Military Deployment
Periodic Occupational and Environmental Monitoring Summary (POEMS):
Lafarge Cement Factory, Syria
Calendar Years: (2019 to 2020)

AUTHORITY: This POEMS has been developed in accordance with Department of Defense Instructions (DoDI) 6490.03, and 6055.05 (References 2-3).

PURPOSE: This POEMS documents the Department of Defense (DoD) assessment of occupational and environmental health (OEH) risk for Lafarge Cement Factory (LCF), Syria. It presents a qualitative summary of OEH risks identified at LCF and their potential medical implications. The report is based on information collected from 01 January 2019 through 31 December 2020 to include deployment OEH surveillance 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.

This assessment assumes that environmental sampling at LCF 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 2019 through 31 December 2020.

The POEMS can be useful to inform healthcare providers and others of environmental conditions experienced by individuals deployed to LCF 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 records on a Standard Form (SF) 600 (Chronological Record of Medical Care).

SITE DESCRIPTION:

LCF is an inactive cement production plant located in a rural scrub desert. Most chemical hazards from the previous industrial production have been cleaned up or remediated, including silica which was a concern for a time. Most of the piles of silica have been removed, and the coal and soda ash piles are settled unless disturbed. Power is supplied by generators and there is a burn pit for trash disposal located in the old landfill area.

Operations onsite include vehicle and aircraft maintenance. Office spaces are permanent building structures and housing is provided by semi-permanent structures. Commercial generators provide power to the base camp. Most of the roads are paved around the site, but some are gravel and unpaved. Dust from vehicles and aircraft is common.

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 LCF. 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 3 provides the Disease Threat Assessment taken from the OEHSA for LCF.

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 Lafarge Cement Factory, Syria:

For continuous noise exposure, the risk was 'High'; risk may have been reduced by appropriate hearing protection used by personnel in higher risk areas (around sources of continuous noise such as flight lines, generators and power production). For heat stress, risk can be greater during months of June through September, 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.

Food/waterborne diseases (e.g., bacterial diarrhea, hepatitis A, typhoid/paratyphoid fever, diarrhea-cholera, diarrhea-protozoal); other endemic diseases (Crimean-Congo hemorrhagic fever, leishmaniasis-cutaneous (acute), sand fly fever), rabies, and Q fever were documented for Syria. For food/waterborne diseases, if ingesting local food and water, the health effects can temporarily incapacitate personnel (diarrhea) or result in prolonged illness (hepatitis A, typhoid/paratyphoid fever). 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, Crimean-Congo hemorrhagic fever, leishmaniasis-cutaneous (acute), sand fly fever), these diseases may constitute a significant risk due to exposure to biting vectors; risk can be mitigated by proper wear of the treated uniform, application of repellent to exposed skin, bed net use, as well as minimizing areas of standing water and other vector-breeding areas. Animal contact diseases (rabies, Q fever), pose year-round risk.

Air quality: For inhalable coarse particulate matter less than 10 micrometers in diameter (PM_{10}) from environmental dust (including burn pits/boxes and/or incinerators), the PM_{10} overall short-term health risk was not evaluated due to no data for analysis. For inhalable fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) from environmental dust (including burn pits/boxes and/or incinerators), not enough samples were available to assess a short-term risk. However, the Lafarge Cement Factory area is a dust-prone desert environment, with a semi-arid climate, 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 existed at the Lafarge Cement Factory area; however, the PM_{10} and the $PM_{2.5}$ overall short-term health risks specifically for burn pits were not evaluated – see Section 10.7. Where burn pits 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/or 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 while at the Lafarge Cement Factory area. Personnel who reported with symptoms or required treatment while at site(s) with burn pit activity should have exposure and treatment noted in the 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 Lafarge Cement Factory, Syria:

