Military Deployment
Periodic Occupational and Environmental Monitoring Summary (POEMS):
Gamberi and vicinity, Afghanistan
Calendar Years: (2003 to 2015)

AUTHORITY: This periodic occupational and environmental monitoring summary (POEMS) has been developed in accordance with Department of Defense (DoD) Instructions 6490.03, 6055.05, and JCSM (MCM) 0028-07 (References 1-3).

PURPOSE: This POEMS documents the Department of Defense (DoD) assessment of occupational and environmental health (OEH) risk for Gamberi and vicinity that includes Command Outpost (COP) Najil, Forward Operating Base (FOB) Gamberi, FOB Mehtar Lam, FOB Xio Haq, FOB Manjan and Alingar. It presents a qualitative summary of health risks identified at this location and their potential medical implications. The report is based on information collected from 01 January 2003 through 31 December 2015 to include deployment OEHS sampling and monitoring data (e.g., air, water, and soil), field investigation and health assessment reports, as well as country and area-specific information on endemic diseases. While FOB Manjan and Alingar are included as locations due to their location in the Laghman Province and proximity to the other sites listed, there was no specific site information available for either of these camps.

This assessment assumes that environmental sampling at Gamberi and vicinity during this period was performed at representative exposure points selected to characterize health risks at the *population–level*. Due to the nature of environmental sampling, the data upon which this report is based may not be fully representative of all the fluctuations in environmental quality or capture unique occurrences. While one might expect health risks pertaining to historic or future conditions at this site to be similar to those described in this report, the health risk assessment is limited to 01 January 2003 through 31 December 2015.

The POEMS can be useful to inform healthcare providers and others of environmental conditions experienced by individuals deployed to Gamberi and vicinity during the period of this assessment. However, it does not represent an individual exposure profile. Individual exposures depend on many variables such as; how long, how often, where and what someone is doing while working and/or spending time outside. Individual outdoor activities and associated routes of exposure are extremely variable and cannot be identified from or during environmental sampling. Individuals who sought medical treatment related to OEH exposures while deployed should have exposure/treatment noted in their medical record on a Standard Form (SF) 600 (Chronological Record of Medical Care).

SITE DESCRIPTION:

All six locations included in this document were located within the Laghman province of Afghanistan, which is located in the eastern part of the country. The majority of the province is mountainous with intensively cultivated land along river valleys and forested areas in other parts.

FOB Gamberi: This FOB was located within the Afghanistan National Army (ANA) Gamberi Garrison and surrounded by the Gamberi Desert. The surrounding area was desolate, not urban or rural. There was no vegetation or flowing water at the FOB.

FOB Xio Haq: This FOB was located in an area surrounded by both low and high mountains. There was a highway that runs east to west just outside the FOB, with pasture land and small houses on the opposite sides of the highway. The base camp was used as a U.S. Military staging area and fuel point. There were semi-permanent and permanent structures at the camp. The roads on the base camp were packed gravel/dirt.

FOB Mehtar Lam: This site was located in a rural mountainous region of the Laghman province. The FOB was used as a mission staging area and also used to support motor maintenance and fueling, life support needs, solid waste and waste water disposal. There were semi-permanent and permanent structures at the camp. The roads on the base camp were packed gravel/dirt.

COP Najil: This site was located in a mountain valley overlooking the Darya-Yeahsaan River. The COP was situated on the steep sloping terrain trending from the highest point (south) to the lowest point (north). The purpose of the COP was to provide force protection for the northern reaches of Laghman Province. There were semi-permanent and permanent structures at the camp. The roads on the base camp were unpaved and gravel.

There was no additional specific camp information available for Camp Alingar or Camp Manjan.

SUMMARY: Conditions that may pose a Moderate or greater health risk are summarized in Table 1. Table 2 provides population based risk estimates for identified OEH conditions at Gamberi and vicinity. As indicated in the detailed sections that follow Table 2, controls established to reduce health risk were factored into this assessment. In some cases, e.g., ambient air, specific controls are noted, but not routinely available/feasible.

Table 1: Summary of Occupational and Environmental Conditions with MODERATE or Greater Health Risk

Short-term health risks & medical implications:

The following hazards may be associated with potential acute health effects in some personnel during deployment at Gamberi and vicinity that includes FOB Gamberi, FOB Mehtar Lam, FOB Xio Haq, COP Najil, Camp Manjan and FOB Alingar:

Food/waterborne diseases (e.g., bacterial diarrhea, hepatitis A, typhoid/paratyphoid fever, diarrhea-cholera, diarrhea-protozoal, brucellosis, hepatitis E); other endemic diseases (malaria, cutaneous leishmaniasis (acute), Crimean-Congo hemorrhagic fever, sandfly fever, scrub typhus(mite-borne), leptospirosis, Tuberculosis (TB), rabies, anthrax, Q fever); and heat stress. For food/waterborne diseases (e.g., bacterial diarrhea, hepatitis A, typhoid/paratyphoid fever, diarrhea-cholera, diarrhea-protozoal, brucellosis, hepatitis E), if ingesting local food and water, the health effects can temporarily incapacitate personnel (diarrhea) or result in prolonged illness (hepatitis A, typhoid/paratyphoid fever, brucellosis, hepatitis E). Risks from food/waterborne diseases may have been reduced with preventive medicine controls and mitigation, which includes hepatitis A and typhoid fever vaccinations and only drinking from approved water sources in accordance with standing CENTCOM policy. For other vector-borne endemic diseases (malaria, cutaneous leishmaniasis (acute), Crimean-Congo hemorrhagic fever, sandfly fever, scrub typhus (mite-borne), these diseases may constitute a significant risk due to exposure to biting vectors; risk reduced to 'Low' by proper wear of the treated uniform, application of repellent to exposed skin, bed net use, and appropriate chemoprophylaxis, as well as minimizing areas of standing water and other vector-breeding areas. For water contact diseases (leptospirosis) activities involving extensive contact with surface water increase risk. For respiratory diseases (TB), personnel in close-quarter conditions could have been at risk for person-to-person spread. Animal contact diseases (rabies, anthrax, Q fever), pose year-round risk. For heat stress, risk can be greater during months of May through October, and greater for susceptible persons including those older than 45, of low fitness level, unacclimatized, or with underlying medical conditions, and those under operational constraints (equipment, PPE, vehicles). Risks from heat stress may have been reduced with preventive medicine controls, work-rest cycles, proper hydration and nutrition, and mitigation.

Air quality: For inhalable coarse particulate matter less than 10 micrometers in diameter (PM_{10}), the PM_{10} overall short-term health risk was not evaluated due to insufficient data. For inhalable fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), the $PM_{2.5}$ overall short-term health risk was not evaluated due to insufficient data. However, the entire Gamberi and vicinity area is an arid and dust-prone desert environment, also subject to vehicle traffic. Consequently, exposures to PM_{10} and $PM_{2.5}$ may vary, as conditions may vary, and may result in mild to more serious short-term health effects (e.g., eye, nose or throat and lung irritation) in some personnel while at this site, particularly exposures to high levels of dust such as during high winds or dust storms. For PM_{10} and $PM_{2.5}$, certain subgroups of the deployed forces (e.g., those with pre-existing asthma/cardio-pulmonary conditions) are at greatest risk of developing notable health effects. Burn pits/burn barrels were reported in operation at FOB Mehtar Lam, COP Najil, FOB Xio Haq, and FOB Gamberi. For Gamberi and vicinity, the PM_{10} and the $PM_{2.5}$ overall short-term health risks specifically for burn pits/burn barrels were not evaluated due to 'no and/or insufficient environmental samples collected near burn pits/burn barrels provided for analysis' – see Section 10.7. Where burn pits and burn barrels exist, exposures may vary, and exposures to high levels of PM_{10} and $PM_{2.5}$ from smoke may result in mild to more serious short-term health effects (e.g., eye, nose or throat and lung irritation) in some personnel and certain subgroups. Although most short-term health effects from exposure to particulate matter and burn pit smoke should have resolved post-deployment, providers should be prepared to consider the relationship between deployment exposures and current complaints. Some individuals may have sought treatment for acute respiratory irritation. Personnel who reported with symptoms or required treatment while at site(s) with burn pit activity should have exposure and treatment noted in medical record (e.g., electronic medical record and/or on a Standard Form (SF) 600 (*Chronological Record of Medical Care*).

Long-term health risks & medical implications:

The following hazards may be associated with potential chronic health effects in some personnel during deployment at Gamberi and vicinity that includes FOB Gamberi, FOB Mehtar Lam, FOB Xio Haq, COP Najil, Camp Manjan and FOB Alingar:

For continuous noise exposure, the long-term risk was 'High to Low'; risk may have been reduced by appropriate hearing protection used by personnel in higher risk areas (around major sources of continuous noise such as flightline and landing zone (e.g., helicopters) and power production (e.g., generators)).

