, June 2010 Revision." The assessment is based on limited data representing a specific time period and assesses short-term exposure risks only. This report, therefore, cannot be used alone to estimate the risk of chronic health effects from exposures. In addition, this assessment does not address all DOEH hazards to which U.S. personnel may be exposed.

4 Laboratory Analysis

Deployment soil samples received at the USAPHC, AIPH laboratory are analyzed for a standard set of parameters that includes metals, pesticides/polychlorinated biphenyls, herbicides, semivolatile organic compounds, inorganic chemicals, radionuclides, and various physical characteristics. The complete analytical sample results can be viewed in the Defense Occupational and Environmental Health Readiness System (DOEHRS). Log into the DOEHRS and search for the samples using the DOEHRS sample identification numbers (IDs) provided in Table 1 below.

Table 1. Sample Identification Information

DOEHRIS Sample ID	Sample ID Reported on Field Data Sheet	Sample Site	Date and Time Sample Collected	Collection Type
000088NS	AFG_OCCP-K_20121203_01S	Burn Pit	2012/12/03 1415	Discrete
000088NT	AFG_OCCP-K_20121203_02S	Motor Pool Tower	2012/12/03 1430	Discrete
000088NU	AFG_OCCP-K_20121203_03S	Smoking area	2012/12/03 1445	Discrete

5 Exposure Setting

Table 2 contains information about the sampling locations, environmental conditions, and associated potential population exposures. The information was provided on the field data sheets and/or exposure assessment worksheets submitted with the samples unless otherwise noted. Correction and clarification of exposure assumptions by the sampling unit is encouraged.

Table 2. Exposure Information

Questions About Exposure	Information Provided and Assumptions
Why was this sample/sample set collected?	The sample set was collected as part of a routine soil sampling plan.
What population is exposed and how?	Personnel on guard duty are exposed to soil at the guard tower in the motor pool and the burn pit. All personnel are exposed to the soil in the smoking area.
What is the timeframe under consideration?	The deployment duration of 9 months to 1 year is under consideration unless subsequent activities change or contamination occurs.
Where was the sample/sample set collected?	Three discrete soil samples were collected from the base of the guard tower in the motor pool area, the edge of the burn pit, and the centrally located smoking area.
What is known about location, activity, setting and potential sources of contamination that may affect exposure?	Jet propellant 8 is used as fuel at the burn pit. Guard duty shifts rotate, so that each person is exposed while on duty 3-5 times per month.

6 Prescreen

Table 3 shows whether parameters are identified as potential hazards because their peak single sample concentrations are greater than their most health-protective screening level USAPHC TG 230 military exposure guidelines (MEGs). Potential hazards are further assessed to determine if they are acute hazards. Parameters analyzed but not shown in Table 3 are not

considered hazards. The prescreening is conducted as described in USAPHC TG 230, section 3.4.3. The sample results were compared to MEGs on 22 January 2013.

Table 3. Results of Prescreen

Parameter	Detections/ Samples	Peak Single Sample Concentration (mg/kg)	1-year Negligible MEG (mg/kg)	Result
2,4-Dinitrophenol ^J	1/3	0.33	4242.4	Exclude as potential hazard
Barium	3/3	49	14801	Exclude as potential hazard
Cadmium	1/3	5.2	104.66	Exclude as potential hazard
Chromium	3/3	130	297840	Exclude as potential hazard
Lead	1/3	17	2200	Exclude as potential hazard
Mercury	3/3	0.032	978080	Exclude as potential hazard
Nickel	3/3	88	4242.4	Exclude as potential hazard
Pentachlorophenol ^J	1/3	0.19	141.41	Exclude as potential hazard
Strontium	3/3	190	424240	Exclude as potential hazard

Legend: mg/kg = milligrams per kilogram

^J Estimated value that was detected above the Method Detection Limit but below the Method Reporting Limit (also known as Limit of Quantitation or Practical Quantitation Limit).

7 Conclusion

None of the chemicals detected in the samples were identified as potential hazards because the concentrations were not greater than USAPHC TG 230 MEGs.

8 Limitations

8.1 Field Data Quality

Field data provided with the samples were adequate.

8.2 Sample Receipt at USAPHC Laboratory

The samples were received at the USAPHC at a temperature of 16 degrees Celsius. The samples were packaged correctly.

8.3 Laboratory Data Quality

Some parameters in this data set are flagged with a J code (¹). This code indicates an estimated value that was detected above the Method Detection Limit but below the Method Reporting Limit (also known as Limit of Quantitation or Practical Quantitation Limit).

8.4 Risk Assessment

Military exposure guidelines have not been developed for several chemicals detected in the samples primarily due to a lack of accepted health information data for these chemicals. The U.S. Environmental Protection Agency or other health organizations have not published nor recommended health-impacting exposure thresholds.

9 Recommendations

Maintain communication with USAPHC, AIPH points of contact (POCs) and continue standard surveillance of soil exposures in accordance with defined Occupational and Environmental Health Site Assessment (OEHSA) Exposure Pathways and sampling plans for your location.

An OEHSA was completed for Khowst, Afghanistan on 12 December 2012. Update the OEHSA annually or as the exposure scenario changes.

10 Points of Contact

The USAPHC, AIPH POCs for this assessment are Ms. (b) (6) and Ms. (b) (6). Ms. (b) (6) may be contacted at e-mail (b) (6) and Ms. (b) (6) may be contacted at e-mail (b) (6), or DSN (b) (6) or commercial (b) (6).

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Biologist
Deployment Environmental Surveillance
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Approved by:

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Appendix A

References

- Department of Defense. 2004. Department of Defense Directive 6490.02E, *Comprehensive Health Surveillance*. <http://www.dtic.mil/whs/directives/corres/pdf/649002Ep.pdf>
- Department of Defense. 2006. Department of Defense Instruction 6490.03, *Deployment Health*. <http://www.dtic.mil/whs/directives/corres/pdf/649003p.pdf>
- Department of the Army. 2006. Field Manual 5-19, *Composite Risk Management*. <https://rdl.train.army.mil/soldierPortal/atia/adlsc/view/public/23137-1/FM/5-19/TOC.HTM>
- U.S. Army Public Health Command (Provisional). 2010. Technical Guide 230, *Chemical Exposure Guidelines for Deployed Military Personnel*. <http://phc.amedd.army.mil/PHC%20Resource%20Library/TG230.pdf>