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

Air quality: For inhalable fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) from environmental dust, the overall long-term health risk was not evaluated due to insufficient data for analysis. Inhalable coarse particulate matter less than 10 micrometers in diameter (PM_{10}) from environmental dust was not evaluated for long-term health risk due to no available health guidelines. However, the Lafarge Cement Factory area is a dust-prone desert environment with a semi-arid climate, also subject to vehicle traffic, and conditions may have varied. Burn pits existed in the Lafarge Cement Factory area; however, the PM_{10} and $PM_{2.5}$ overall long-term health risks specifically for burn pits were not evaluated– see Section 10.7. Where burn pits exist, 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 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/boxes, 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 – LCF, Syria [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: No data were available to assess short-term health risk. Typically daily levels vary; acute health effects (e.g., upper respiratory tract irritation) are more pronounced during peak days. More serious effects are possible in susceptible persons (e.g., those with asthma/pre-existing respiratory diseases).	Limiting strenuous physical activities during periods of high PM levels; and actions such as closing tent flaps, windows, and doors.	Short-term: No data were available to assess short-term health risk. Typically daily levels vary; acute health effects (e.g., upper respiratory tract irritation) are more pronounced during peak days. More serious effects are possible in susceptible persons (e.g., those with asthma/pre-existing respiratory diseases).
	Long-term: No health guidelines		Long-term: No health guidelines
Particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$)	Short-term: There were not enough samples to assess risk. 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 during periods of high PM levels, and actions such as closing tent flaps, windows, and doors.	Short-term: There were not enough samples to assess risk. 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: There were not enough samples to assess risk. 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: There were not enough samples to assess risk. 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: There were not enough samples to assess risk. However, no detected airborne metal concentrations exceeded the 1-year Negligible MEG.		Short-term: There were not enough samples to assess risk. However, no detected airborne metal concentrations exceeded the 1-year Negligible MEG.
	Long-term: There were not enough samples to assess risk. However, no detected airborne metal concentrations exceeded the 1-year Negligible MEG.		Long-term: There were not enough samples to assess risk. However, no detected airborne metal concentrations exceeded the 1-year Negligible MEG.
Volatile Organic Compounds (VOC)	Short-term: No data available		Short-term: No data available
	Long-term: No data available		Long-term: No data available
WATER			
Non-Drinking Water	Short-term: None identified based on available data. All parameters were below the negligible MEGs.	Water treated in accordance with standards applicable to its intended use	Short-term: None identified based on available data. All parameters were below the negligible MEGs.
	Long-term: None identified based on available data. All parameters were below the negligible MEGs.		Long-term: None identified based on available data. All parameters were below the negligible MEGs.
ENDEMIC DISEASE			
Food borne/Waterborne (e.g., diarrhea-bacteriological)	Risk levels are no longer provided in Section 6 (Endemic Diseases) for each endemic disease since the National Center for Medical Intelligence website is no longer being updated. OEHSA's provided risk levels for particular endemic	**Refer to Section 6 for preventive measures**	Risk levels are no longer provided in Section 6 (Endemic Diseases) for each endemic disease since the National Center for Medical Intelligence website is no longer being updated. OEHSA's provided risk levels for particular endemic diseases; however, it is not

Source of Identified Health Risk[3]	Unmitigated Health Risk Estimate[4]	Control Measures Implemented	Residual Health Risk Estimate[4]
Arthropod Vector Borne Water-Contact (e.g., wading, swimming) Respiratory Animal Contact Aerosolized Dust or Soil-contact	diseases; however, it is not specified how the risk levels were obtained. Although risk levels are no longer provided, country specific endemic diseases can be found in Section 6.		specified how the risk levels were obtained. Although risk levels are no longer provided, country specific endemic diseases can be found in Section 6.
VENOMOUS ANIMALS			
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), reducing suitable habitat, and proper and timely treatment.	Short-term: Low; If encountered, effects of venom vary with species from mild localized swelling to potentially lethal effects.
	Long-term: No data available		Long-term: No data available
HEAT/COLD STRESS			
Heat	Short-term: Variable; Risk of heat injury is High for June – September, and Low for all other months.	Work-rest cycles, proper hydration and nutrition, and Wet Bulb Globe Temperature (WBGT) monitoring.	Short-term: Variable; Risk of heat injury in unacclimatized or susceptible personnel is High for June – September, and Low for all other months.
	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 (Flight line, Power Production)	Short-term: High	Hearing protection used by personnel in higher risk areas	Short-term: Low
	Long-term: Low to High. Noise injury with appropriate hearing protection use is low, and is elevated to high if protective measures are not used.		Long-term: Low. Noise injury with appropriate hearing protection use is low
Unique Incidents/ Concerns			
Burn Pits	Short-term: Burn pits exist at LCF. The PM_{10} and the $PM_{2.5}$ overall short-	Risks reduced by limiting strenuous physical	Short-term: Burn pits exist at LCF. The PM_{10} and the $PM_{2.5}$ overall short-