Air quality: For inhalable fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), the overall long-term health risk was not evaluated due to insufficient data. Inhalable coarse particulate matter less than 10 micrometers in diameter (PM_{10}) was not evaluated for long-term health risk due to no available health guidelines. However, the entire Gamberi and vicinity area is an arid and dust-prone desert environment, also subject to vehicle traffic, and conditions may have varied. Burn pits/burn barrels were reported in operation at FOB Mehtar Lam, COP Najil, FOB Xio Haq, and FOB Gamberi. The PM_{10} and the $PM_{2.5}$ overall long-term health risks were not evaluated at the burn pit/burn barrel locations at Gamberi and vicinity due to 'no and/or insufficient environmental samples collected near burn pits/burn barrels provided for analysis' and

due to no available health guidelines for PM_{10} - see Section 10.7. However, burn pit/burn barrels exposures may vary, as conditions may have varied. For inhalational exposure to high levels of dust containing PM_{10} and $PM_{2.5}$, such as during high winds or dust storms, and for exposures to burn pit and burn barrel smoke, it is considered possible that some otherwise healthy personnel, who were exposed for a long-term period to dust and particulate matter, could develop certain health conditions (e.g., reduced lung function, cardiopulmonary disease). Personnel with a history of asthma or cardiopulmonary disease could potentially be more likely to develop such chronic health conditions. While the dust and particulate matter exposures and exposures to burn pits are acknowledged, at this time there were no specific recommended, post-deployment medical surveillance evaluations or treatments. Providers should still consider overall individual health status (e.g., any underlying conditions/susceptibilities) and any potential unique individual exposures (such as burn pits/barrels, incinerators, occupational or specific personal dosimeter data) when assessing individual concerns. Certain individuals may need to be followed/evaluated for specific occupational exposures/injuries (e.g., annual audiograms as part of the medical surveillance for those enrolled in the Hearing Conservation Program; and personnel covered by Respiratory Protection Program and/or Hazardous Waste/Emergency Responders Medical Surveillance).

Table 2. Population-Based Health Risk Estimates – Gamberi and vicinity that includes FOB Gamberi, FOB Mehtar Lam, FOB Xio Haq, FOB Manjan, FOB Alingar, and COP Najil[1, 2]

Source of Identified Health Risk[3]	Unmitigated Health Risk Estimate[4]	Control Measures Implemented	Residual Health Risk Estimate[4]
AIR			
Particulate matter less than 10 micrometers in diameter (PM_{10})	Short-term: Insufficient data were available for health risk analysis. Daily levels vary; acute health effects (e.g., upper respiratory tract irritation) more pronounced during peak days. More serious effects are possible in susceptible persons (e.g., those with asthma/existing respiratory diseases).	Limiting strenuous physical activities when air quality is especially poor; and actions such as closing tent flaps, windows, and doors.	Short-term: Insufficient data were available for health risk analysis. Daily levels vary; acute health effects (e.g., upper respiratory tract irritation) more pronounced during peak days. More serious effects are possible in susceptible persons (e.g., those with asthma/existing respiratory diseases).
	Long-term: No health guidelines and insufficient data were available for health risk analysis.		Long-term: No health guidelines and insufficient data were available for health risk analysis.
Particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$)	Short-term: Insufficient data were available for health risk analysis. A majority of the time mild acute (short term) health effects are anticipated; certain peak levels may produce mild eye, nose, or throat irritation in some personnel and pre-existing health conditions (e.g., asthma, or cardiopulmonary diseases) may be exacerbated.	Limiting strenuous physical activities when air quality is especially poor; and actions such as closing tent flaps, windows, and doors.	Short-term: Insufficient data were available for health risk analysis. A majority of the time mild acute (short term) health effects are anticipated; certain peak levels may produce mild eye, nose, or throat irritation in some personnel and pre-existing health conditions (e.g., asthma, or cardiopulmonary diseases) may be exacerbated.
	Long-term: Insufficient data were available for health risk analysis. A small percentage of personnel may be at increased risk for developing chronic conditions, particularly those more susceptible to acute effects (e.g., those with asthma/pre-existing respiratory diseases).		Long-term: Insufficient data were available for health risk analysis. A small percentage of personnel may be at increased risk for developing chronic conditions, particularly those more susceptible to acute effects (e.g., those with asthma/pre-existing respiratory diseases).
Metals	Short-term: Not enough data available		Short-term: Not enough data available
	Long-term: Not enough data available.		Long-term: Not enough data available.
Volatile Organic Compounds (VOC)	Short-term: Not enough data available		Short-term: Not enough data available
	Long-term: No enough data available		Long-term: Not enough data available
SOIL			
Metals	Short-term: Not an identified source of health risk.		Short-term: Not an identified source of health risk.
	Long-term: No data available		Long-term: No data available
Organic Compounds	Short-term: Not an identified source of health risk.		Short-term: Not an identified source of health risk.
	Long-term: No data available		Long-term: No data available
Inorganic Compounds	Short-term: Not an identified source of health risk.		Short-term: Not an identified source of health risk.
	Long-term: No data available		Long-term: No data available
Water			
Consumed Water (Water Used for Drinking)	Short-term: no short term hazards based on the available data.	Army Public Health Center (APHC) former U.S. Army Veterinary Command (VETCOM) approved bottled water and potable	Short-term: no short term hazards based on the available data.
	Long-term: no long term hazards based on the available data.		Long-term: no short term hazards based on the available data.

Source of Identified Health Risk[3]	Unmitigated Health Risk Estimate[4]	Control Measures Implemented	Residual Health Risk Estimate[4]
		water only from approved water sources	
Water for Other Purposes	Short-term: Not enough data available	Water treated in accordance with standards applicable to its intended use	Short-term: Not enough data available
	Long-term: Not enough data available		Long-term: Not enough data available
ENDEMIC DISEASE			
Food borne/Waterborne (e.g., diarrhea-bacteriological)	Short-term: Variable; High (bacterial diarrhea, hepatitis A, typhoid fever) to Moderate (diarrhea-cholera, diarrhea-protozoal, brucellosis, hepatitis E) to Low (polio) if ingesting local food/water, the health effects can temporarily incapacitate personnel (diarrhea) or result in prolonged illness (hepatitis A, Typhoid fever, hepatitis E, brucellosis).	Preventive measures include Hepatitis A and Typhoid fever vaccination and consumption of food and water only from approved sources.	Short-term: Low to none
	Long-term: none identified		Long-term: No data available
Arthropod Vector Borne	Short-term: Variable; High for malaria, Moderate for leishmaniasis - cutaneous (acute), Crimean-Congo hemorrhagic fever, sandfly fever, typhus-miteborne; and Low for, the plague and West Nile fever.	Preventive measures include proper wear of treated uniform, application of repellent to exposed skin, bed net use, minimizing areas of standing water and appropriate chemoprophylaxis.	Short-term: Low
	Long-term: Low for Leishmaniasis-visceral infection.		Long-term: No data available
Water-Contact (e.g. wading, swimming)	Short-term: Moderate for leptospirosis	Recreational swimming in surface waters not likely in this area of Afghanistan during this time period.	Short-term: Low for leptospirosis.
	Long-term: No data available		Long-term: No data available
Respiratory	Short-term: Variable; Moderate for tuberculosis (TB) and Low for meningococcal meningitis.	Providing adequate living and work space; medical screening; vaccination.	Short-term: Low
	Long-term: No data available		Long-term: No data available
Animal Contact	Short-term: Variable; Moderate for rabies, anthrax, Q-fever; low for H5N1 avian influenza.	Prohibiting contact with, adoption, or feeding of feral animals IAW U.S. Central Command (CENTCOM) General Order (GO) 1B. Risks are further reduced in the event of assessed contact by prompt post-exposure rabies prophylaxis IAW The Center for Disease Control's (CDC) Advisory Committee on Immunization Practices guidance.	Short-term: No data available
	Long-term: Low (Rabies)		Long-term: No data available
VENOMOUS ANIMAL/ INSECTS			
Snakes, scorpions, and spiders	Short-term: Low; If encountered, effects of venom vary with species from mild localized swelling to potentially lethal effects	Risk reduced by avoiding contact, proper wear of uniform (especially footwear), and proper and	Short-term: Low; If encountered, effects of venom vary with species from mild localized swelling to potentially lethal effects.

Source of Identified Health Risk[3]	Unmitigated Health Risk Estimate[4]	Control Measures Implemented	Residual Health Risk Estimate[4]
	Long-term: No data available	timely treatment.	Long-term: No data available
HEAT/COLD STRESS			
Heat	Short-term: Variable; Risk of heat injury is moderate to High for May-September, and Low from October – April.	Work-rest cycles, proper hydration and nutrition, and Wet Bulb Globe Temperature (WBGT) monitoring.	Short-term: low. However, the risk may be greater to certain susceptible persons–those older (i.e., greater than 45 years), in lesser physical shape, or with underlying medical/health conditions.
	Long-term: Low, The long-term risk was Low. However, the risk may be greater to certain susceptible persons–those older (i.e., greater than 45 years), in lesser physical shape, or with underlying medical/health conditions.		Long-term: Low, The long-term risk is Low. However, the risk may be greater to certain susceptible persons–those older (i.e., greater than 45 years), in lesser physical shape, or with underlying medical/health conditions.
Cold	Short-term: Low risk of cold stress/injury.	Risks from cold stress reduced with protective measures such as use of the buddy system, limiting exposure during cold weather, proper hydration and nutrition, and proper wear of issued protective clothing.	Short-term: Low risk of cold stress/injury.
	Long-term: Low; Long-term health implications from cold injuries are rare but can occur, especially from more serious injuries such as frost bite.		Long-term: Low; Long-term health implications from cold injuries are rare but can occur, especially from more serious injuries such as frost bite.
NOISE			
Continuous (Flightline, Power Production)	Short-term: Low	Risks may have been reduced by appropriate hearing protection used by personnel in higher risk areas (around major sources of continuous noise such as flightline and landing zone (e.g., helicopters) and power production (e.g., generators)).	Short-term: Low
	Long-term: Low to moderate. If protective measures are not used, the risk is elevated to moderate and many exposed personnel are plausibly expected to develop delayed onset, irreversible effects.		Long-term: Low to moderate
Unique Incidents/ Concerns			
Burn Pits	Short-term: Burn pits/burn barrels were reported in operation at FOB Mehtar Lam, COP Najil, FOB Xio Haq, and FOB Gamberi. For Gamberi and vicinity, the PM_{10} and the $PM_{2.5}$ overall short-term health risks specifically for burn pits/burn barrels were not evaluated due to 'no and/or insufficient environmental samples collected near burn pits/burn barrels provided for analysis' – see Section 10.7. Exposure to burn pit smoke is variable. Exposure to high levels of PM_{10} and $PM_{2.5}$ from smoke may result in mild to more serious short-term health effects (e.g., eye, nose or throat and lung irritation) in some personnel and	Control measures may have included locating burn pits downwind of prevailing winds, increased distance from living and working areas when possible, and improved waste segregation and management techniques	Short-term: Burn pits/burn barrels were reported in operation at FOB Mehtar Lam, COP Najil, FOB Xio Haq, and FOB Gamberi. For Gamberi and vicinity, the PM_{10} and the $PM_{2.5}$ overall short-term health risks specifically for burn pits/burn barrels were not evaluated due to 'no and/or insufficient environmental samples collected near burn pits/burn barrels provided for analysis' – see Section 10.7. Exposure to burn pit smoke is variable. Exposure to high levels of PM_{10} and $PM_{2.5}$ from smoke may result in mild to more serious short-term health effects (e.g., eye, nose or throat and lung irritation) in some personnel and

