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

01 JUN 2011

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, Kandahar, Afghanistan, 6 January-19 February 2011, U_AFG_KANDAHAR_CM_A25_20110219

1. The enclosed report details the assessment of particulate matter (PM) air samples collected by 4th Preventive Medicine Detachment personnel from four sites at Kandahar, Afghanistan, 6 January-19 February 2011. The samples were collected for airborne PM less than 2.5 micrometers in diameter ($PM_{2.5}$) and analyzed for a set of metals typically associated with PM.

2. Based on the sample results and associated exposure information assessed in this report, the tactical risk estimate for $PM_{2.5}$ in the areas of the Boardwalk, gym, MWR building, and South Park area on both typical and peak exposure days during the sampled timeframe is **low**.

3. Based on the sample results and associated exposure information assessed in this report, the tactical risk estimate for $PM_{2.5}$ in the area of the incinerators and burn pit on both typical and peak exposure days during the sampled timeframe is **low**. The tactical risk estimate for cadmium in the area of the incinerators and burn pit on both typical and peak exposure days during the sampled timeframe is **low**. The samples collected near the burn pit during this sampling event were not intended to specifically characterize exposure to burn pit emissions.

FOR THE DIRECTOR:

(b) (6)

Portfolio Director, Health Risk Management

Encl

CF: (w/encl)
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MCHB-IP-RDE
SUBJECT: Deployment Occupational and Environmental Health Surveillance Sample Report, Airborne Particulate Matter, Kandahar, Afghanistan, 6 January-19 February 2011, U_AFG_KANDAHAR_CM_A25_20110219

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USAPHC
U.S. ARMY PUBLIC HEALTH COMMAND (Provisional)
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Deployment Occupational and Environmental Health Surveillance Sample Report,
U_AFG_KANDAHAR_CM_A25_20110219
Health Risk Management Portfolio

Airborne Particulate Matter, Kandahar, Afghanistan

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

Preventive Medicine Surveys: 40-5f1

ACKNOWLEDGMENTS

DEPLOYMENT OCCUPATIONAL AND ENVIRONMENTAL HEALTH SURVEILLANCE SAMPLE REPORT AIRBORNE PARTICULATE MATTER KANDAHAR, AFGHANISTAN 6 JANUARY-19 FEBRUARY 2011 U_AFG_KANDAHAR_CM_A25_20110219

1 References

See Appendix A for a list of references.

2 Purpose

This report provides the U.S. Army Public Health Command (Provisional) (USAPHC (Prov)), Army Institute of Public Health (AIPH) assessment of the laboratory analytical results and exposure information associated with the samples collected by 4th Preventive Medicine Detachment 6 January-19 February 2011 from four sites at Kandahar, 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 (Prov) 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 (Prov), AIPH, and weighed to determine particulate mass and calculate ambient concentrations. The USAPHC (Prov), 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-Environmental Health (DOEHRS-EH). Log into the DOEHRS-EH and search for the samples using the DOEHRS sample identification numbers (IDs) provided in Appendix B.

5 Exposure Setting

Appendix C contains information about the sampling location, environmental conditions, and associated potential population exposure for each sample site. The information was provided on the field data sheets submitted with the sample set unless otherwise noted. Information about the individual samples including sample date and site, is provided in Appendix B. Correction and clarification of exposure assumptions by the sampling unit is encouraged.

6 Prescreen

Table 1 shows parameters identified as potential hazards because their peak single sample concentrations were greater than their most health-protective screening level USAPHC (Prov) TG 230 military exposure guidelines (MEGs). Potential hazards are further assessed to determine if they are acute hazards. The prescreening is conducted as described in USAPHC (Prov) TG 230, section 3.4.3. The sample results were compared to MEGs on 8 April 2011.