Source of Identified Health Risk[3]	Unmitigated Health Risk Estimate[4]	Control Measures Implemented	Residual Health Risk Estimate[4]
	term health risks specifically from the burn pits were not evaluated – 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 certain subgroups, such as those with pre-existing health conditions (e.g., asthma, or cardiopulmonary disease, which may be exacerbated). Additionally, other contaminants expected from burning trash such as volatile or semi-volatile organic chemicals, dioxins, furans or acid gases were not characterized.	activities when air quality was especially poor; and action such as closing tent flaps, windows, and doors. Other control measures may have included: locating burn pits downwind of camps, increased distance from troop populations, decreased duration of burning, specifying burn times (beginning 3 hours after sunrise; ceasing 3 hours before sunset), and voluntary use of NIOSH-certified N95 filtering face piece respirators.	term health risks specifically from the burn pits were not evaluated – 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 certain subgroups, such as those with pre-existing health conditions (e.g., asthma, or cardiopulmonary disease, which may be exacerbated). Additionally, other contaminants expected from burning trash such as volatile or semi-volatile organic chemicals, dioxins, furans or acid gases were not characterized.
	Long-term: The PM_{10} and the $PM_{2.5}$ overall long-term health risks specifically for burn pits were not evaluated – see Section 10.7. Typically, exposure to burn pit 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. Additionally, other contaminants expected from burning trash such as volatile or semi-volatile organic chemicals, dioxins, furans or acid gases were not characterized.		Long-term: The PM_{10} and the $PM_{2.5}$ overall long-term health risks specifically for burn pits were not evaluated – see Section 10.7. Typically, exposure to burn pit 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. Additionally, other contaminants expected from burning trash such as volatile or semi-volatile organic chemicals, dioxins, furans or acid gases were not characterized.

[1]This Summary Table provides a qualitative estimate of population-based short- and long-term health risks associated with the occupational and environment health conditions at LCF. 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 01 January 2019 through 31 December 2020. 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 LCF. 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. 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 LCF, Syria

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 (USAPHC) 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

Inhalational exposure to high levels of dust and particulate matter (PM), 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. Volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs), dioxins, furans, or acid gases were not characterized. Silica, while considered a hazard in the past, was also not characterized. There were no samples taken in 2020.

2.2 Particulate Matter (PM)

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, 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 PM_{10}

No PM_{10} air samples were collected from 2019 to 2020 at LCF.

2.4 $PM_{2.5}$

2.4.1 Sample data/Notes:

Two valid $PM_{2.5}$ air samples were collected on 13 June and 21 July 2019 with concentrations of 41 $\mu g/m^3$ and 53 $\mu g/m^3$. There is insufficient data to assess the health risks from exposure to $PM_{2.5}$.

2.5 Airborne Metals

2.5.1 Sample data/Notes:

Lead was detected in one sample, but did not exceed any MEGs. There is insufficient data to assess the health risks from exposure to airborne metals.

2.6 Volatile Organic Compounds (VOCs)

No VOC air samples were collected at LCF from 2019 to 2020.

3 Soil

3.1 Site-Specific Sources Identified

3.2 Sample data/Notes:

One valid surface soil sample was collected on 7 August 2019 to assess OEH health risk to deployed personnel. The primary soil contamination exposure pathways are dermal contact and dust inhalation. Typical parameters analyzed for included semi volatile organic compounds, heavy metals, polychlorinated biphenyls, pesticides, and herbicides. For the risk assessment, personnel are assumed to remain at this location for 6 months to 1 year.

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 the 1-year Negligible MEGs.

4 Water

In order to assess the health risk to U.S. personnel from exposure to water in theater, the Army Public Health Center (APHC) 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. Field data sheets indicate that bottled water is the only approved source of drinking water and teeth brushing.