Source of Identified Health Risk[3]	Unmitigated Health Risk Estimate[4]	Control Measures Implemented	Residual Health Risk Estimate[4]
	certain subgroups.		certain subgroups.
	Long-term: Burn pits/burn barrels were reported in operation at FOB Mehtar Lam, COP Najil, FOB Xio Haq, and FOB Gamberi. The PM_{10} and the $PM_{2.5}$ overall long-term health risks were not evaluated at the burn pit/burn barrel locations at Gamberi and vicinity due to 'no and/or insufficient environmental samples collected near burn pits/burn barrels provided for analysis' and due to no available health guidelines for PM_{10} - see Section 10.7. Exposure to burn pit and burn barrel smoke is variable. Exposure to high levels of PM_{10} and $PM_{2.5}$ in the smoke may be associated with some otherwise healthy personnel, who were exposed for a long-term period, possibly developing certain health conditions (e.g., reduced lung function, cardiopulmonary disease). Personnel with a history of asthma or cardiopulmonary disease could potentially be more likely to develop such chronic health conditions.		Long-term: Burn pits/burn barrels were reported in operation at FOB Mehtar Lam, COP Najil, FOB Xio Haq, and FOB Gamberi. The PM_{10} and the $PM_{2.5}$ overall long-term health risks were not evaluated at the burn pit/burn barrel locations at Gamberi and vicinity due to 'no and/or insufficient environmental samples collected near burn pits/burn barrels provided for analysis' and due to no available health guidelines for PM_{10} - see Section 10.7. Exposure to burn pit and burn barrel smoke is variable. Exposure to high levels of PM_{10} and $PM_{2.5}$ in the smoke may be associated with some otherwise healthy personnel, who were exposed for a long-term period, possibly developing certain health conditions (e.g., reduced lung function, cardiopulmonary disease). Personnel with a history of asthma or cardiopulmonary disease could potentially be more likely to develop such chronic health conditions.

[1]This Summary Table provides a qualitative estimate of population-based short- and long-term health risks associated with the occupational environment conditions at FOB Gamberi and vicinity that includes COP Najil, FOB Mehtar Lam, FOB Xio Haq, FOB Manjan and Alingar. It does not represent an individual exposure profile. Actual individual exposures and health effects depend on many variables. For example, while a chemical may have been present in the environment, if a person did not inhale, ingest, or contact a specific dose of the chemical for adequate duration and frequency, then there may have been no health risk. Alternatively, a person at a specific location may have experienced a unique exposure which could result in a significant individual exposure. Any such person seeking medical care should have their specific exposure documented in an SF600.

[2]This assessment is based on specific environmental sampling data and reports obtained from 1 January 2003 through 31 December 2015. Sampling locations are assumed to be representative of exposure points for the camp population but may not reflect all the fluctuations in environmental quality or capture unique exposure incidents.

[3]This Summary Table is organized by major categories of identified sources of health risk. It only lists those sub-categories specifically identified and addressed at Gamberi and vicinity. The health risks are presented as Low, Moderate, High or Extremely High for both acute and chronic health effects. The health risk level is based on an assessment of both the potential severity of the health effects that could be caused and probability of the exposure that would produce such health effects. Details can be obtained from the APHC (Prov). Where applicable, "None Identified" is used when though a potential exposure is identified, and no health risks of either a specific acute or chronic health effects are determined. More detailed descriptions of OEH exposures that are evaluated but determined to pose no health risk are discussed in the following sections of this report.

[4]Health risks in this Summary Table are based on quantitative surveillance thresholds (e.g. endemic disease rates; host/vector/pathogen surveillance) or screening levels, e.g.. Military Exposure Guidelines (MEGs) for chemicals. Some previous assessment reports may provide slightly inconsistent health risk estimates because quantitative criteria such as MEGs may have changed since the samples were originally evaluated and/or because this assessment makes use of all historic site data while previous reports may have only been based on a select few samples.

1 Discussion of Health Risks at Gamberi and vicinity, Afghanistan by Source

The following sections provide additional information about the OEH conditions summarized above. All risk assessments were performed using the methodology described in the U.S. Army Public Health Command Technical Guide 230, *Environmental Health Risk Assessment and Chemical Exposure Guidelines for Deployed Military Personnel* (Reference 4). All OEH risk estimates represent residual risk after accounting for preventive controls in place. Occupational exposures and exposures to endemic diseases are greatly reduced by preventive measures. For environmental exposures related to airborne dust, there are limited preventive measures available, and available measures have little efficacy in reducing exposure to ambient conditions.

2 Air

2.1 Site-Specific Sources Identified

FOB Gamberi and vicinity was situated in a dusty semi-arid mountainous environment. Inhalational exposure to high levels of dust and particulate matter, such as during high winds or dust storms may result in mild to more serious short-term health effects (e.g., eye, nose or throat and lung irritation) in some personnel. Additionally, certain subgroups of the deployed forces (e.g., those with pre-existing asthma/cardio pulmonary conditions) are at greatest risk of developing notable health effects.

FOB Mehtar Lam operated a 30 feet (ft) x 20 ft burn pit during 2013, located in the northwest area of the camp, near the motor pool site during that time and in 2012 it operated a small burn pit (5 ft x 5 ft) in the southeast corner of the camp which is not near the housing area. No specifics were given as to what distance the burn pit was located away from the housing area. There was no description of the depths of either of the burn pits mentioned in the FOB Mehtar Lam occupational and environmental health site assessment (OEHSA) reports for 2012 and 2013.

COP Najil operated an unknown sized burn pit in 2012 that was greater than a year old and located about a 100 yards west of the entry control point. There was no mention of how close this was located to the housing area.

FOB Xio Haq operated an approximately 10 meters by 10 meters burn pit that was not located near the living area. No more specific information on the burn pit location was provided in the available documents.

FOB Gamberi operated burn barrels located in the northwest corner of the FOB uphill in the retrosort yard area. There was a Helicopter Landing Zone (HLZ) on the site that was surrounded by T-Walls to contain the dust and separate the HLZ from the majority of the downwind portion of the FOB. The prevailing winds are to the North at FOB Gamberi.

2.2 Particulate matter

Particulate matter (PM) is a complex mixture of extremely small particles suspended in the air. The PM includes solid particles and liquid droplets emitted directly into the air by sources such as: power plants, motor vehicles, aircraft, generators, construction activities, fires, and natural windblown dust. The PM can include sand, soil, metals, volatile organic compounds (VOC), allergens, and other compounds such as nitrates or sulfates that are formed by condensation or transformation of combustion exhaust. The PM composition and particle size vary considerably depending on the source. Generally, PM of health concern is divided into two fractions: PM_{10}, which includes coarse particles with a diameter of 10 micrometers or less, and fine particles less than 2.5 micrometers ($PM_{2.5}$),

which can reach the deepest regions of the lungs when inhaled. Exposure to excessive PM is linked to a variety of potential health effects.

2.3 Particulate matter, less than 10 micrometers (PM_{10})

2.3.1 Exposure Guidelines:

Short Term (24-hour) PM_{10} (micrograms per cubic meter, $\mu g/m^3$):

- Negligible MEG = 250
- Marginal MEG = 420
- Critical MEG = 600

Long-term PM_{10} MEG ($\mu g/m^3$):

- Not defined and not available.

2.3.2 Sample data/Notes:

A total of seven valid PM_{10} air samples were collected at the various locations of Gamberi and vicinity from 2012-2014. The PM_{10} samples were taken at FOB Gamberi (two taken in 2012 and one taken in 2014), FOB Mehtar Lam (three taken in 2013; one was a sample taken near the burn pit) and FOB Xio Haq (one sample taken in 2013). There was no data available for the years 2003-2011 or 2015. There were three invalid PM_{10} air samples taken during 2012 to 2014, one taken at FOB Gamberi, FOB Mehtar Lam and FOB Xio Haq.

2.3.3 Short-term health risks:

Not enough data to determine a risk.

