

Karshi-Khanabad (K2) Air Base in Uzbekistan

Potential Historical Contaminants of Concern (COCs)



Under the direction of Congress, the U.S. Department of Veterans Affairs (VA) entered into agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) to prepare a report on the exposures at Karshi-Khanabad (K2) Air Base in Uzbekistan and to assess potential health effects in those deployed to K2. The K2 population consists of 15,777 servicemembers and veterans who deployed to K2 in 2001 through late 2005. This fact sheet summarizes ATSDR's report, which identifies potential contaminants of concern at K2 and their health effects.

ATSDR reviewed information on contaminants that were present when service members were stationed at K2. We identified the potential contaminants of concern and their health effects through several reports that provided levels of contaminants in air, water, soil, and soil gas at K2.

The ATSDR report identified the following:

- **How service members stationed at K2 may have been exposed to contaminants found in air, water, soil, and soil gas at K2.**

Service members may have been exposed to contaminants in air, water, soil, and soil gas by eating, drinking, breathing, or having skin contact with contaminants while stationed at K2 (2001 to 2005).

- **Contaminants in K2 air, water, soil, and soil gas documented in the past reports that exceed health-based screening levels.**

Screening levels are used to help identify contaminants that may be harmful to human health. If the maximum concentration of a contaminant is below the lowest screening level, exposure to the contaminant is not likely to result in adverse health effects. A concentration above a screening level does not necessarily mean that an adverse effect will occur, but it is an indication that the specific contaminant should be further investigated. ATSDR identified the maximum amount of each contaminant measured at K2 from past reports and compared the amounts to screening levels available from ATSDR and other sources. Contaminants that exceed their lowest screening level are potential contaminants of concern (COCs).

- **The potential health effects associated with exposure to the contaminants measured higher than their screening levels.**

ATSDR identified the health effects associated with the potential COCs. Exposure to the contaminant does not necessarily mean the health effect will occur. The potential COCs, the noncancer and cancer health effects, and the media (air, water, soil, gas) in which the screening level was exceeded are listed in the table below. An "X" indicates the contaminant was found at a level above the health-based screening level.



Contaminants in each media at K2 and potential health effects

Contaminant *	Potential Health Effects		Medium			
	Noncancer Effects	Cancer Type	Air	Water	Soil	Soil Gas
Arsenic	Not above screening level	Liver, kidney, lung, bladder, skin		X	X	
Benzene	Blood disorders	Leukemia	X			X
Benzo(a)pyrene	Not above screening level	Respiratory and gastrointestinal	X		X	
Bromodichloro-methane	Not above screening level	Liver, kidney, small intestine		X		
Cadmium	Bone density	Screening level not available		X		
Chloroform	Not above screening level	Bladder, rectum, colon		X		
Chromium (assumed hexavalent)	Blood, liver, small intestine, lymphatic	Stomach, small intestine, lung, mouth		X		
Copper	Gastrointestinal	Screening level not available		X		
Cumene (isopropylbenzene)	Kidney, endocrine	Screening level not available				X
Di(2-ethylhexyl)phthalate	Developmental, liver, immunological, reproductive	Liver, pancreatic, urinary tract			X	
Ethylbenzene	Neurological, kidney, developmental	Screening level not available				X
Kerosene	Liver and neurological	Screening level not available	X			
Lead	Reproductive, neurological, developmental, cardiovascular	Screening level not available		X		
Methylene chloride	Not above screening level	Liver and lung (air only)	X		X	
Naphthalene	Neurological and respiratory	Respiratory	X			
Particulate matter less than 10 microns (PM10)	Respiratory and blood	Screening level not available	X			
Total Phosphorus	Reproductive	Screening level not available		X		
Tetrachloroethylene	Not above screening level	Bladder, kidney, liver, respiratory, cervical, breast, non-Hodgkin's lymphoma	X			
Trimethylbenzenes 1,2,3-TMB; 1,2,4-TMB; and 1,3,5-TMB	Nervous, respiratory, blood	Screening level not available	X			X
Xylenes, total	Neurological, respiratory	Screening level not available				X

* - Uranium was found to be a contaminant of concern in initial VA reports, but it was measured in a restricted area of K2. No military personnel are believed to have accessed this area; thus, uranium was not considered to be a contaminant of concern.

Limitations

ATSDR recognizes that the data collected at K2 are limited to specific areas of the base and times of testing. The data may not fully represent levels of exposure to contaminants by service members stationed at K2 during this time period.

Next Steps

The ATSDR report provided the VA with a list of health effects that may be considered in the K2 Surveillance Program.