4.1 Drinking Water

4.1.1 Site-Specific Sources Identified

The OEHSA for LCF indicated that an approved bottled water brand, Al Waha® was used for drinking on the base camp[1]. There were no bottled water samples provided for evaluation.

4.1.2 Short-term and long-term health risk:

No available sample data to determine a health risk.

4.2 Non-Drinking Water

[1] Identification of a trademarked product does not imply endorsement by the Army.

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.

4.2.2 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. Two non-drinking water samples were collected in July 2019 (untreated) and June 2019 (treated). The treated and untreated water were used for showering and personal hygiene.

4.2.3 Short-term and long-term health risk:

None identified based on available sample data. No health risks from treated water exposures were identified based on the available analytical data. All collected sample concentrations were below the short-term and long-term negligible MEGs.

5 Military Unique

5.1 Chemical Biological, Radiological Nuclear Weapons

No specific hazard sources were documented in the Defense Occupational and Environmental Health Readiness System (DOEHRS) from 01 January 2019 through 31 December 2020 timeframe (Reference 1).

5.2 Depleted Uranium

No specific hazard sources were documented in DOEHRS from 01 January 2019 through 31 December 2020 timeframe (Reference 1).

5.3 Ionizing Radiation

No specific hazard sources were documented in DOEHRS from 01 January 2019 through 31 December 2020 timeframe (Reference 1).

5.4 Non-Ionizing Radiation

No specific hazard sources were documented in DOEHRS from 01 January 2019 through 31 December 2020 timeframe (Reference 1).

6 Endemic Diseases

This document lists the endemic diseases reported in the region found on the Centers for Disease Control and Prevention (CDC) website (Reference 5). CENTCOM Modification (MOD) 13, 14 and 15

(References 6-8) lists deployment requirements, to include immunizations and chemoprophylaxis, in effect during the timeframe of this POEMS. Additionally, some information was found under the disease threats section in the OEHSA for LCF. Information from the OEHSA is summarized in Table 3 below. According to the OEHSA, the risk estimate was obtained using NCMI data as of 22 May 2019 (Reference 9).

Table 3. Disease Threat Assessment from the 2019 LCF OEHSA

Disease Threat	Hazard Severity	Hazard Probability	Risk Estimate
Q Fever	Marginal	Occasional	Moderate
Diarrheal Diseases (Enteric, Filth Fly)	Critical	Likely	High
Rabies	Critical	Likely	High
Crimean-Congo Hemorrhagic Fever	Critical	Seldom	Moderate
Leptospirosis	Marginal	Unlikely	Low
Sand Fly Fever	Critical	Seldom	Moderate
Leishmaniasis (Visceral)	Marginal	Seldom	Low
Leishmaniasis (Cutaneous)	Critical	Seldom	Moderate
Schistosomiasis (Bilharziasis or Snail Fever)	Critical	Seldom	Moderate

6.1 Food borne and Waterborne Diseases

Foodborne 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. Ingesting local food and water 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 vaccinations, frequent hand washing and general sanitation practices, and consuming food and water from approved sources in accordance with standing CENTCOM policy.

6.1.1 Diarrheal diseases (bacteriological)

Diarrheal diseases are expected to temporarily incapacitate a very high percentage of personnel 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 diarrheal diseases are a mild disease treated in an outpatient setting with 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 Virus (HAV), typhoid/paratyphoid fever, and diarrhea-protozoal

HAV, typhoid/paratyphoid fever, and diarrhea-protozoal disease may cause prolonged illness in a small percentage of unvaccinated personnel. HAV is transmitted through direct person to person contact or through ingestion of contaminated food or water. HAV can survive in the environment for prolonged periods of time and it can be transmitted through ice and frozen foods. Individuals are most infectious 1-2 weeks before the onset of clinical signs and symptoms. Typhoid and paratyphoid fever are acquired through consumption of water or food contaminated by feces of an acutely infected person. Hepatitis A and Typhoid can be prevented through immunization

6.1.3 Diarrhea-cholera

Cholera is a bacterial disease usually spread through contaminated water which causes severe diarrhea and dehydration. Most symptomatic cases are mild, with recovery and return to duty in less than 72 hours with appropriate outpatient treatment. Severe cases may require 1-7 days of supportive or inpatient care, followed by return to duty. Mitigation strategies in place include consumption of approved food, water, and ice; hand washing; and applied food/water safety mechanisms.