2.3.4 Long-term health risk:

Not Evaluated-no available health guidelines. The U.S. Environmental Protection Agency (EPA) has retracted its long-term standard (national ambient air quality standards, NAAQS) for PM_{10} due to an inability to clearly link chronic health effects with chronic PM_{10} exposure levels.

2.4 Particulate Matter, less than 2.5 *micrometers* ($PM_{2.5}$)

2.4.1 Exposure Guidelines:

Short Term (24-hour) $PM_{2.5}$ ($\mu g/m^3$):

- Negligible MEG = 65
- Marginal MEG = 250
- Critical MEG = 500

Long-term (1year) $PM_{2.5}$ MEGs ($\mu g/m^3$):

- Negligible MEG = 15
- Marginal MEG = 65.

2.4.2 Sample data/Notes:

No samples were available at any of the locations for the years 2003-2009, and 2011. There were four $PM_{2.5}$ samples available for this assessment. There were two valid $PM_{2.5}$ samples taken at FOB Gamberi in 2013 and 2014. One valid $PM_{2.5}$ sample was taken in 2010 at FOB Mehtar Lam and there was one invalid sample taken at FOB Mehtar Lam in 2012. There was one invalid $PM_{2.5}$ sample taken in 2015.

2.4.3 Short-term and long-term health risks:

Not enough data to determine a risk.

2.5 Airborne Metals

2.5.1 Sample data/Notes:

PM_{10} airborne metal samples:

There were only three PM_{10} airborne metal samples available for FOB Gamberi and three PM_{10} airborne metal samples available for FOB Mehtar Lam and only one available for FOB Xio Haq. No PM_{10} airborne metal samples were available for the other locations. There was not enough data to determine a risk. None of the detected airborne metals exceeded their corresponding 1-year negligible MEGs.

$PM_{2.5}$ airborne metal samples:

There were only two $PM_{2.5}$ airborne metal samples taken at FOB Gamberi and one $PM_{2.5}$ airborne metal sample taken at Mehtar Lam. No $PM_{2.5}$ airborne metal samples were available for the other locations. There was not enough data to determine a risk. None of the detected airborne metals exceeded their corresponding 1year negligible MEGs.

2.5.2 Short-term health risks:

Not enough data to determine a risk.

2.5.3 Long-term health risks:

Not enough data to determine a risk.

2.6 Volatile Organic Compounds (VOC)

2.6.1 Sample data/Notes:

There were not enough samples to conduct a health risk assessment. There were only four valid volatile organic compound air samples collected at FOB Gamberi and two valid samples taken at FOB Xio Haq. There were no volatile organic compound air samples taken at FOB Mehtar Lam, COP Najil, FOB Manjan, and FOB Alingar.

FOB Gamberi: Two samples were taken on 30 July 2013 and two samples were taken on 23 June 2014. There were 13 chemicals detected in the samples, and all were below their corresponding 1 year negligible MEGs.

FOB Xio Haq: The two valid samples at this location were both taken on 29 March 2013 and there were no detections above their corresponding 1 year negligible MEGs.

2.6.2 Short and long-term health risks:

Not enough data to determine a risk.

3 Soil

3.1 Site-Specific Sources Identified

3.2 Sample data/Notes:

The primary soil contamination exposure pathways are dermal contact and dust inhalation. Typical parameters analyzed for included semi volatile organic compounds (SVOCs), heavy metals, polychlorinated biphenyls (PCBs), pesticides, herbicides. If the contaminant was known or suspected, other parameters may have been analyzed for (i.e., total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH) near fuel spills). For the risk assessment, personnel are assumed to remain at these locations for 6 months to 1 year.

FOB Gamberi: A total of seven valid surface soil samples were collected from 10 September 2010 to 23 June 2014, to assess OEH health risk to deployed personnel. All samples were below the 1 year negligible MEGs at this location.

FOB Mehtar Lam: A total of 12 valid surface soil samples were collected from 7 January 2007 to 15 August 2014, to assess OEH health risk to deployed personnel. All samples were below the 1 year negligible MEGs at this location.

COP Najil: A total of 4 four valid surface soil samples were collected on 2 March 2007, to assess OEH health risk to deployed personnel. All samples were below the 1 year negligible MEGs at this location.

FOB Xio Haq: A total of three valid surface soil samples were collected from 14 June 2012 to 30 March 2013, to assess OEH health risk to deployed personnel. All samples were below the 1 year negligible MEGs at this location.

3.3 Short-term health risk:

Not an identified source of health risk. Currently, sampling data for soil are not evaluated for short term (acute) health risks**.**

3.4 Long-term health risk:

None identified based on available sample data. No parameters exceeded 1-year Negligible MEGs.

4 Water

In order to assess the health risk to U.S. personnel from exposure to water in theater, the APHC (Prov) identified the most probable exposure pathways. These are based on the administrative information provided on the field data sheets submitted with the samples taken over the time period being evaluated. It is assumed that 100% of all U.S. personnel at Gamberi and vicinity will be directly exposed to reverse osmosis water purification unit (ROWPU) treated water for cooking and disinfected fresh non-potable bulk water, for personal hygiene, showering, and for use at vehicle wash racks. Field data sheets indicate that bottled water was the approved source of drinking water.

4.1 Drinking Water: Bottled or Packaged Water

4.1.1 Site-Specific Sources Identified

No bottled water samples were available for this evaluation. The brands of bottled water reported as used at FOB Gamberi and FOB Mehtar Lam included Aria®, Cristal®, Kinley® and Nestle®. FOB Xio Haq reported Cristal® and Kinley® bottled water brands. COP Najil reported using Aria®, Cristal® and Kinley® bottled water brands. Identification of a trademarked product does not imply endorsement by the Army.

4.1.2 Sample data/Notes:

To assess the potential for adverse health effects to troops, the following assumptions were made about dose and duration: A conservative (protective) assumption was that personnel routinely ingested 5 liters per day (L/day) of bottled water for up to 365 days (1-year). It was further assumed that control measures were not used. No bottled water samples were available for evaluation.

4.1.3 Short-term and long-term health risk:

No sample data available for evaluation.

4.2 Drinking Water: Disinfected and ROWPU treated

4.2.1 Site-Specific Sources Identified

Although the primary route of exposure for most microorganisms is ingestion of contaminated water, dermal exposure to some microorganisms, chemicals, and biologicals may also cause adverse health effects. Complete exposure pathways would include drinking, brushing teeth, personal hygiene, cooking, providing medical and dental care using a contaminated water supply or during dermal contact at vehicle or aircraft wash racks.

To assess the potential for adverse health effects to troops the following assumptions were made about dose and duration: All U.S. personnel at this location were expected to remain at this site for approximately 1 year. A conservative (protective) assumption is that personnel routinely consumed less than 5L/day of drinking water for up to 365 days (1-year). The only location that had enough samples to do an assessment of long and short term risk was FOB Mehtar Lam. Even though there weren't enough samples to determine a health risk, of the samples available at the other locations, no chemicals were detected at levels above the short or long-term MEGs.

4.2.2 Sample data/Notes:

FOB Mehtar Lam: A total of 12 drinking water samples from water sources used for showering, laundry and personal hygiene from 2006-2013 were available for this health risk assessment. No chemicals were detected at levels above the short or long-term MEGs.

FOB Gamberi: There were five drinking water samples taken from 2009-2014.

FOB Alingar: There was one drinking water sample taken in 2012.

FOB Xio Haq: There were six drinking water samples taken in 2009, 2012 and 2013.

COP Najil: There were two drinking water samples taken in 2008 and 2009.

4.2.3 Short and long-term health risks:

None identified based on the available sampling data.

4.3 Non-drinking Water: Disinfected and ROWPU treated

4.3.1 Site-Specific Sources Identified

Although the primary route of exposure for most microorganisms is ingestion of contaminated water, dermal exposure to some microorganisms, chemicals, and biologicals may also cause adverse health effects. Complete exposure pathways would include drinking, brushing teeth, personal hygiene, cooking, providing medical and dental care using a contaminated water supply or during dermal contact at vehicle or aircraft wash racks.

4.3.2 Sample data/Notes:

To assess the potential for adverse health effects to troops the following assumptions were made about dose and duration: All U.S. personnel at this location were expected to remain at this site for approximately 1 year. A conservative (protective) assumption is that personnel routinely consumed less than 5L/day of non-drinking water for up to 365 days (1-year). It is further assumed that control measures and/or personal protective equipment were not used. A total of four Non-Drinking samples from 2008 to 2012 were taken at FOB Mehtar Lam; however due to the limited number of samples a health risk could not be determined. There was also one non-drinking water sample taken at FOB Gamberi in 2015 but there was no data associated with the sample. No other non-drinking water samples were available for any of the other Gamberi and Vicinity POEMS locations.

4.3.3 Short and long-term health risks:

Not enough available sample data to determine a health risk.

5.1 Chemical Biological, Radiological Nuclear (CBRN) Weapons

No specific hazard sources were documented in the Defense Occupational and Environmental Health Readiness System (DOEHRS), or the Military Exposure Surveillance Library (MESL) from 1 January 2003 to 31 December 2015 timeframe (References 1 and 5).

5.2 Depleted Uranium (DU)

No specific hazard sources were documented in the DOEHRS or MESL from 1 January 2003 to 31 December 2015 timeframe (References 1 and 5).

