

Citizens' Guide to the Drinking Water Quality Analyses March 1996 - June 1999 Public Health Consultation March 2001

The New Jersey Department of Health and Senior Services (NJDHSS) and the federal Agency for Toxic Substances and Disease Registry (ATSDR) have completed the Public Health Consultation of the Drinking Water Quality Analyses of the United Water Toms River supply system for the period of March 1996 through December 1998. Public Health Consultations provide a response to a specific public health concern relating to environmental quality. They also identify actions needed to further evaluate and mitigate or prevent human health effects. The Drinking Water Quality Analyses, March 1996 - June 1999, United Water Toms River Public Health Consultation is summarized below. A draft version of the document was released in November 1999, underwent a two-month public comment period, and has been revised after consideration of the comments received. The full document is available to any interested citizen. Copies may be obtained from the locations listed at the end of this guide.

What is the purpose of the Drinking Water Quality Analyses 1996 - 1998 United Water Toms River Public Health Consultation?

This Health Consultation provides a thorough evaluation of the quality of drinking water from the community water supply. The purpose of this evaluation is twofold:

- to identify whether there are any unusual chemical or radiological characteristics of the water supply, and, if so,
- to determine if these characteristics should be considered in the investigation of childhood cancer in Dover Township.

How was water quality determined?

Water samples were tested for over 250 chemical and radiological contaminants. (Normally, community water systems are tested for approximately 80 chemical, radiological and microbiological contaminants.) Samples for the consultation and investigations were taken:

- from 23 **wells** in the supply system, to measure the presence of contaminants in the aquifer. Contaminants could occur naturally or result from human activities.
- from eight **points of entry**, which is the point connecting the water from at least one well to the distribution system. Water from points of entry can differ from that of wells, because water is disinfected and treated for corrosivity at points of entry. In addition, water from several wells (with potentially differing characteristics) may be blended at points of entry.
- from over 20 locations in the **distribution system**, beginning with 21 public and private schools that use the United Water Toms River supply. Distribution system samples are usually taken at the tap, and provide an accurate assessment of the actual quality of water used by consumers. Tap water quality may be affected by plumbing within the building. Water at the tap may also be supplied by more than one point of entry.

Standardized methods were used by the laboratories for testing. Some methods were also modified to detect additional compounds present in a sample.



What was learned about the characteristics of the United Water Toms River drinking water supply?

The following compounds were detected:

trichloroethylene, a volatile organic compound, was found at levels at or below the NJ Maximum Contaminant Level (MCL) in half of the school and one point of entry samples. It was found at levels above the MCL in three supply wells. Water from two of those wells was being treated at the point of entry to remove volatile organic compounds at that time. Trichloroethylene is a probable human carcinogen. At higher levels in drinking water it has been linked to leukemias in human populations.

styrene-acrylonitrile trimer was found in two of the three wells that had trichloroethylene, and sporadically detected in the third. It was also found in several of the early distribution samples system. The toxicity of this compound is unknown. Tests are ongoing to learn about its potential health risk. Water from the two wells is now being treated and pumped to waste. Water from the third well and another nearby well is being treated for this contaminant as a precautionary measure.

lead and copper were found in a number of the first draw school samples (that is, water which is taken from the tap after it has been in contact with the plumbing overnight). Flushed samples (samples taken after the water has been run for a few minutes) did not have these metals. Lead is harmful to a child's developing nervous system. Copper can cause gastrointestinal effects. School officials have been advised to run water before it is used each morning.

radiological activity was detected in a number of distribution samples, four points of entry, and several wells that draw from the Kirkwood-Cohansey aquifer. This is naturally occurring, resulting from the radioactive decay of radium. Radium in water has been associated with leukemia in adults, but not children, and bone cancer in adolescents.

Are these characteristics unique to this water supply?

Styrene acrylonitrile trimer is a by-product from plastics manufacturing, and is a known contaminant from the Reich Farm Superfund site. This unusual chemical is a distinctive characteristic of this water supply. Trichloroethylene is a commonly found contaminant in water supplies; lead and copper are often found in first draw samples in buildings with lead solder and copper pipes, particularly in areas where water is naturally corrosive. The radiological activity is likely to be widespread in southern New Jersey.

What are the recommendations of the report?

The NJDHSS, the NJDEP and the ATSDR recommend that treatment of wells impacted by the Reich Farm groundwater contamination be continued until the plume no longer threatens the wells. Use of wells with higher radiological activity should be minimized. Schools with elevated lead and copper levels in first draw samples should continue to run water at fountains each morning for a minute or two.

The report also recommends that the NJDHSS consider use of water from specific points of entry in the case-control epidemiologic study of childhood cancer in Dover Township.

For a full copy of the report, please contact the NJDHSS at (732) 505-4188 or (609) 633-2043, or visit our web site at www.state.nj.us/health.