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. Mitigation strategies include a self-service station for dispensing of insect repellents. Personnel are also prescribed chemoprophylaxis. Mitigation strategies 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 environmental controls.

6.2.1 Crimean-Congo hemorrhagic fever (CCHF)

Crimean-Congo hemorrhagic fever is transmitted by Ixodid tick bites. The onset of the disease typically requires intensive care with fatality rates from 5% to 50%. The onset of CCFG is sudden, with initial signs and symptoms to include headache high fever, back pain, joint pain, stomach pain and vomiting. Treatment for CCFG is supportive care as there is no effective medication to combat it. Recovery is slow and long-term effect are unknown. There is no safe and effective vaccine currently available for human use so preventive measures include tick repellant and screening for ticks.

6.2.2 Leishmaniasis - cutaneous and visceral

Leishmaniasis is transmitted by sandflies typically at night. In groups of personnel exposed to heavily infected sandflies in focal areas, disease rates can be very high (over 50%). The most common symptom of cutaneous leishmaniasis is skin sores that can change in size and appearance over time. The symptoms of visceral leishmaniasis are fever, weight loss, enlarged spleen and liver, low red blood cell count, platelet count and white blood cell count. Some people may have no symptoms. Visceral disease can cause severe febrile illness which typically requires hospitalization with convalescence over 7 days. There is no vaccine for leishmaniasis so personnel must protect themselves using permethrin-treated clothing an insect repellent.

6.2.3 Sand fly fever

Sand fly fever is transmitted by sandflies and occurs more commonly in children though adults are still at risk. Sand fly fever disease typically resulted in debilitating febrile illness requiring 1 to 7 days of supportive care followed by return to duty.

6.3 Water Contact Diseases

6.3.1 Schistosomiasis

Waterborne transmission occurs when larval cercariae, found in contaminated bodies of freshwater, penetrate the skin. Humans are the principal reservoir for schistosomes; humans shed schistosome eggs in urine or feces. When water temperatures are at or above 68 degrees Fahrenheit (°F), the eggs hatch, releasing larvae. If a suitable freshwater snail species is present, the larvae penetrate the snail

and, after a period of development, emerge as free-swimming cercariae. Cercariae infect human hosts by penetrating skin, usually while the person is wading or swimming. Mild infections of Schistosomiasis are generally asymptomatic. In very heavy acute infections, a febrile illness (acute schistosomiasis) may occur, especially with *S. japonicum* and *S. mansoni*, requiring hospitalization and convalescence over 7 days.

6.3.2 Leptospirosis

Leptospirosis is a disease caused by bacteria that infected animals spread through their urine. Some people with leptospirosis will not have symptoms. When symptoms do occur, they can include fever, headache, chills, muscle aches, vomiting, jaundice, red eyes, stomach pain, diarrhea, and sometimes a rash. Without antibiotic treatment kidney and liver damage may occur. There is no vaccine approved in the United States to prevent leptospirosis. Prevention includes avoiding touching water or soil that has the potential to be contaminated and wearing footwear and other protective clothing.

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 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)

TB is a disease caused by bacteria that is spread in the air to others when coughing, speaking or singing. TB bacteria in the lungs can move through the blood to infect other parts of the body, such as the kidney, spine, and brain. Symptoms of TB disease in the lungs include a cough, pain, weakness, weight loss, chills, fever, and night sweats. Although a TB vaccine does exist, it is not always recommended due to its variable effectiveness.

6.4.2 Middle East Respiratory Syndrome (MERS)

The MERS coronavirus is genetically similar to bat coronaviruses and has been detected in camels in North Africa and the Arabian Peninsula. Evidence suggests that the virus can be spread from person to person among close contacts. Symptoms include acute and often severe respiratory compromise and may include chills, sore throat, myalgias, arthralgias, diarrhea, and vomiting. Since a vaccine does not exist, the CDC recommends frequent handwashing; avoid touching the eyes, nose, and mouth; and avoiding contact with sick people. The World Health Organization (WHO) recommends avoiding contact with camels, drinking raw camel milk or raw camel urine, and not consuming undercooked meat, particularly camel meat.