5.3 Ionizing Radiation

FOB Gamberi: In 2014, it was reported that the FOB used Military mobile vehicle and cargo inspection systems (MMVACIS) and a Mobile VACIS. No other sources of ionizing radiation were documented in the DOEHRS, or MESL from 1 January 2003 to 31 December 2015 timeframe (References 1 and 5). The documentation does not mention any types of controls being used, nor have there been any ionizing radiation related injuries. Information was not available for any of the other locations in this document.

5.4 Non-Ionizing Radiation

No specific hazard sources were documented in the DOEHRS or MESL from 1 January 2003 to 31 December 2015 timeframe (References 1 and 5).

6 Endemic Diseases

This document lists the endemic diseases reported in the region, its specific health risks and severity and general health information about the diseases. CENTCOM Modification (MOD) 12 (Reference 6) lists deployment requirements, to include immunizations and chemoprophylaxis, in effect during the timeframe of this POEMS.

6.1 Food borne and Waterborne Diseases

Food borne and waterborne diseases in the area are transmitted through the consumption of local food and water. Local unapproved food and water sources (including ice) are heavily contaminated with pathogenic bacteria, parasites, and viruses to which most U.S. Service Members have little or no natural immunity. Effective host nation disease surveillance does not exist within the country. Only a small fraction of diseases are identified or reported in host nation personnel. Diarrheal diseases are expected to temporarily incapacitate a very high percentage of U.S. personnel within days if local food, water, or ice is consumed. Hepatitis A and typhoid fever infections typically cause prolonged illness in a smaller percentage of unvaccinated personnel. Vaccinations are required for DoD personnel and contractors. In addition, although not specifically assessed in this document, significant outbreaks of viral gastroenteritis (e.g., norovirus) and food poisoning (e.g., *Bacillus cereus*, *Clostridium perfringens*, *Staphylococcus*) may occur. Key disease risks are summarized below:

Mitigation strategies were in place and included consuming food and water from approved sources, vaccinations (when available), frequent hand washing and general sanitation practices.

6.1.1 Diarrheal diseases (bacteriological)

High, mitigated to Low: Diarrheal diseases are expected to temporarily incapacitate a very high percentage of personnel (potentially over 50% per month) within days if local food, water, or ice is consumed. Field conditions (including lack of hand washing and primitive sanitation) may facilitate person-to-person spread and epidemics. Typically mild disease treated in outpatient setting; recovery and return to duty in less than 72 hours with appropriate therapy. A small proportion of infections may require greater than 72 hours limited duty, or hospitalization.

6.1.2 Hepatitis A, typhoid/paratyphoid fever, and diarrhea-protozoal

High, mitigated to Low: Unmitigated health risk to U.S. personnel is high year round for hepatitis A and typhoid/paratyphoid fever, and Moderate for diarrhea-protozoal. Mitigation was in place to reduce the risks to low. Hepatitis A, typhoid/paratyphoid fever, and diarrhea-protozoal disease may cause prolonged illness in a small percentage of personnel (less than 1% per month). Although much rarer, other potential diseases in this area that are also considered a Moderate risk include: hepatitis E, diarrhea-cholera, and brucellosis.

6.1.3 Polio

Low: Potential health risk to U.S. personnel is Low. Despite a concerted global eradication campaign, poliovirus continues to affect children and adults in Afghanistan, Pakistan and some African countries.

Polio is a highly infectious disease that invades the nervous system. The virus is transmitted by person-to-person, typically by hands, food or water contaminated with fecal matter or through direct contact with the infected person's saliva. An infected person may spread the virus to others immediately before and about 1 to 2 weeks after symptoms appear. The virus can live in an infected person's feces for many weeks. About 90% of people infected have no symptoms, and about 1% have a very severe illness leading to muscle weakness, difficulty breathing, paralysis, and sometimes death. People who do not have symptoms can still pass the virus to others and make them sick.

6.1.4 Short-term Health Risks:

Low: The overall unmitigated short-term risk associated with food borne and waterborne diseases are considered High (bacterial diarrhea, hepatitis A, typhoid/paratyphoid fever) to Moderate (diarrhea-cholera, diarrhea-protozoal, brucellosis, hepatitis E) to Low (polio) if local food or water is consumed. Preventive Medicine measures reduced the risk to Low. Confidence in the health risk estimate is high.

6.1.5 Long-term Health Risks:

None identified based on available data.

6.2 Arthropod Vector-Borne Diseases

During the warmer months, the climate and ecological habitat support populations of arthropod vectors, including mosquitoes, ticks, mites, and sandflies. Significant disease transmission is sustained countrywide, including urban areas. Malaria, the major vector-borne health risk in Afghanistan, is capable of debilitating a high percentage of personnel for up to a week or more. Mitigation strategies were in place and included proper wear of treated uniforms, application of repellent to exposed skin, and use of bed nets and chemoprophylaxis (when applicable). Additional methods included the use of pesticides, reduction of pest/breeding habitats, and engineering controls.

6.2.1 Malaria

High, mitigated to Low: Potential unmitigated risk to U.S. personnel is High during warmer months (typically April through November) but reduced to low with mitigation measures. Malaria incidents are often associated with the presence of agriculture activity, including irrigation systems and standing water, which provide breeding habitats for vectors. A small number of cases may occur among personnel exposed to mosquito (Anopheles spp.) bites. Malaria incidents may cause debilitating febrile illness typically requiring 1 to 7 days of inpatient care, followed by return to duty. Severe cases may require intensive care or prolonged convalescence.

6.2.2 Leishmaniasis

Moderate, mitigated to Low: The disease risk is Moderate during the warmer months when sandflies are most prevalent, but reduced to low with mitigation measures. Leishmaniasis is transmitted by sand flies. There are two forms of the disease; cutaneous (acute form) and visceral (a more latent form of the disease). The leishmaniasis parasites may survive for years in infected individuals and this infection may go unrecognized by physicians in the U.S. when infections become symptomatic years later. Cutaneous infection is unlikely to be debilitating, though lesions may be disfiguring. Visceral leishmaniasis disease can cause severe febrile illness which typically requires hospitalization with convalescence over 7 days.

6.2.3 Crimean-Congo hemorrhagic fever

Moderate, mitigated to Low: Unmitigated risk is moderate, but reduced to low with mitigation measures. Crimean-Congo hemorrhagic fever occurs in rare cases (less than 0.1% per month attack rate in indigenous personnel) and is transmitted by tick bites or occupational contact with blood or secretions from infected animals. The disease typically requires intensive care with fatality rates from 5% to 50%.

6.2.4 Sandfly fever

Moderate, mitigated to Low: Sandfly fever has a Moderate risk with potential disease rates from 1% to 10% per month under worst case conditions. Mitigation measures reduced the risk to low. The disease is transmitted by sandflies and occurs more commonly in children though adults are still at risk. Sandfly fever disease typically resulted in debilitating febrile illness requiring 1 to 7 days of supportive care followed by return to duty.

6.2.5 Plague

Low: Potential health risk to U.S. personnel is Low year round. Bubonic plague typically occurred as sporadic cases among people who come in contact with wild rodents and their fleas during work, hunting, or camping activities. Outbreaks of human plague are rare and typically occur in crowded urban settings associated with large increases in infected commensal rats (*Rattus rattus*) and their flea populations. Some untreated cases of bubonic plague may develop into secondary pneumonic plague. Respiratory transmission of pneumonic plague is rare but has the potential to cause significant outbreaks. Close contact is usually required for transmission. In situations where respiratory transmission of plague is suspected, weaponized agent must be considered. Extremely rare cases (less than 0.01% per month attack rate) could occur. Incidence could result in potentially severe illness which may require more than 7 days of hospitalization and convalescence.

6.2.6 Typhus-miteborne (scrub typhus**)**

Moderate, mitigated to Low: Potential health risk to U.S. personnel is Moderate during warmer months (typically March through November) when vector activity is highest. Mitigation measures reduced the risk to low. Mite-borne typhus is a significant cause of febrile illness in local populations with rural exposures in areas where the disease is endemic. Large outbreaks have occurred when non-indigenous personnel such as military forces enter areas with established local transmission. The disease is transmitted by the larval stage of trombiculid mites (chiggers), which are typically found in areas of grassy or scrubby vegetation, often in areas which have undergone clearing and regrowth. Habitats may include sandy beaches, mountain deserts, cultivated rice fields, and rain forests. Although data are insufficient to assess potential disease rates, attack rates can be very high (over 50%) in groups of personnel exposed to heavily infected "mite islands" in focal areas. The disease can cause debilitating febrile illness typically requiring 1 to 7 days of inpatient care, followed by return to duty.

6.2.7 West Nile fever

Low: West Nile fever is present. The disease is maintained by the bird population and transmitted to humans via mosquito vector. Typically, infections in young, healthy adults were asymptomatic although fever, headache, tiredness, body aches (occasionally with a skin rash on trunk of body), and swollen lymph glands can occurred. This disease is associated with a low risk estimate.

6.2.8 Short -term health risks:

Low: The unmitigated health risk estimate is High for malaria (infection rate of less than 1% per month), Moderate for leishmaniasis-cutaneous (acute), Crimean-Congo hemorrhagic fever, sandfly fever, typhus-miteborne; and Low for, the plague and West Nile fever. Health risk is reduced to low by proper wear of the uniform, application of repellent to exposed skin, and appropriate chemoprophylaxis. Confidence in health risk estimate was high.

6.2.9 Long-term health risks:

Low: The unmitigated risk is moderate for leishmaniasis-visceral (chronic). Risk is reduced to Low by proper wear of the uniform and application of repellent to exposed skin. Confidence in the risk estimate is high.

