



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

MCHB-IP-RDE

20 NOV 2012

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, Airborne Particulate Matter, Curry, Afghanistan, 2-3 July 2012
U_AFG_CURRY_IP_A10_20120703

1. The enclosed report details the assessment of two particulate matter (PM) air samples collected by 701st Brigade Support Battalion, 4th Infantry Brigade Combat Team, 1st Infantry Division personnel, Curry, Afghanistan, 2-3 July 2012. The sample collected on 3 July 2012 was invalid.
2. The samples were collected for airborne PM less than 10 micrometers in diameter (PM₁₀) and analyzed for a set of metals typically found in PM. Neither PM₁₀ nor any of the analyzed metals were identified as acute hazards on the day sampled.

FOR THE DIRECTOR:

(b) (6)

Encl

Portfolio Director, Health Risk Management

CF: (w/encl)

701st BSB (Environmental Science Engineering Officer/1LT (b) (6))

ARCENT (Force Health Protection Officer/CPT (b) (6))

CSTC-A (Force Health Protection Officer/Maj (b) (6))

ARCENT (Force Health Protection Officer/MAJ (b) (6))

USAFSAM (Chief, Special Projects/Maj (b) (6))

USFOR-A (Force Health Protection Officer/MAJ (b) (6))



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_CURRY_IP_A10_20120703
Health Risk Management Portfolio**

Airborne Particulate Matter, Curry, Afghanistan

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

Distribution authorized to U.S. Government Agencies only; protection of privileged information evaluating another command; October 2012. Requests for this document must be referred to Office of the Command Surgeon, U.S. Central Command, 7115 South Boundary Boulevard, MacDill Air Force Base, FL 33621-5101.

Preventive Medicine Surveys: 40-5f1

CHPPM/PHC FORM 433-E (MCHB-CS-IP), SEP 10

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

ACKNOWLEDGEMENTS

Use of trademarked name(s) does not imply endorsement by the U.S. Army but is intended only to assist in identification of a specific product.

**Deployment Occupational and Environmental
Health Surveillance Sample Report
Airborne Particulate Matter
Curry, Afghanistan
2-3 July 2012
U_AFG_CURRY_IP_A10_20120703**

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 sample collected by 701st Brigade Support Battalion, 4th Infantry Brigade Combat Team, 1st Infantry Division personnel on 2-3 July 2012 at Curry, 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. Therefore, this report 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

Filters used to collect deployment air samples of particulate matter (PM) are shipped to the USAPHC, AIPH and weighed to determine particulate mass and calculate ambient concentrations. The USAPHC, AIPH laboratory also analyzes the PM for a standard set of metals typically found in PM. 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.

Table 1. Sample Identification Information

DOEHRS Sample ID	Sample ID Reported on Field Data Sheet	Sample Site	Date and Time Sample Collected	Sampling Duration	Sample Invalid (Yes/No) Reason for Invalid Sample
00007BD9	AFG_CURRY_12184_PM10DPS	Tactical Operations Center (TOC)	2012/07/02 0900	720.0 minutes	No
00007BD8	AFG_CURRY_12184_PM10DPS	Transient housing	2012/07/03 2100	600.0 minutes	Yes, Battery Failure

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?	Assess exposure to PM less than 10 micrometers in diameter (PM ₁₀) and metals in the ambient air at this location.
What population is exposed and how?	All basecamp personnel breathe the ambient air. However, it is assumed that personnel spend part of each day indoors.
What is the timeframe under consideration?	Although personnel will be deployed to this location for approximately 1 year, only the day the valid sample was collected is being assessed.
Where was the sample/sample set collected?	The valid sample was collected from the tactical operation center.
What is known about location, activity, setting and potential sources of contamination that may affect exposure?	This location will be turned over to the Afghan National Army. No industry is located near the sampling site. Burn pits are located on the far side of area of operations. Highest traffic areas are covered with gravel. Any exposure may be from old hard standing structures that are only used as back up billets for personnel.

6 Prescreen

Table 3 shows whether parameters are identified as potential hazards because their 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 2 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 13 August 2012.

Table 3. Results of Prescreen

Parameter	Concentration ($\mu\text{g}/\text{m}^3$)	1-year Negligible MEG ($\mu\text{g}/\text{m}^3$)	Result
PM ₁₀	90	Not defined	Retain as potential hazard

Legend: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

7 Acute Screen

Table 4 shows whether parameters identified as potential hazards after prescreening are considered acute hazards because their concentrations are greater than their acute screening MEGs. Acute hazards are further assessed to estimate the tactical risk from exposure to these parameters in the ambient air. The acute screening is conducted as described in USAPHC TG 230, section 3.4.5.1.

Table 4 Results of Acute Screen

Parameter	Concentration ($\mu\text{g}/\text{m}^3$)	Screening MEG ($\mu\text{g}/\text{m}^3$)	Result
PM ₁₀	90	24-hour Negligible MEG: 250	Exclude as acute hazard

Legend: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

8 Conclusion

Neither PM₁₀ nor any of the analyzed metals were identified as acute hazards because their concentrations were not greater than their acute screening level MEGs.

9 Limitations

9.1 Field Data Quality

Field data provided with the samples were adequate.

One sample was invalid due to battery failure.

9.2 Sample Receipt at USAPHC Laboratory

The sample was packaged correctly.

9.3 Laboratory Data Quality

No laboratory data quality issues with this sample were identified.

10 Recommendations and Notes

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

An OEHSA was completed for Curry, Afghanistan on 16 March 2012. Update the OEHSA annually or as the exposure scenario changes.

11 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).

(b) (6)

Environmental Scientist
Deployment Environmental Surveillance
Program

Approved by:

(b) (6)

Acting Program Manager
Deployment Environmental Surveillance

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>