6.4.3 COVID-19

According to the CDC website COVID-19 has a high level of infection. The incubation period for COVID-19 is 3-14 days from exposure. Symptoms can include fever, cough, shortness of breath, fatigue, muscle and body aches, headache, loss of taste or smell, nausea and diarrhea. Several effective vaccines are approved or authorized in the U.S. for decreasing the probability for severe

symptoms, hospitalization, and death.

6.4.4 Hantavirus

Hantavirus is spread through the air or by eating food contaminated with urine or droppings from rodents. Hantavirus can cause organ damage, especially to the kidneys and blood vessels. Complete recovery can take weeks to months. Symptoms of Hantavirus usually develop 3 to 4 weeks after infection but can occur as early as 1 week. Symptoms can include fatigue, fever, muscle aches, headaches, dizziness, chills, nausea, vomiting, diarrhea, and abdominal pain. There are no vaccines to prevent Hantavirus disease but personnel can protect themselves by avoiding rodents while in Syria.

6.4.5 Measles

Measles is transmitted from person to person primarily by the airborne route as aerosolized droplet nuclei. Infected people are usually contagious from 4 days before until 4 days after rash onset. Measles is among the most contagious viral diseases known. Symptoms include prodromal fever that can rise as high as 105°F, conjunctivitis, coryza (runny nose), cough, and small spots with white or bluish-white centers on an erythematous base on the buccal mucosa (Koplik spots). A vaccine is available to prevent measles.

6.5 Animal-Contact Diseases

6.5.1 Rabies

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. In the U.S. rabies mainly occurs in wild animals however, in Syria bites from dogs are the main source of rabies. Rabies affects the central nervous system. Without appropriate medical care, rabies causes brain disease and death. Symptoms include weakness or discomfort, fever, and headache. As time progress an infected person may become delirious, hallucinate and become unable to swallow. A vaccine is available in the U.S. to prevent rabies.

6.5.2 Q-Fever

Q-fever is caused by infection with the bacteria Coxiella burnetii. Cattle, sheep, and goats can be infected and people become exposed by breathing in dust contaminated with infected animal body fluids. About half of people infected with Q-fever will develop symptoms. Symptoms develop 2-3 weeks after exposure and include fever, fatigue, headache, chest pain, vomiting, weight loss and cough. Treatment can include doxycycline antibiotics. Vaccines for Q-fever are not available in the U.S. but risk of infection can be reduced by avoiding contact with animals and avoiding consumption of raw milk.

6.6 Aerosolized Dust or Soil-contact Diseases

6.6.1 Soil-transmitted helminths (hookworm, strongyloidiasis, internal infestation, cutaneous larva migrans)

Soil-transmitted helminths (ascaris, whipworm, and hookworm) refer to the intestinal worms infecting humans that are transmitted through contaminated soil. Helminths live in the intestine and their eggs are passed in the feces of infected person. Ascaris and whipworm can also be transmitted by hand to mouth when hands are infected with contaminated dirt or by consuming vegetables or fruits that have not been cooked or washed. Heavy infections cause abdominal pain, diarrhea, blood and protein loss,

and rectal prolapse. Soil-transmitted helminth infections are treatable with medication prescribed by a health care provider.

7 Venomous Animals

All information was taken directly from the Clinical Toxinology Resources web site from the University of Adelaide, Australia (Reference 10). The species listed below have home ranges that overlap the location of LCF, 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 tredecimguttatus*: Severe envenoming possible, potentially lethal
- *Latrodectus pallidus*: Clinical effects uncertain, but related to medically important species, therefore major envenoming cannot be excluded.