6.3 Water Contact Diseases

Operations or activities that involve extensive water contact may result in personnel being temporarily debilitated with leptospirosis in some locations. Leptospirosis health risk typically increases during flooding. In addition, although not specifically assessed in this document, bodies of surface water are likely to be contaminated with human and animal waste. Activities such as wading or swimming may result in exposures to enteric diseases such as diarrhea and hepatitis via incidental ingestion of water. Prolonged water contact also may lead to the development of a variety of potentially debilitating skin conditions such as bacterial or fungal dermatitis. Mitigation strategies were in place and included avoiding water contact and recreational water activities, proper wear of uniform (especially footwear), and protective coverings for cuts/abraded skin.

6.3.1 Leptospirosis

Moderate, mitigated to Low: Human infections occur seasonally (typically April through November) through exposure to water or soil contaminated by infected animals and is associated with wading, and swimming in contaminated, untreated open water. The occurrence of flooding after heavy rainfall facilitates the spread of the organism because as water saturates the environment *Leptospira* present in the soil passes directly into surface waters. *Leptospira* can enter the body through cut or abraded skin, mucous membranes, and conjunctivae. Infection may also occur from ingestion of contaminated water. The acute, generalized illness associated with infection may mimic other tropical diseases (for example, dengue fever, malaria, and typhus), and common symptoms include fever, chills, myalgia, nausea, diarrhea, cough, and conjunctival suffusion. Manifestations of severe disease can include jaundice, renal failure, hemorrhage, pneumonitis, and hemodynamic collapse. Recreational activities involving extensive water contact may result in personnel being temporarily debilitated with leptospirosis. Incidence could result in debilitating febrile illness typically requiring 1 to 7 days of inpatient care, followed by return to duty; some cases may require prolonged convalescence. This disease is associated with a Moderate health risk estimate.

6.3.2 Short-term health risks:

Low: Unmitigated Health risk of leptospirosis is Moderate during warmer months. Mitigation measures reduce the risk to Low. Confidence in the health risk estimate is high.

6.3.3 Long-term health risks:

None identified based on available data.

6.4 Respiratory Diseases

Although not specifically assessed in this document, deployed U.S. forces may be exposed to a wide variety of common respiratory infections in the local population. These include influenza, pertussis, viral upper respiratory infections, viral and bacterial pneumonia, and others. The U.S. military populations living in close-quarter conditions are at risk for substantial person-to-person spread of respiratory pathogens. Influenza is of particular concern because of its ability to debilitate large numbers of unvaccinated personnel for several days. Mitigation strategies were in place and included routine medical screenings, vaccination, enforcing minimum space allocation in housing units, implementing head-to-toe sleeping in crowded housing units, implementation of proper personal protective equipment (PPE) when necessary for healthcare providers and detention facility personnel.

6.4.1 Tuberculosis (TB)

Moderate, mitigated to Low: Potential health risk to U.S. personnel is Moderate, mitigated to Low, year round. Transmission typically requires close and prolonged contact with an active case of pulmonary or laryngeal TB, although it also can occur with more incidental contact. The Army Surgeon General has defined increased risk in deployed Soldiers as indoor exposure to locals or third country nationals of greater than one hour per week in a highly endemic active TB region.

6.4.2 Meningococcal meningitis

Low: Meningococcal meningitis poses a Low risk and is transmitted from person to person through droplets of respiratory or throat secretions. Close and prolonged contact facilitates the spread of this disease. Meningococcal meningitis is potentially a very severe disease typically requiring intensive care; fatalities may occur in 5-15% of cases.

6.4.3 Short-term health risks:

Low: Moderate (TB) to Low (for meningococcal meningitis). Overall risk was reduced to Low with mitigation measures. Confidence in the health risk estimate is high.

6.4.4 Long-term health risks:

None identified based on available data. Tuberculosis is evaluated as part of the post deployment health assessment (PDHA). A TB skin test is required post-deployment if potentially exposed and is based upon individual service policies.

6.5 Animal-Contact Diseases

6.5.1 Rabies

Moderate, mitigated to Low: Rabies posed a year-round moderate risk. Occurrence in local animals was well above U.S. levels due to the lack of organized control programs. Dogs are the primary reservoir of rabies in Afghanistan, and a frequent source of human exposure. Rabies is transmitted by exposure to the virus-laden saliva of an infected animal, typically through bites, but could occur from scratches contaminated with the saliva. A U.S. Army Soldier deployed to Afghanistan from May 2010 to May 2011 died of rabies in New York on 31 August 2011 (Reference 7). Laboratory results indicated the Soldier was infected from contact with a dog while deployed. Although the vast majority (>99%) of persons who develop rabies disease will do so within a year after a risk exposure, there have been rare reports of individuals presenting with rabies disease up to six years or more after their last known risk exposure. Mitigation strategies included command emphasis of CENTCOM GO 1B, reduction of

animal habitats, active pest management programs, and timely treatment of feral animal scratches/bites.

6.5.2 Anthrax

Low: Anthrax cases are rare in indigenous personnel, and pose a Low risk to U.S. personnel. Anthrax is a naturally occurring infection; cutaneous anthrax is transmitted by direct contact with infected animals or carcasses, including hides. Eating undercooked infected meat may result in contracting gastrointestinal anthrax. Pulmonary anthrax is contracted through inhalation of spores and is extremely rare. Mitigation measures included consuming approved food sources, proper food preparation and cooking temperatures, avoidance of animals and farms, dust abatement when working in these areas, vaccinations, and proper PPE for personnel working with animals.

6.5.3 Q-Fever

Moderate, mitigated to Low: Potential health risk to U.S. personnel is Moderate, but mitigated to Low, year round. Rare cases are possible among personnel exposed to aerosols from infected animals, with clusters of cases possible in some situations. Significant outbreaks (affecting 1-50%) can occur in personnel with heavy exposure to barnyards or other areas where animals are kept. Unpasteurized milk may also transmit infection. The primary route of exposure is respiratory, with an infectious dose as low as a single organism. Incidence could result in debilitating febrile illness, sometimes presenting as pneumonia, typically requiring 1 to 7 days of inpatient care followed by return to duty. Mitigation strategies in place as listed in paragraph 6.5.2 except for vaccinations.

6.5.4 H5N1 avian influenza

Low: Potential health risk to U.S. personnel is Low. Although H5N1 avian influenza (AI) is easily transmitted among birds, bird-to-human transmission is extremely inefficient. Human-to-human transmission appears to be exceedingly rare, even with relatively close contact. Extremely rare cases (less than 0.01% per month attack rate) could occur. Incidence could result in very severe illness with fatality rate higher than 50 percent in symptomatic cases. Mitigation strategies included avoidance of birds/poultry and proper cooking temperatures for poultry products.

6.5.5 Short-term health risks:

Low: The short-term unmitigated risk is Moderate for rabies and Q-fever; and Low for anthrax and H5N1 avian influenza. Mitigation measures reduced the overall risk to Low. Confidence in risk estimate is high.

6.5.6 Long-term health risks:

Low: A Low long term risk exists for rabies because, in rare cases, the incubation period for rabies can be several years.

7 Venomous Animal/Insect

All information was taken directly from the Armed Forces Pest Management Board (Reference 8) and the Clinical ToxinologyToxicology Resources web site from the University of Adelaide, Australia (Reference 9). The species listed below have home ranges that overlap the location of Gamberi and vicinity, and may present a health risk if they are encountered by personnel. See Section 9 for more information about pesticides and pest control measures.

7.1 Spiders

- *Latrodectus dahlia* (widow spider): Severe envenoming possible, potentially lethal. However, venom effects are mostly minor and even significant envenoming is unlikely to be lethal.

7.2 Scorpions

- *Androctonus afghanus, Androctonus amoreuxi,* and *Androctonus baluchicus*: Severe envenoming possible, potentially lethal. Severe envenoming may produce direct or indirect cardio toxicity, with cardiac arrhythmias, cardiac failure. Hypovolaemic hypotension possible in severe cases due to fluid loss through vomiting and sweating.

- *Afghanobuthus nuamanni, Mesobuthus caucasicus, Mesobuthus eupeus, Mesobuthus macmahoni, Orthochirus afghanus, Orthochirus Jalalabadensis Orthochirus pallidus, and Orthochirus samrchelsis*: There are a number of dangerous Buthid scorpions, but there are also some known to cause minimal effects only. Without clinical data it is unclear where these species fit within that spectrum.

- *Hottentotta alticola*, and *Hottentotta saulcyi*: Moderate envenoming possible but unlikely to prove lethal. Stings by these scorpions are likely to cause only short lived local effects, such as pain, without systemic effects.

- *Scorpiops afghanus*: Mild envenoming only, not likely to prove lethal. Stings by these scorpions are likely to cause only short lived local effects, such as pain, without systemic effects

7.3 Snakes

- *Gloydius halys* (Haly's Pit Viper): Severe envenoming possible, potentially lethal. Bites may cause moderate to severe coagulopathy and haemorrhagins causing extensive bleeding.

- *Macrovipera lebetina obtuse* (Levantine Viper)*, Macrovipera lebetina turanica* (Levantine Viper): Severe envenoming possible, potentially lethal. Bites may cause mild to severe local effects, shock & coagulopathy.

7.4 Short-term health risk:

Low: If encountered, effects of venom vary with species from mild localized swelling (e.g. widow spider) to potentially lethal effects (e.g., Haly's Pit Viper). See effects of venom above. Mitigation strategies included avoiding contact, proper wear of uniform (especially footwear), and timely medical treatment. Confidence in the health risk estimate is low (Reference 4, Table 3-6).

