



DEPARTMENT OF THE ARMY
US ARMY INSTITUTE OF PUBLIC HEALTH
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MCHB-IP-RDE

15 April 2015

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 Volatile Organic Compounds, Al Asad, Iraq, 10-12 February 2015, U_IRQ_ASAD_IP_A15_20150212

1. The enclosed report details the assessment of three volatile organic compound air samples collected by 223d Medical Detachment personnel, Al Asad, Iraq, 10-12 February 2015. The samples were received at the U.S. Army Public Health Command (USAPHC), Army Institute of Public Health (AIPH) laboratory on 20 February 2015.
2. None of the chemicals detected in the samples were identified as acute hazards.
3. Please help us find ways to improve the products and services we provide and take a few moments of your time to complete our survey, <https://usaphcapps.amedd.army.mil/Survey/se.ashx?s=2511374518790C4B>. To ensure we evaluate the proper project, for Question 3 "Product/Service provided by", please indicate: Location: Army Institute of Public Health, Portfolio/Staff: Health Risk Management, Program: Deployment Environmental Surveillance; for Question 5 "Type(s) of product or service received", please indicate: Other-DOEHS Sample Report.

FOR THE DIRECTOR:

(b) (6)

Encl

Portfolio Director, Health Risk Management

CF: (w/encl)

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USA 3d MDSC (Preventive Medicine/CPT (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_IRQ_ALASAD_IP_A15_20150212
Health Risk Management Portfolio**

Airborne Volatile Organic Compounds, Al Asad, Iraq

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

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General Medical: 500A, Public Health Survey

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ACKNOWLEDGEMENTS

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**Deployment Occupational and Environmental
Health Surveillance Sample Report
Airborne Volatile Organic Compounds
Al Asad, Iraq
10-12 February 2015
U_IRQ_ASAD_IP_A15_20150212**

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 223d Medical Detachment personnel on 10-12 February 2015 at Al Asad, Iraq 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. 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, 2013 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

The air samples were received at the USAPHC, AIPH laboratory on 20 February 2015 and analyzed for a standard set of volatile organic compounds (VOCs). 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. These samples are associated with Exposure Pathway IDs 14657 and 14638 in the DOEHRS.

DOEH Surveillance Sample Report, Airborne VOCs, Al Asad, Iraq, 10-12 Feb 15,
U_IRQ_ASAD_IP_A15_20150212

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
0000D6CN	IRQ_HAVOC_15041_TO14	Burn Pit	2015/02/10 1730	1440.0 min	No
0000D6CP	IRQ_HAVOC_15043_TO1402	COC	2015/02/12 0930	1440.0 min	No
0000D6CO	IRQ_HAVOC_15043_TO1401	LCE Hanger	2015/02/12 1640	1440.0 min	No

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 the exposure pathway form associated with the samples. Correction and clarification of exposure assumptions by the sampling unit is encouraged.

Table 2. Exposure Information

Questions About Exposure	Information Provided and Assumptions
Why this sample set was collected?	To characterize exposure to VOCs in the ambient air.
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 timeframe between the first and last sample dates is being assessed.
Where was the sample/sample set collected?	The samples were collected from the burn pit, command operations center and aircraft hangar.
What is known about location, activity, setting and potential sources of contamination that may affect exposure?	There is no industry around the sampling locations. The burn pit is located 100 meters to the west of the perimeter.

6 Prescreen

Table 3 compares the concentration of detected chemicals to conservative (long-term) USAPHC TG 230 military exposure guidelines (MEGs). Chemicals with concentrations greater than their long-term MEGs or not having long-term MEGs are further screened in Table 4 to determine if they

**DOEH Surveillance Sample Report, Airborne VOCs, Al Asad, Iraq, 10-12 Feb 15,
U_IRQ_ASAD_IP_A15_20150212**

are acute hazards. The prescreening is conducted as described in USAPHC TG 230, section 3.4.3. The sample results were compared to MEGs on 25 March 2015.

Table 3. Results of Prescreen

Parameter	Peak Concentration ($\mu\text{g}/\text{m}^3$)	1-year Negligible MEG ($\mu\text{g}/\text{m}^3$)	Potential Hazard
Acrolein	1.4	0.137	Yes

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

7 Acute Screen

Table 4 shows whether potential hazards are considered acute hazards because their concentrations are greater than their acute 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	Peak Concentration ($\mu\text{g}/\text{m}^3$)	Screening MEG ($\mu\text{g}/\text{m}^3$)	Acute Hazard
Acrolein	1.4	14-day Negligible MEG: 45.9	No

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

8 Conclusion

None of the chemicals detected in the samples were identified as acute hazards because their concentrations did not exceed their acute screening level MEGs.

9 Limitations

9.1 Field Data Quality

Field data provided with the samples were adequate.

9.2 Sample Receipt at USAPHC Laboratory

The samples were packaged correctly.

9.3 Laboratory Data Quality

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

**DOEH Surveillance Sample Report, Airborne VOCs, Al Asad, Iraq, 10-12 Feb 15,
U_IRQ_ASAD_IP_A15_20150212**

Some parameters in this data set are flagged with a J code (J). 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).

10 Recommendations

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

An OEHSA was completed for Al Asad, Iraq on 28 February 2015. Update the OEHSA annually or as the exposure scenario changes.

11 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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Environmental Scientist
Deployment Environmental Surveillance
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Approved by:

(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>

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U.S. Army Public Health Command. 2013. Technical Guide 230, *Environmental Health Risk Assessment and Chemical Exposure Guidelines for Deployed Military Personnel*. <http://phc.amedd.army.mil/PHC%20Resource%20Library/TG230.pdf>