7.2 Scorpions

- *Androctonus crassicauda (black scorpion), Androctonus amoreuxi, Leiurus quinquestriatus,* and *Nebo hierichonticus* : Severe envenoming possible and potentially lethal, however most stings cause only severe local pain and swelling.
- *Hottentotta judaicus, Hottentotta saulcyi, Isometrus maculatus,* and *Scorpio maurus:* Moderate-Mild envenoming possible but unlikely to prove lethal.
- *Birulatus astartiae, Buthacus leptochelys, Buthacus macrocentrus, Buthacus tadmorensis, Buthacus yotvatensis, Compsobuthus jordanensis, Compsobuthus matthiesseni, Compsobuthus werneri, Mesobuthus caucasicus, Mesobuthus eupeus,* and *Orthochirus scrobiculosus*: Clinical effects unknown; 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 this species fits within that spectrum.
- *Mesobuthus gibbosus* and *Mesobuthus nigrocinctus*: Effects unknown.

7.3 Snakes

- *Cerastes gasperettii* (Gasperetti's horned viper) and *Walterinnesia aegyptia*: Potentially lethal envenoming, though unlikely.
- *Daboia palaestinae, Macrovipera lebetina* subspecies e*uphratica* and subspecies *obtuse* (Levantine viper), *Montivipera bornmuelleri*: Severe envenoming possible, potentially lethal.
- *Malpolon monspessulanus*: Moderate envenoming possible but unlikely to prove lethal
- *Eryx jaculus*: Bite most unlikely to cause fatality, but death from constriction possible, but rare.

7.4 Short-term health risk:

Low. If encountered, effects of venom vary with species from mild localized swelling (e.g., *Hottentotta judaicus*) to potentially lethal effects (e.g., *Latrodectus tredecimguttatus*). See effects of venom above. Mitigation strategies included avoiding contact, proper wear of uniform (especially footwear), and timely medical treatment.

7.5 Long-term health risk:

None identified.

8 Heat/Cold Stress

8.1 Heat

Summer (June - September) monthly mean daily maximum temperatures range from 76-93 degrees Fahrenheit (°F) with an average temperature of 85°F based on historical climatological data from the World Weather Online as presented in the LCF POEMS for years 2016-2018 (Reference 11). The health risk of heat stress/injury based on temperatures alone is High (82-87.9°F) from June to September, and extremely high (≥ 88°F) from July-August. However, work intensity and clothing/equipment worn pose greater health risk of heat stress/injury than environmental factors alone (Reference 12). 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). Risk 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) is High from June and September, and extremely high from July-August.

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.

8.2 Cold

8.2.1 Short-term health risks:

Winter (December - March) monthly mean daily minimum temperatures range from 46-68°F with an average temperature of 57°F based on historical climatological data from the World Weather Online as presented in the LCF POEMS for years 2016-2018 (Reference 11). Because even on warm days a significant drop in temperature after sunset by as much as 20°F can occur, there is a risk of cold stress/injury. 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.

Low: The health risk of cold injury is Low.

8.2.2 Long-term health risk:

Low: The health risk of cold injury is Low.

9 Noise

9.1 Continuous

The services have established occupational exposure limits (OEL) for continuous or intermittent noise at 85 decibels on the A-weighted scale (dBA), 84 dBA for the Navy, as an eight hour time-weighted average. The A-weighted scale of noise measurement is used because it mimics the human ear's response to sound. All services require that individuals routinely exposed to noise levels greater than the OEL be enrolled in the hearing conservation program. Generally, "routinely exposed" is defined as two or more eight hour days per month.

Aircraft operations have the potential to cause a significant noise hazard to flight line and helicopter landing zone support personnel. Support personnel working in the flight line area of the aircraft operations may be exposed to higher noise levels; therefore, personnel are required to wear dual hearing protection when working on the flight line.

The flight line is close to camp LCF and the noise level has been documented at 150 dBA (Reference 9).

9.1.1 Short-term and long-term health risks:

High to Low: High to moderate risk for personnel not wearing hearing protection (dependent on magnitude, frequency and duration of exposures). Low risk for personnel working near major noise sources who wear proper hearing protection.

9.2 Impulse

No specific hazard sources were documented in the DOEHRS from 01 January 2019 through 31 December 2020 timeframe.

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

No specific hazard sources were documented in the DOEHRS from 01 January 2019 through the 31 December 2020 timeframe.

10.3 Fuel/petroleum products/industrial chemical spills

No specific hazard sources were documented in the DOEHRS from 01 January 2019 through the 31 December 2020 timeframe.