7.5 Long-term health risk:

None identified.

8 Heat/Cold Stress

8.1 Heat/Cold

These six camps/FOBs were located in the Laghman province which exhibits a warm climate. Temperatures ranged from 30-40 degrees Fahrenheit (°F) in the winter to heat category 1 and above between April and November. Heavy rains coming off mountains during winter/spring months may have affected these camps. Typically temperatures for most daylight hours during the months of May and September were above 90°F, which is in the Heat Category 5 range. Some areas of this province don't typically drop into the freezing temperature range.

The risk assessment for Non-Freezing Cold Injuries (NFCI), such as chilblain, trench foot, and hypothermia, is Low based on historical temperature and precipitation data. Frostbite is unlikely to occur because temperatures rarely drop below freezing. However, personnel may encounter significantly lower temperatures during field operations at higher altitudes. As with heat stress/injuries, cold stress/injuries are largely dependent on operational and individual factors instead of environmental factors alone (Reference 9).

The health risk of heat stress/injury based on temperatures alone ranges from Moderate (78-81.9°F) to high (82-87.9°F) to extremely high (≥ 88°F) from May – September, and low (< 78°F) from October – April. However, work intensity and clothing/equipment worn pose greater health risk of heat stress/injury than environmental factors alone (Reference 9). Managing risk of hot weather operations included monitoring work/rest periods, proper hydration, and taking individual risk factors (e.g., acclimation, weight, and physical conditioning) into consideration. Risk of heat stress/injury was reduced with preventive measures.

8.1.1 Short-term health risk:

Low to High, mitigated to Low: The risk of heat injury was reduced to low through preventive measures such as work/rest cycles, proper hydration and nutrition, and monitoring Wet Bulb Globe Temperature (WBGT). However, the risk may be greater of heat injury in unacclimatized or susceptible populations (older, previous history of heat injury, poor physical condition, underlying medical/health conditions), and those under operational constraints (equipment, PPE, vehicles). Confidence in the health risk estimate is medium (Reference 4, Table 3-6). The health risk of cold injury is Low. Confidence in the health risk estimate is medium.

8.1.2 Long-term health risk:

Low: The long-term risk is Low. However, the risk may be greater for certain susceptible persons– those older (i.e., greater than 45 years), in lesser physical shape, or with underlying medical/health conditions. Long-term health implications from heat injuries are rare but may occur, especially from more serious injuries such as heat stroke. It is possible that high heat in conjunction with various chemical exposures may increase long-term health risks, though specific scientific evidence is not conclusive. Confidence in these risk estimates is medium (Reference 4, Table 3-6). The health risk of cold injury is Low. Confidence in the health risk estimate is high.

9 Noise

9.1 Continuous

Aircraft operations have the potential to cause significant noise hazard to flight line and helicopter landing zone support personnel. Because of the potential noise hazard inherent in the helicopter landing zone, personnel are required to wear dual hearing protection when working on the flight line.

Personnel residing in close proximity to generators will routinely be exposed to noise levels as high as 82.0 dB. Although this is below the 85 dB threshold requiring hearing protection, it still presents a concern for hearing conservation.

9.1.1 Short health risks:

Low: The short-term risk of noise injury with appropriate hearing protection use is low. Few exposed personnel (if any) are expected to have noticeable health effects during mission. Confidence in risk assessment is low (Reference 4).

9.1.2 Long-term health risk:

Low to moderate: The long-term risk of noise injury with appropriate hearing protection use is low with few exposed personnel (if any) are expected to develop delayed onset, irreversible effects. If protective measures are not used, the risk is elevated to moderate and many exposed personnel are plausibly expected to develop delayed onset, irreversible effects. Confidence in risk assessment is low (Reference 4).

9.2 Impulse

No specific hazard sources were documented in the DOEHRS or MESL from 01 January 2003 to 31 December 2015 timeframe.

9.2.1 Short-term and Long-term health risks:

Not evaluated.

10 Unique Incidents/Concerns

10.1 Potential environmental contamination sources

DoD personnel are exposed to various chemical, physical, ergonomic, and biological hazards in the course of performing their mission. These types of hazards depend on the mission of the unit and the operations and tasks which the personnel are required to perform to complete their mission. The health risk associated with these hazards depends on a number of elements including what materials are used, how long the exposure last, what is done to the material, the environment where the task or operation is performed, and what controls are used. The hazards can include exposures to heavy metal particulates (e.g., lead, cadmium, manganese, chromium, and iron oxide), solvents, fuels, oils, and gases (e.g., carbon monoxide, carbon dioxide, oxides of nitrogen, and oxides of sulfur). Most of these exposures occur when performing maintenance task such as painting, grinding, welding, engine repair, or movement through contaminated areas. Exposures to these occupational hazards can occur through inhalation (air), skin contact, or ingestion; however exposures through air are generally associated with the highest health risk.

10.2 Waste Sites/Waste Disposal

Hazardous Waste:

FOB Gamberi: There was jet propulsion fuel, type 8 (JP-8), Gasoline and JP-4 stored near the HLZ and POL and solvents stored in the motor pool area. All hazardous waste is shipped to FOB Fenty for storage before its final disposal at Bagram Airfield (BAF).

FOB Xio Hao: There were two 10,000-15,000 gallon blivets that stored JP-8 fuel and there were three containers that stored JP-4 fuel at the vehicle staging area on the site. Hazardous Material was temporarily stored until it was shipped by contractors to Jalalabad Airfield (JAF) for disposal.

FOB Mehtar Lam: There was mention of JP-8, JP-4, Gasoline and POL products being stored at the site but the quantities were not specified. All hazardous waste is shipped off post for disposal.

COP Najil: There were an unknown number of 22,700 liter bladders that stored JP-8 fuel at the site. The hazardous waste was transported off post to FOB Mehtar Lam for eventual disposal.

Information on hazardous waste was not available for all other locations included in this report.

Solid waste:
FOB Gamberi: The waste at FOB Gamberi was hauled off site to an undisclosed location.

FOB Xio Hao: According to the 2013 OESHA report, all trash/garbage from around the FOB was collected and trucked off-site by local nationals and carried to a dump site several miles from the FOB at an undisclosed location removed from houses and farmland. No information was provided on medical waste at the site. The 2012 OEHSA report indicated that there was a 10 x 10 meters sized burn pit on the site that was located away from the living area and was used to dispose of industrial, construction and demolition material. No other information was provided.

FOB Mehtar Lam: According to the February and June 2012 OESHA report, solid waste was burned in a 5 x 5 burn pit located in the south east corner of the FOB away from housing and medical waste was shipped off to FOB Fenty/Bagram Airfield. The 2013 OEHSA report indicated that the solid waste was loaded up by local nationals and hauled off of the FOB. The 2013 OEHSA report also noted that a 30ft x 20ft burn pit was used only to burn paper products. This burn pit was located in the northwest area of the camp, near the motor pool.

COP Najil: According to the 2012 OESHA report solid waste was accumulated and disposed of at a contractor operated burn pit located on the eastern portion of the COP away from billeting and other occupied sites. The solid waste was burned daily. Prevailing winds were such that emissions from the burn pit were normally carried away from the COP. Regulated Medical waste other than sharps was reportedly burned in the burn pit during 2012 but that was stopped and all regulated medical waste was shipped to Mehtar Lam for subsequent transport to FOB Fenty for disposal.

Information on solid waste was not available for any of the other locations included in this assessment.

Wastewater:
FOB Gamberi: The wastewater was either trucked off-site or piped off-site to an unknown location.

COP Najil: The grey wastewater was trucked off site for disposal.

FOB Mehtar Lam: The wastewater was pumped into a truck from the septic tanks and then taken off-site for disposal.

There was no wastewater information available for the other locations included in this document.

10.3 Fuel/petroleum products/industrial chemical spills

There was no data available in regards to any specific spills at locations included in this document.

10.4 Pesticides/Pest Control:

The health risk of exposure to pesticide residues is considered within the framework of typical residential exposure scenarios, based on the types of equipment, techniques, and pesticide products that have been employed, such as enclosed bait stations for rodenticides, various handheld equipment for spot treatments of insecticides and herbicides, and a number of ready-to-use (RTU) methods such as aerosol cans and baits. The control of rodents required the majority of pest management inputs, with the acutely toxic rodenticides staged as solid formulation lethal baits placed in tamper-resistant bait stations indoors and outdoors throughout cantonment areas. Nuisance insects, including biting and stinging insects such as bees, wasps, and ants, also required significant pest management inputs. Use of pesticides targeting against these pests generally involved selection of compounds with low mammalian toxicity and short-term residual using pinpoint rather than broadcast application techniques. No specific hazard sources were documented in DOEHRS or MESL data portal. Numerous monthly pesticide application reports in the MESL data portal for Gamberi and vicinity, list the usage of pesticides on the site. The monthly pesticide application reports were for FOB Gamberi and FOB Mehtar Lam specifically, no information was available for the other locations. For each pesticide product applied during this period, the EPA approved label has been archived, providing a framework how each pesticide handled and applied (see below).

10.4.1 Rodenticides

These rodenticides listed below and used to control rodents were found at both FOB Gamberi and FOB Mehtar Lam:

Bromadiolone, Brodifacoum.