Table 1. Results of Prescreen

Parameter	Detections/ Samples	Peak Single Sample Concentration (µg/m^3)	1-year Negligible MEG (µg/m^3)	Result
Cadmium at Burn Pit	1/4	0.0456	0.00685	Retain as potential hazard
$PM_{2.5}$ at Boardwalk	4/4	110	15	Retain as potential hazard
$PM_{2.5}$ at Burn Pit	4/4	154	15	Retain as potential hazard
$PM_{2.5}$ at MWR	4/4	160	15	Retain as potential hazard
$PM_{2.5}$ at South Park	4/4	179	15	Retain as potential hazard

Legend: µg/m^3 = micrograms per cubic meter

7 Acute Risk Assessment

7.1 Acute Screen

Table 2 shows parameters identified as acute hazards because their peak sample day concentrations were greater than their acute screening MEGs. Acute hazards are further assessed to estimate the acute risk from exposure to these parameters in the ambient air. The acute screening is conducted as described in USAPHC (Prov) TG 230, section 3.4.5.1.

Table 2. Results of Acute Screen

Parameter	Peak Sample Day Concentration (µg/m^3)	Screening MEG (µg/m^3)	Result
Cadmium at Burn Pit	0.0456	14-day MEG: 0.0205	Retain as acute hazard
$PM_{2.5}$ at Boardwalk	110	24-hour Negligible MEG: 65	Retain as acute hazard
$PM_{2.5}$ at Burn Pit	154	24-hour Negligible MEG: 65	Retain as acute hazard
$PM_{2.5}$ at MWR	160	24-hour Negligible MEG: 65	Retain as acute hazard
$PM_{2.5}$ at South Park	179	24-hour Negligible MEG: 65	Retain as acute hazard

Legend: µg/m^3 = micrograms per cubic meter

7.2 Hazard Severity

Table 3 summarizes the hazard severity levels determined by comparing the peak and average sample day concentrations of the acute hazards to the appropriate MEGs. The peak concentration is intended to represent the worst exposure conditions and the average concentration is intended to represent typical exposure conditions. Hazard severity is determined using USAPHC (Prov) TG 230, section 3.4.5.2.

Table 3. Hazard Severity

Parameter	Concentration (µg/m^3)	Comparison MEGs (µg/m^3)	Hazard Severity
Cadmium at Burn Pit	Peak: 0.0456	Is > 14-day Negligible MEG: 0.0205, but ≤ 8-hour Negligible MEG: 41	Negligible
	Average: 0.0192	Is ≤ 14-day Negligible MEG: 0.0205	Negligible
$PM_{2.5}$ at Boardwalk	Peak: 110	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible
	Average: 59	Is ≤ 24-hour Negligible MEG: 65	Negligible
$PM_{2.5}$ at Burn Pit	Peak: 154	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible
	Average: 77	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible
$PM_{2.5}$ at MWR	Peak: 160	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible
	Average: 77	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible
$PM_{2.5}$ at South Park	Peak: 179	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible
	Average: 81	Is > 24-hour Negligible MEG: 65, but < 24-hour Marginal MEG: 250	Negligible

Legend: µg/m^3 = micrograms per cubic meter

7.3 Hazard Probability

Table 4 summarizes the hazard probability determinations for each acute hazard. Appendix D contains the hazard probability scoring tables per location. Refer to USAPHC (Prov) TG 230, section 3.4.5.3 for additional information about hazard probability scoring methodology.

Table 4. Hazard Probability

Parameter	Concentration ($\mu g/m^3$)	Hazard Probability
Cadmium at Burn Pit	Peak: 0.0456	Unlikely
	Average: 0.0192	Unlikely
$PM_{2.5}$ at Boardwalk	Peak: 110	Unlikely
	Average: 59	Unlikely
$PM_{2.5}$ at Burn Pit	Peak: 154	Seldom
	Average: 77	Unlikely
$PM_{2.5}$ at MWR	Peak: 160	Seldom
	Average: 77	Unlikely
$PM_{2.5}$ at South Park	Peak: 179	Seldom
	Average: 81	Unlikely

7.4 Tactical Risk Estimate

Table 5 summarizes the acute risk assessment for exposure to each of the acute hazards. The tactical risk estimate was determined using the USAPHC (Prov) TG 230, Table 3-1 “Military Risk Assessment Matrix.” The tactical risk estimates are color-coded consistent with the black, red, amber, green system described in Field Manual 1-02 "Operational Terms and Graphics."

