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17 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, Herrera, Afghanistan, 17 December 2012, U_AFG_HERRERA_IP_SQA_20121217

1. The enclosed report details the assessment of three soil samples collected by 791st Medical Detachment personnel, Herrera, Afghanistan, 17 December 2012.

2. None of the chemicals detected in the samples were identified as potential hazards.

FOR THE DIRECTOR:

(b) (6)

(b) (6)
Portfolio Director, Health Risk Management

Encl

CF: (w/encl)
791st MED DET (Commander/CPT (b) (6)
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USAPHC
U.S. ARMY PUBLIC HEALTH COMMAND
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**Deployment Occupational and Environmental Health Surveillance Sample Report, U_AFG_HERRERA_IP_SQA_20121217 Health Risk Management Portfolio**

**Soil, Herrera, Afghanistan**

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



**Preventive Medicine Surveys: 40-5f1**

## ACKNOWLEDGEMENTS

# Deployment Occupational and Environmental Health Surveillance Sample Report
# Soil
# Herrera, Afghanistan
# 17 December 2012
# U_AFG_HERRERA_IP_SQA_20121217

## 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 791st Medical Detachment personnel on 17 December 2012 at Herrera, 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**

| DOEHRS Sample ID | Sample ID Reported on Field Data Sheet | Sample Site | Date and Time Sample Collected | Collection Type |
|---|---|---|---|---|
| 00008BYN | AFG_HERRER_20121217_01S | Maintenance Area | 2012/12/17 1150 | Discrete |
| 00008BYO | AFG_HERRER_20121217_02S | Burn Pit | 2012/12/17 1210 | Discrete |
| 00008BYP | AFG_HERRER_20121217_03S | Guard Tower | 2012/12/17 1225 | Discrete |

## 5 Exposure Setting

Table 2 contains information about the sampling location, environmental conditions, and associated potential population exposure. 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 routine sampling of soil for the annual Occupational and Environmental Health Site Assessment (OEHSA). |
| What population is exposed and how? | The maintenance area and guard tower experience a high troop volume, and people working and walking through are exposed. Only personnel working at the burn pit are exposed to soil there. |
| What is the timeframe under consideration? | The deployment duration of approximately one year is under consideration unless subsequent activities change or contamination occurs. |
| Where was the sample/sample set collected? | Three discrete soil samples were collected near the petroleum, oil, lubricant (POL) storage at the maintenance area, from the burn pit, and near the guard tower. |
| What is known about location, activity, setting and potential sources of contamination that may affect exposure? | There is the potential for POL spills in the maintenance area and from the generators near the guard tower. |

## 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 |
|---|---|---|---|---|
| Barium | 3/3 | 80 | 14801 | Exclude as potential hazard |
| Chromium | 3/3 | 52 | 297840 | Exclude as potential hazard |
| Di(2-ethylhexyl)phthalate | 1/3 | 0.43 | 35354 | Exclude as potential hazard |
| Lead | 1/3 | 12 | 2200 | Exclude as potential hazard |
| Mercury | 3/3 | 0.024 | 978080 | Exclude as potential hazard |
| Nickel | 3/3 | 72 | 4242.4 | Exclude as potential hazard |
| Strontium | 3/3 | 320 | 424240 | Exclude as potential hazard |

Legend: mg/kg = milligrams per kilogram

# 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 10 degrees Celsius. The samples were packaged correctly.

### 8.3 Laboratory Data Quality

No laboratory data quality issues associated with this sample set were identified.

### 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 OEHSA Exposure Pathways and sampling plans for your location.

An OEHSA was completed for Herrera, Afghanistan on 14 July 2012. Update the OEHSA annually or as the exposure scenario changes.

## 10 Points of Contact

The USAPHC, AIPH POCs for this assessment are Mr. (b) (6) and Ms. (b) (6). Mr. (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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# 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