10.4.2 Insecticides

Insecticides used to control ants, bees, bedbugs, crickets, centipedes, cockroaches, fleas, flies, lice, mosquitoes, spiders, termites, ticks and wasps include the following listed below separated by location.

FOB Gamberi: *Bacillus thuringiensis subspecies israelensis, Bifenthrin, β-Cyfluthrin, Cypermethrin, DEET, d-trans Allethrin, Fipronil, Imidacloprid, Lambda-cyhalothrin, Pyrethrins, Piperonyl Butoxide, Phenothrin,* and *Z-9 Tricosene.*

FOB Mehtar Lam: *Bacillus thuringiensis subspecies israelensis, Bifenthrin, β-Cyfluthrin, Cypermethrin, DEET, d-trans Allethrin, delamethrin, Fipronil, Hydramethylnon, Imidacloprid, Lambda-cyhalothrin, Methomyl, Pyrethrins, Piperonyl Butoxide, Phenothrin, (S)-Methoprene,* and *Z-9 Tricosene.*

10.4.3 Short-term and Long-term health risks

Low: Long term health risk is Low. Confidence in the health risk assessment is medium (Reference 4, Table 3-6).

10.5 Asbestos

There was no data available to evaluate.

10.6 Lead Based Paint

There was no data available to evaluate.

10.7 Burn Pit

While not specific to Gamberi and vicinity, the consolidated epidemiological and environmental sampling and studies on burn pits that have been conducted as of the date of this publication have been unable to determine whether an association does or does not exist between exposures to emissions from the burn pits and long-term health effects (Reference 10). The Institute of Medicine committee's (Reference 10) review of the literature and the data suggests that service in Iraq or Afghanistan (i.e., a broader consideration of air pollution than exposure only to burn pit emissions) may be associated with long-term health effects, particularly in susceptible (e.g., those who have asthma) or highly exposed subpopulations, such as those who worked at the burn pit. Such health effects would be due mainly to high ambient concentrations of PM from both natural and anthropogenic sources, including military sources. If that broader exposure to air pollution turns out to be relevant, potentially related health effects of concern are respiratory and cardiovascular effects and cancer. Susceptibility to the PM health effects could be exacerbated by other exposures, such as stress, smoking, local climatic conditions, and co-exposures to other chemicals that affect the same biologic or chemical processes. Individually, the chemicals measured at burn pit sites in the study were generally below concentrations of health concern for general populations in the United States. However, the possibility of exposure to mixtures of the chemicals raises the potential for health outcomes associated with cumulative exposure to combinations of the constituents of burn pit emissions and emissions from other sources.

Four locations included in this assessment reported having burn pits/burn barrels and each site is described below.

FOB Mehtar Lam: The March 2013 OEHSA reported a 30ft x 20ft burn pit was located in the northwest area of the camp, near the motor pool site during that time. It was run by military personnel and it was intended only for burning paper waste but other discarded items were occasionally burned as well. In the June 2012 OEHSA report, it was noted that a small burn pit (5 x 5 ft) was located in the southeast corner of the camp away from housing. No specific information was available on exact locations of housing areas on the camp or distance away from the burn pit. It was used to dispose of residential waste and was operated by the FOB Mayor's office. No other information was available.

COP Najil: The available information noted that an unknown sized burn pit that was greater than a year old was located about a 100 yards west of the entry control point. It was used to burn residential waste and was operated by local nationals. No other information or samples were available.

FOB Xio Haq: The June 2012 OEHSA report there was an approximately 10 meters by 10 meters burn pit, located away from the living area that was used to dispose of industrial, construction and demolition materials. No other information or samples were available. The March 2013 OEHSA report noted that no burn pits were present on the camp at that time.

FOB Gamberi: The July 2014 OEHSA report noted that there were burn barrels located on the northwest corner of the FOB, uphill in the retrosort yard area that was military operated and used to

dispose of residential and commercial material. No other information or samples were available.

There was one 24-hour PM_{10} sample taken near the FOB Mehtar Lam burn pit in 2013. The sample had a concentration of 112 µg/m^3 which is below the short-term PM_{10} negligible MEG (250 µg/m^3). Due to the limited number of samples taken near the burn pits, a risk assessment could not be conducted.

Short-term health risks: **There were not enough data available to evaluate any burn pit related health risk specifically at the Gamberi and vicinity locations.**

Long-term health risks: **Not Evaluated-no available health guidelines**. The EPA has retracted its long-term NAAQS for PM_{10} due to an inability to clearly link chronic health effects with chronic PM_{10} exposure levels.

11 References[1]

1. Defense Occupational and Environmental Health Readiness System (referred to as the DOEHRS-IH EH database) at https://doehrs-ih.csd.disa.mil/Doehrs/. Department of Defense (DoD) Instruction 6490.03, *Deployment Health*, 2006.

2. DoDI 6055.05, Occupational and Environmental Health, 2008.

3. Joint Staff Memorandum (MCM) 0017-12, Procedures for Deployment Health Surveillance, 2012.

4. USA PHC TG230, June 2013 Revision.

5. DoD MESL Data Portal: https://mesl.apgea.army.mil/mesl/.Some of the data and reports used may be classified or otherwise have some restricted distribution.

6. Modification 12 to United States Central Command Individual Protection and Individual Unit Deployment Policy, 2 December 2013.

7. CDC. 2012. Morbidity and Mortality Weekly Report. Imported Human Rabies in a U.S. Army Soldier. May 4, 2012. 61(17); 302-305.

8. Armed Forces Pest Management Board: http://www.afpmb.org/content/venomous-animals-country#Afghanistan. U.S. Army Garrison - Forest Glen, Silver Spring, MD.

9. Clinical Toxinology Resources: http://www.toxinology.com/. University of Adelaide, Australia.

10. Goldman RF. 2001. Introduction to heat-related problems in military operations. *In*: Textbook of military medicine: medical aspects of harsh environments Vol. 1, Pandolf KB, and Burr RE (Eds.), Office of the Surgeon General, Department of the Army, Washington DC.

11. IOM (Institute of Medicine). 2011. Long-term health consequences of exposure to burn pits in Iraq and Afghanistan. Washington, DC: The National Academies Press.

12. Army Technical Bulletin Medical (TBMED 577), Navy Bureau of Medicine and Surgery (NAVMED P-5010-10), Air Force Manual 48-138_IP, Departments of the Army, Navy and Air Force, Washington, D.C., 1 MAY 2010. http://armypubs.army.mil/med/DR_pubs/dr_a/pdf/tbmed577.pdf

13. Occupational and Environmental Health Site Assessment Base Camp Gamberi, Afghanistan, 18 June 2012.

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[1] NOTE. The data are currently assessed using the 2013 TG230. The general method involves an initial review of the data which eliminates all chemical substances not detected above 1-yr negligible MEGs. Those substances screened out are not considered acute or chronic health hazards so are not assessed further. For remaining substances, acute and chronic health effects are evaluated separately for air water (soil is only evaluated for long term risk). This is performed by deriving separate short-term and long term population exposure level and estimates (referred to as population exposure point concentrations (PEPC)) that are compared to MEGs derived for similar exposure durations. If less than or equal to negligible MEG the risk is Low. If levels are higher than negligible then there is a chemical-specific toxicity and exposure evaluation by appropriate SMEs, which includes comparison to any available marginal, critical or catastrophic MEGs. For drinking water 15 L/day MEGs are used for the screening while site specific 5-15 L/day are used for more detailed assessment. For nondrinking water (such as that used for personal hygiene or cooking) the 'consumption rate' is limited to 2 L/day (similar to the EPA) which is derived by multiplying the 5 L/day MEG by a factor of 2.5. This value is used to conservatively assess non drinking uses of water.

14. Occupational and Environmental Health Site Assessment Base Camp Gamberi, Afghanistan, 29 July 2013.

15. Occupational and Environmental Health Site Assessment Base Camp Gamberi, Afghanistan, 26 July 2014.

16. Occupational and Environmental Health Site Assessment Base Camp Mehtar Lam, 20 February 2012.

17. Occupational and Environmental Health Site Assessment Base Camp Mehtar Lam, 20 June 2012.

18. Occupational and Environmental Health Site Assessment Base Camp Mehtar Lam, 13 March 2013.

19. Occupational and Environmental Health Site Assessment Base Camp Najil, 13 February 2013.

20. Occupational and Environmental Health Site Assessment Base Camp Xio Haq, 13 June 2012.

21. Occupational and Environmental Health Site Assessment Base Camp Xio Haq, 29 March 2013.

22. Occupational and Environmental Health Site Assessment Base Camp Gamberi, Afghanistan, 31 July 2015.

12 Where Do I Get More Information?

If a provider feels that the Service member's or Veteran's current medical condition may be attributed to specific OEH exposures at this deployment location, he/she can contact the Service-specific organization below. Organizations external to DoD should contact Deputy Assistant Secretary of Defense for Health Readiness Policy and Oversight (HRP&O).
Army Public Health Center (Provisional) Phone: (800) 222-9698. http://phc.amedd.army.mil/
Navy and Marine Corps Public Health Center (NMCPHC) (formerly NEHC) Phone: (757) 953-0700. http://www.med.navy.mil/sites/nmcphc/Pages/Home.aspx
U.S. Air Force School of Aerospace Medicine (USAFSAM) (formerly AFIOH) Phone: (888) 232-3764. http://www.wpafb.af.mil/afrl/711hpw/usafsam.asp
DoD Health Readiness Policy and Oversight (HRP&O) Phone: (800) 497-6261. http://fhpr.dhhq.health.mil/home.aspx