Table 5. Risk Assessment Summary

Parameter	Type of Exposure	Hazard Severity	Hazard Probability	Tactical Risk Estimate
Cadmium at Burn Pit	Peak	Negligible	Unlikely	Low
	Average	Negligible	Unlikely	Low
$PM_{2.5}$ at Boardwalk	Peak	Negligible	Unlikely	Low
	Average	Negligible	Unlikely	Low
$PM_{2.5}$ at Burn Pit	Peak	Negligible	Seldom	Low
	Average	Negligible	Unlikely	Low
$PM_{2.5}$ at MWR	Peak	Negligible	Seldom	Low
	Average	Negligible	Unlikely	Low
$PM_{2.5}$ at South Park	Peak	Negligible	Seldom	Low
	Average	Negligible	Unlikely	Low

8 Conclusion

Refer to USAPHC (Prov) TG 230, Table 3-2 for the potential consequences to military operations and force readiness associated with this risk level. Based on the sample results and associated exposure information assessed in this report:

- The tactical risk estimate for $PM_{2.5}$ at the area of the Boardwalk, gym, MWR building, and South Park area on both typical and peak exposure days during the sampled timeframe is **low**.
- The tactical risk estimate for $PM_{2.5}$ in the area of the incinerators and burn pit on both typical and peak exposure days during the sampled timeframe is **low**. The tactical risk estimate for cadmium in the area of the incinerators and burn pit on both typical and peak exposure days during the sampled timeframe is **low**. The samples collected near the burn pit during this sampling event were not intended to specifically characterize exposure to burn pit emissions.

9 Limitations

9.1 Field Data Quality

The field data sheets provided with the sample set were adequately filled out.

9.2 Sample Receipt at USAPHC (Prov) Laboratory

The sample set was packaged correctly.

9.3 Laboratory Data Quality

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).

9.4 Risk Assessment

The assessment of risk for cadmium at the burn pit is solely based on estimated data, using a method detection limit that is higher than the MEG.

If a parameter was not detected in all samples, half of the laboratory reporting limit was used to calculate an average.

10 Recommendations and Notes

Maintain communication with USAPHC (Prov), 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.

If an OEHSA and/or specific sampling plans have not yet been completed for Kandahar, Afghanistan, collect ambient PM air samples from sites that best represent exposures at least once every 6 days to better characterize conditions over time.

11 Points of Contact

The USAPHC (Prov), AIPH POCs for this assessment are Ms. (b) (6) and Mr. (b) (6) Ms. (b) (6) may be contacted at e-mail (b) (6) and Mr. (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 Program

Approved by:

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Acting 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. Department of the Army (DA) Field Manual (FM) 5-19, Composite Risk Management, 21 August 2006.

4. DA FM 1-02, Operational Terms and Graphics, 21 September 2004.

5. USAPHC (Prov) Technical Guide (TG) 230, Chemical Exposure Guidelines for Deployed Military Personnel, June 2010.

Appendix B

Sample Identification Information

DOEHRS Sample ID	Field/Local Sample ID	Sampling Point	Start Date/Time	Invalid Sample
00003Z31	AFG_KANDAH_10199PM2.5DPS	Burn Pit	2011/01/06 1112	No
00003Z39	AFG_KANDAH_10199_PM2.5DPS	South Park	2011/01/06 1120	No
00003Z36	AFG_KANDAH_10199_PM2.5DPS	MWR	2011/01/06 1133	No
00003Z2X	AFG_KANDAH_10199_PM2.5DPS	Board Walk	2011/01/06 1144	No
00003Z41	AFG_KANDAH_10199PM2.5DPS	Burn Pit	2011/01/21 1111	No
00003Z46	AFG_KANDAH_10199_PM2.5DPS	South Park	2011/01/21 1122	No
00003Z43	AFG_KANDAH_10199_PM2.5DPS	MWR	2011/01/21 1131	No
00003Z3X	AFG_KANDAH_10199_PM2.5DPS	Board Walk	2011/01/21 1142	No
000045MQ	AFG_KANDAH_10199_PM2.5DPS	Burn Pit	2011/02/07 1404	No
000045MW	AFG_KANDAH_10199_PM2.5DPS	Board Walk	2011/02/07 1408	No
000045MZ	AFG_KANDAH_10199_PM2.5DPS	MWR	2011/02/07 1414	No
000045MN	AFG_KANDAH_10199_PM2.5DPS	South Park	2011/02/07 1421	No
000045M3	AFG_KANDAH_10199_PM2.5DPS	Burn Pit	2011/02/19 1413	No
000045MG	AFG_KANDAH_10199_PM2.5DPS	Board Walk	2011/02/19 1418	No
000045MJ	AFG_KANDAH_10199_PM2.5DPS	MWR	2011/02/19 1423	No
000045MK	AFG_KANDAH_10199_PM2.5DPS	South Park	2011/02/19 1428	No

