



Bulletin No. 21

December 13, 1986

## Arsenic and Mercury Contamination - Nome

On October 21, 1986, the Alaska Department of Environmental Conservation (DEC) notified the Epidemiology Office that elevated levels of arsenic and mercury had been discovered in soil samples taken from Steadman Field in Nome. We immediately reviewed available data and consulted with leading authorities with expertise on human health effects due to environmental exposure to mercury and arsenic. All health authorities were in agreement that levels detected posed no acute threat to children or adults and that the potential risk of any chronic adverse health effects was small.

In order to respond quickly to assess further the significance of these newly detected environmental findings, the Epidemiology Office arranged to collect urine samples from children who were most likely to have been exposed to arsenic and mercury. DEC and U.S. Environmental Protection Agency (EPA) professionals collected numerous additional environmental samples to delineate further the extent and distribution of mercury and arsenic contamination.

Environmental sampling conducted by DEC and EPA revealed that arsenic and mercury concentrations were in the expected background range except in three areas: Steadman Field, Dredge Site No. 6, and the current gold house. Increased levels of arsenic and mercury were detected in soil samples in a small, localized area within Steadman Field, near or at the location of the old gold house that was closed down in the mid-1940's. Of 63 soil samples taken from Steadman Field, only 3 had arsenic concentrations higher than 3000 ppm and 13 had arsenic concentrations higher than 200 ppm. (Figure 1) Of 59 soil samples taken from Steadman Field, only 1 had a mercury concentration higher than 15 ppm and 2 had mercury concentrations higher than 8 ppm. (Figure 2)

Figure 1. Arsenic Levels  
Steadman Field, Nome  
December 1986

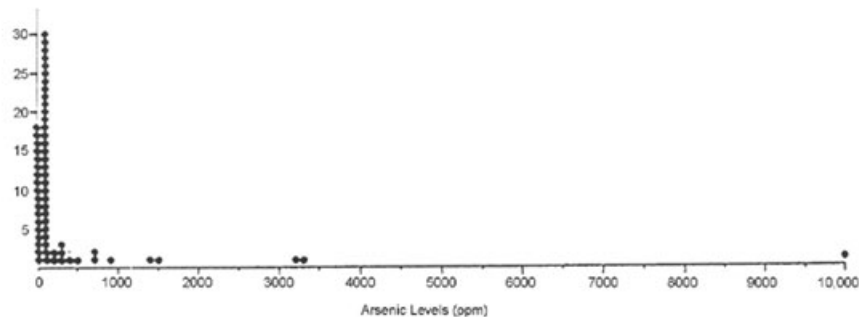
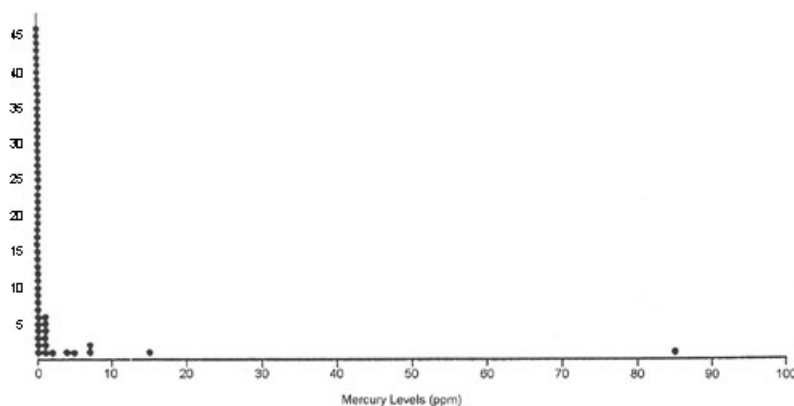


Figure 2. Mercury Levels  
Steadman Field, Nome  
December 1986



All urine specimens showed concentrations of arsenic and mercury within normal ranges. (Figures 3 and 4) One individual had a urinary arsenic level in the normal range but slightly higher than others--this individual had eaten a fish dinner 36 hours before the urine sample was obtained, a known cause of increased urinary arsenic. Urinary arsenic and mercury levels were not associated with age, amount of time spent playing at Steadman Field, or location of residence.

Figure 3. Nome - Steadman Field Exposure  
Urine Mercury Levels - December 1986  
N=24

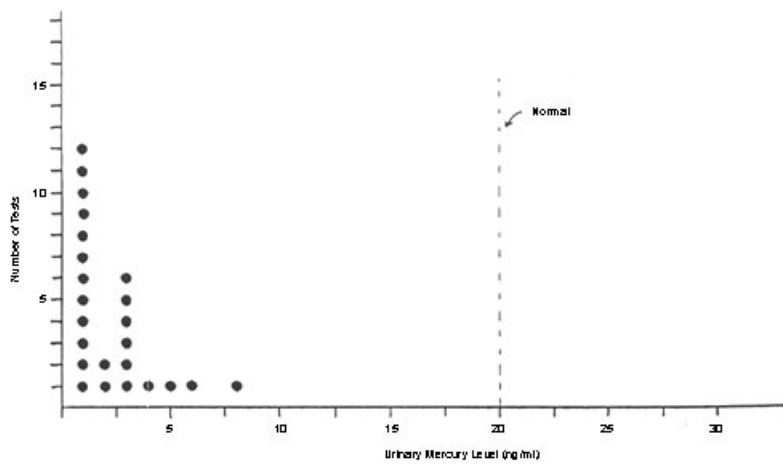
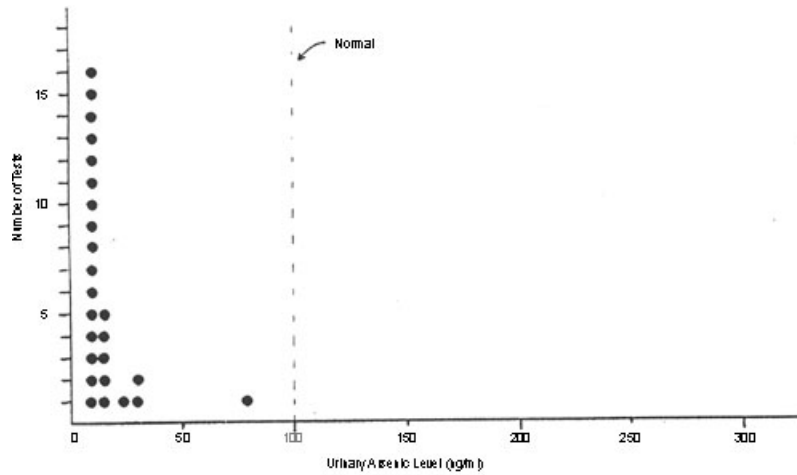


Figure 4. Nome - Steadman Field Exposure  
Urine Arsenic Levels - December 1986  
N=25



### Conclusions and Recommendations

- There is no evidence that children who have played at Steadman Field have, or will have in the future, any adverse health risks from arsenic or mercury.
- There is no risk to individuals from using Steadman Field now because snow and ice will prevent exposure to arsenic and mercury in the soil.
- No restrictions on the use of Steadman Field are needed at this time. The field may be used for any activities, as in past years, safely by the community, at least until after breakup next spring.
- There is ample time for appropriate agencies, working closely with the Nome community, to continue to assess environmental sampling data and to determine optimal recommendations for a definitive solution to the detected arsenic and mercury contamination in the Nome area.