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.

10.4.1 Rodenticides

Nothing was documented to control rodents.

10.4.2 Insecticides

Nothing was documented to control insects.

10.4.3 Herbicides

Nothing was documented to control weeds.

10.5 Asbestos

No specific hazard sources were documented in the DOEHRS from 01 January 2019 through the 31 December 2020 timeframe.

10.6 Lead Based Paint

No specific hazard sources were documented in the DOEHRS from 01 January 2019 through the 31 December 2020 timeframe.

10.7 Burn Pit

There is a burn pit located at LCF and it is used to dispose of waste for the basecamp. A health risk estimate specific to burn pit emissions exposure could not be determined because burn pit emissions cannot be evaluated independently from the overall ambient air. While the results were not specific to LCF, Syria, the following paragraph summarizes a 2011 study conducted by the Institute of Medicine

(IOM), now the National Academy of Medicine, of the long-term health effects resulting from burn pit exposure in Iraq and Afghanistan (Reference 13).

In the 2011 study, the IOM committee was unable to determine if exposure to emissions from burn pits was associated with long-term health effects. This was primarily due to both unavailable or poor supporting epidemiologic evidence and significant gaps in monitoring data, resulting in the inability to accurately characterize exposure to burn pit emissions. However, the committee's review of the existing literature at the time, and the early available sampling data from Afghanistan and Iraq suggested that, in general, service in Iraq or Afghanistan may be associated with long-term health effects. This could be particularly true for susceptible (e.g. those with asthma) or highly exposed subpopulations (e.g. those who worked at the burn pit). If that broader exposure turns out to be relevant, the related health effects of concern are respiratory and cardiovascular effects and cancer. Additionally, susceptibility to the health effects from particulate matter could be exacerbated by other factors including stress, smoking, local climatic conditions, and co-exposure to other chemicals that affect the same biological or chemical processes.

The IOM study focused on burn pit exposure in Iraq and Afghanistan, not Syria. It should be noted that the air quality at locations with burn pits will vary from country to country and basecamp to basecamp. Additionally, proximity to a burn pit, the types and amount of material burned, operational process at the burn pit, meteorological conditions, and the presence of other pollution sources would also affect the exposures experienced by deployed Service members.

11 References

1. Defense Occupational and Environmental Health Readiness System (referred to as the DOEHRS-EH database) at https://doehrs-ih.csd.disa.mil/Doehrs/.
2. Department of Defense (DoD) Instruction 6490.03, *Deployment Health*, 2019.
3. DoDI 6055.05, Occupational and Environmental Health, 2008.
4. USAPHC 2013 TG230: Environmental Health Risk Assessment and Chemical Exposure Guidelines for Deployed Military Personnel. June 2013 Revision.
5. Center for Disease Control and Prevention (CDC), Travelers Health, Syria, https://wwwnc.cdc.gov/travel/destinations/traveler/none/syria.
6. Modification 13 to United States Central Command Individual Protection and Individual Unit Deployment Policy, March 2017
7. Modification 14 to United States Central Command Individual Protection and Individual Unit Deployment Policy, October 2019.
8. Modification 15 to United States Central Command Individual Protection and Individual Unit Deployment Policy, April 2020.
9. Occupational and Environmental Health Site Assessment. 1/101 ABN DIV (AA), Base Camp Lafarge Cement Factory. June 2019
10. Clinical Toxinology Resources: http://www.toxinology.com/. University of Adelaide, Australia.
11. USAPHC Periodic Occupational and Environmental Monitoring Summary (POEMS), Lafarge Cement Factory, Syria (2016-2018). Public Release, 19 January 2021
12. 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.
13. Institute of Medicine. 2011. Long-term health consequences of exposure to burn pits in Iraq and Afghanistan. Washington, DC: The National Academies Press.

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).
U.S. Army Public Health Center Phone (USAPHC) Phone: (800) 222-9698. http://phc.amedd.army.mil/
Navy and Marine Corps Public Health Center (NMCPHC) Phone: (757) 953-0700. http://www.med.navy.mil/sites/nmcphc/Pages/Home.aspx
U.S. Air Force School of Aerospace Medicine (USAFSAM) 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