Appendix C

Exposure Setting Information

Table C-1. Exposure Information at the Boardwalk Site

Questions About Exposure	Information Provided and Assumptions
What is the exposure event or ambient environmental condition under consideration?	Exposure to PM less than 2.5 micrometers in diameter ($PM_{2.5}$) and metals in the ambient air at this location.
What is the population at risk?	The population in the area of the Boardwalk.
What is the timeframe under consideration?	The samples were collected 6 January-19 February 2011. This encompasses a timeframe of approximately six weeks. Although personnel will be deployed to this location for approximately 1 year, only this timeframe of 6 weeks is being considered.
What are the activity patterns of the exposed population?	Typical exertion. It is assumed personnel spend part of each day indoors.
What is known about sources of potential contamination?	Information not provided.
What is known about the exposure setting?	The Boardwalk site is located by the hockey rink and volleyball court. It is assumed many personnel frequent this area.
What are the exposure pathways?	Inhalation.
Where are the sampling sites relative to where exposure occurs?	The sampler was next to the hockey rink.

Note: Questions are extracted from USAPHC (Prov) TG 230

Table C-2. Exposure Information at the Burn Pit Site

Questions About Exposure	Information Provided and Assumptions
What is the exposure event or ambient environmental condition under consideration?	Exposure to PM less than 2.5 micrometers in diameter ($PM_{2.5}$) and metals in the ambient air at this location.
What is the population at risk?	The population in the area of the burn pit and incinerators.
What is the timeframe under consideration?	The samples were collected 6 January-19 February 2011. This encompasses a timeframe of approximately six weeks. Although personnel will be deployed to this location for approximately 1 year, only this timeframe of 6 weeks is being considered.
What are the activity patterns of the exposed population?	Typical exertion. It is assumed personnel spend part of each day indoors.
What is known about sources of potential contamination?	Incinerators and Burn pit.
What is known about the exposure setting?	Information not provided, but it is assumed few personnel frequent the area.
What are the exposure pathways?	Inhalation.
Where are the sampling sites relative to where exposure occurs?	The sampler was attached to a building near the two incinerators and active burn pit.

Note: Questions are extracted from USAPHC (Prov) TG 230

Table C-3. Exposure Information at the Morale Welfare and Recreation (MWR) Site

Questions About Exposure	Information Provided and Assumptions
What is the exposure event or ambient environmental condition under consideration?	Exposure to PM less than 2.5 micrometers in diameter ($PM_{2.5}$) and metals in the ambient air at this location.
What is the population at risk?	The population in the area of the MWR building.
What is the timeframe under consideration?	The samples were collected on 6 January-19 February 2011. This encompasses a timeframe of approximately six weeks. Although personnel will be deployed to this location for approximately 1 year, only this timeframe of 6 weeks is being considered.
What are the activity patterns of the exposed population?	Typical exertion. It is assumed personnel spend part of each day indoors.
What is known about sources of potential contamination?	Information not provided.
What is known about the exposure setting?	Information not provided, but it is assumed the area around the sample site is frequented by all personnel at this camp.
What are the exposure pathways?	Inhalation.
Where are the sampling sites relative to where exposure occurs?	The sampler was located between the gym and computer room #2.

