State of New Jersey
DEPARTMENT OF HEALTH
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CHRISTINE TODD WHITMAN
GOVERNOR

LEN FISHMAN
COMMISSIONER OF HEALTH

June 17, 1996

Mr. Matthew Westgate
United States Environmental Protection Agency
Region II
290 Broadway; Floor 19
New York, New York 10007-1866

Dear Mr. Westgate:

I am in receipt of your facsimile of May 22 in which you transmitted recent data regarding arsenic contamination at the Maurice River beaches and the Union Lake Sailing Club, and requested the NJDOH to interpret the potential public health significance of this information.

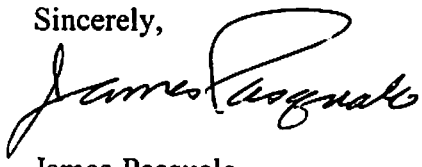
For the Maurice River beaches, maximum values of arsenic reported to the NJDOH for pertinent media were as follows: disturbed water; 110 ug/l (Almond Beach), beach soil/sand; 0.89 mg/kg (Alliance Beach), sediments; 20 mg/kg (B.A. Beach). For the Union Lake Sailing Club, maximum values of arsenic reported to the NJDOH for pertinent media were as follows: disturbed water; 15 ug/l, beach soil/sand; 2.9 mg/kg, and sediments; 5.2 mg/kg.

To evaluate the public health significance of the above data, exposure doses for inorganic arsenic and subsequent lifetime excess cancer risk estimates (LECRs) were calculated. The human exposure pathway is assumed to be the ingestion of arsenic contaminated surface water, sediments, and beach soils. Maximum concentrations detected at either location for each environmental media were utilized. As in the past, toxicological estimates were calculated for adults assuming a 70 kg body weight, an ingestion rate of 50 ml/day for surface water, 100 mg/day for beach soils, and 100 mg/day for sediments. Additionally it was assumed that an adult would swim 4 days a week for four months a year, over a duration of 40 years. For children, a body weight of 10 kg was assumed with ingestion rates of 50 ml/day for surface water, 200 mg/day for beach soils, and 200 mg/day for sediments over a ten year duration.

The ATSDR has established a minimal risk level for chronic oral exposure (duration > 1 year) of 0.0003 mg/kg/day which is equivalent to the USEPA chronic oral reference dose. At media concentrations cited above, adult exposure doses for the three potential human exposure pathways (combined) were below the chronic oral MRL for inorganic arsenic. At such concentrations non-carcinogenic health effects among adults and children are not generally expected in non-hypersensitive individuals. Exposure doses for children were estimated to be less than (but in the same order of magnitude as) the chronic oral MRL. Estimated exposure doses for children are below all the no observed adverse effect levels (NOAELs) cited in the ATSDR Toxicological Profile for Arsenic. For both adults and children, there would be no apparent ($10 \times E^{-5}$) increased carcinogenic risk based upon calculated exposure doses.

These estimates are completely dependant upon the accuracy of the data supplied to the NJDOH. The public health implications of arsenic contamination may be influenced by changes in contaminant concentrations or conditions at the beach locations or the sailing club. Should you have any questions regarding our toxicological evaluation, please do not hesitate to contact me.

Sincerely,



James Pasqualo
ATSDR Project Manager
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c.

Steve Jones, ATSDR ORO, Region II
David Hutchins, ATSDR Technical Project Officer