

# ASARCO

850-5-X751

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K.W. Nelson  
Vice President  
Environmental Affairs

February 6, 1976

Dr. L. Black, Director General  
Medical Services Branch  
Health and Welfare  
255 Argyle Avenue  
Ottawa, Ontario K1A 0L3  
Canada

ACTION	PA AC DATE	BF AR DATE
M-106	11/16/76	
INFORMATION		
M-46		

Dear Dr. Black:

Thank you very much for the information on the Yellowknife arsenic studies.

Examination of mortality records of retirees who had worked at Asarco's copper smelter-refinery complex in Tacoma, Washington, has shown an association between lung cancer death rates and arsenic exposure as indicated by urinary arsenic levels. We calculated an arsenic exposure index for each lung cancer victim by multiplying his years, or fraction of years, service in each job by the average urine-arsenic level in micrograms per liter (corrected to a specific gravity of 1.018) for each department in which he had worked and added the numbers to get a total microgram-years figure. There was a clear rise in lung cancer incidence as exposure indices increased.

As a result of our study and analysis of historical data (since 1948) on urinary arsenic levels, we have recommended to the U.S. Department of Labor a biological standard to be observed in monitoring workers exposed to arsenic. We recommended that urinary arsenic be kept under 250 micrograms per liter (no seafood within 48 hours before collecting the sample) and that workers be removed from exposure if levels were consistently above 500  $\mu\text{g/l}$ .

The full details of our work will be published in due course by Drs. Sherman S. Pinto and Philip E. Enterline. Dr. Pinto is Asarco's retired Medical Director and Dr. Enterline is Professor of Biostatistics at the University of Pittsburgh.

Very truly yours,

KWN/jak  
cc: Dr. O. Schaefer

*K.W. Nelson*

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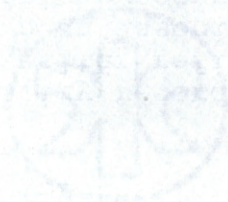
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