Note: Questions are extracted from USAPHC (Prov) TG 230

Table C-4. Exposure Information at the South Park Site

Questions About Exposure	Information Provided and Assumptions
What is the exposure event or ambient environmental condition under consideration?	Exposure to PM less than 2.5 micrometers in diameter ($PM_{2.5}$) and metals in the ambient air at this location.
What is the population at risk?	The population in the South Park area.
What is the timeframe under consideration?	The samples were collected on 6 January-19 February 2011. This encompasses a timeframe of approximately six weeks. Although personnel will be deployed to this location for approximately 1 year, only this timeframe of 6 weeks is being considered.
What are the activity patterns of the exposed population?	Typical exertion. It is assumed personnel spend part of each day indoors.
What is known about sources of potential contamination?	Information not provided.
What is known about the exposure setting?	The South Park area appears to be a living area with latrines and tents.
What are the exposure pathways?	Inhalation.
Where are the sampling sites relative to where exposure occurs?	The sampler was located on a post between the latrines and tents.

Note: Questions are extracted from USAPHC (Prov) TG 230

Appendix D

Hazard Probability Scoring Tables

Table D-1. Hazard Probability Scoring for Cadmium at the Burn Pit Site

Concentration ($\mu g/m^3$)	Hazard Probability Scoring for Exposure Factors				Hazard Probability
	Degree of Exposure	Represent-ativeness of Sample Data	Duration of Exposure	Rate of Exposure	
Peak: 0.0456	Score 1: Concentration is less than the 8-hour Negligible MEG.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend 8 hours at sample site and compared to 8-hour MEG).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely
Average: 0.0192	Score 1: Concentration is less than the 8-hour Negligible MEG.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend 8 hours at sample site and compared to 8-hour MEG).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely

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

Table D-2. Hazard Probability Scoring for $PM_{2.5}$ at the Boardwalk Site

Concentration ($\mu g/m^3$)	Hazard Probability Scoring for Exposure Factors				Hazard Probability
	Degree of Exposure	Represent-ativeness of Sample Data	Duration of Exposure	Rate of Exposure	
Peak: 110	Score 1: Concentration is <25th percentile of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely
Average: 59	Score 1: Concentration is ≤Negligible MEG.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely

Table D-3. Hazard Probability Scoring for $PM_{2.5}$ at the Burn Pit Site

Concentration ($\mu g/m^3$)	Hazard Probability Scoring for Exposure Factors				Hazard Probability
	Degree of Exposure	Represent-ativeness of Sample Data	Duration of Exposure	Rate of Exposure	
Peak: 154	Score 2: Concentration is at or between 25th and 75th percentiles of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 7: Seldom
Average: 77	Score 1: Concentration is <25th percentile of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely

Table D-4. Hazard Probability Scoring for $PM_{2.5}$ at the MWR Site

Concentration ($\mu g/m^3$)	Hazard Probability Scoring for Exposure Factors				Hazard Probability
	Degree of Exposure	Represent-ativeness of Sample Data	Duration of Exposure	Rate of Exposure	
Peak: 160	Score 2: Concentration is at or between 25th and 75th percentiles of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 7: Seldom
Average: 77	Score 1: Concentration is <25th percentile of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely

Table D-5. Hazard Probability Scoring for $PM_{2.5}$ at the South Park Site

Concentration ($\mu g/m^3$)	Hazard Probability Scoring for Exposure Factors				Hazard Probability
	Degree of Exposure	Represent-ativeness of Sample Data	Duration of Exposure	Rate of Exposure	
Peak: 179	Score 2: Concentration is at or between 25th and 75th percentiles of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 7: Seldom
Average: 81	Score 1: Concentration is <25th percentile of severity range.	Score 2: Field data adequately estimates population exposure.	Score 1: Field exposure duration to MEG exposure duration ratio is <1 (Personnel will not spend the entire 24-hours at the sampling location and it is assumed they spend part of each day indoors).	Score 2: Typical exertion (no information to indicate otherwise).	Total Score 6: Unlikely