# LOW DIOXIN AND ASBESTOS LEVELS IN GEORGIA'S DRINKING WATER

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**Abstract.** The Environmental Protection Division (EPD) is researching the presence of asbestos and dioxin in Georgia's drinking water. The results of the research will be included in vulnerability assessments to determine public water system (PWS) eligibility for dioxin and asbestos monitoring waivers.

PWSs that have asbestos pipe in their distribution system and "high risk" dioxin water sources are included in a drinking water sampling program. At present, 204 samples throughout Georgia have been analyzed for their asbestos content and 44 from Coastal Georgia for their dioxin content. All tested PWSs are in compliance with the EPA maximum contaminant levels for asbestos and dioxin indicating that treated drinking water does not harbor unsafe amounts of dioxin and asbestos, at this time.

Future asbestos drinking water testing will include raw water analysis to see if asbestos poses a threat to untreated drinking water. Future dioxin testing will focus on the metro Atlanta, Augusta, Macon and Albany areas.

## INTRODUCTION

Phase II/V of the Safe Drinking Water Regulations dramatically increased the number of constituents that PWSs monitor in the drinking water sold to their customers including asbestos and dioxin. Also, included in the new regulations is a means for water systems to reduce their chemical monitoring responsibilities through monitoring waivers. EPD may issue a monitoring waiver to a water system, if it can be demonstrated through a vulnerability assessment, that its drinking water is not at risk to contamination from a Phase II/V constituent. EPD prepares vulnerability assessments for Georgia water systems that are under contract with EPD to perform drinking water analyses of the PWS's water samples. EPD does not prepare vulnerability assessments for non-contracted water systems.

Since asbestos and dioxin in water requires unique analytical equipment and expertise to obtain the concentration levels established by the EPA, many laboratories in the nation have elected not to offer these analytical services. This situation has resulted in much higher analytical costs relative to the other Phase II/V constituents.

Since EPD contracts with Georgia water systems to provide Phase II/V chemical analytical services, and since EPD does not perform asbestos and dioxin in water analyses, EPD contracted with two out-of-state laboratories for the chemical services. Due to the situation, EPD elected to prepare vulnerability assessments for the two chemicals before preparing assessments for other parameters, with the intent to waive as many eligible water systems from these monitoring requirements as soon as possible. To date, EPD has issued 330 dioxin monitoring waivers to PWSs in coastal Georgia.

## ASSESSMENT STRATEGY

EPD elected to demonstrate that water sources are not at risk to asbestos or dioxin pollution because they are not susceptible to contamination by either substance. In order to do this, a comprehensive sampling project was implemented to show that finished drinking water and raw water harbor concentrations of the parameters less than the maximum contaminant levels and detection limits defined by the EPA. EPD is required to complete the project no later than December 31, 1995.

The asbestos maximum contaminant level is seven million fibers/liter of drinking water, and the fibers are greater than 10 microns long. The dioxin detection limit is five picograms/liter of drinking water (40 CFR, 1993).

In the past, PWSs installed distribution system pipe that contained asbestos fibers. As the pipe ages and is in contact with slightly corrosive water over time, asbestos pipe, A/C pipe or transite pipe may release asbestos fibers into the drinking water.

Drinking water sources in close proximetry to dioxin sources are considered to be the most susceptible to dioxin contamination.

The analytical results are maintained in data bases used to prepare the vulnerability assessments and reports to the EPA.

## METHODS

EPD sent questionnaires to all contracted water systems in Georgia asking the PWSs to indicate if they had any asbestos pipe in their distribution system. Once EPD received the

returned questionnaires, asbestos sampling kits were sent to the 213 systems that responded affirmatively.

The spatial relationships of water sources to potential dioxin sites were checked using GIS prepared maps with the locations of wood treatment facilities and drinking water sources plotted on the maps. The top surface of the shallowest water table was also plotted enabling the determination of which water sources were hydraulically down gradient of wood treatment facilities and within a five-mile radius of the wood treatment facility (Fuller, 1994). The fifty-nine sources that fit the above conditions were sent dioxin sampling kits by EPD.

All PWSs chosen by EPD, and wishing to participate in the sampling projects, were required to collect their own sample(s) and send it, along with the chain of custody, to the out-of-state laboratories for analysis. Asbestos samples are collected at a valve that services the asbestos pipe and dioxin samples at the entry point to the distribution system after treatment. Once the drinking water sample is analyzed, the analytical results are supplied to EPD.

## RESULTS

The voluntary response to both sampling projects by the contracted water systems has been very encouraging. Of the 213 contracted water systems that indicated to EPD that they had distribution pipe containing asbestos fibers, 194 systems have submitted 204 water samples for asbestos analysis. All 204 water samples have been analyzed. Of the fifty-nine contracted water sources identified for participation in dioxin sampling, 44 of the sources were sampled and analyzed.

Only four water systems recorded higher than the EPA established asbestos maximum contaminant level. Confirmation samples collected by three of the four water systems, utilizing standard sampling techniques, resulted in below maximum contaminant level asbestos content in their water samples. The fourth water system is affecting water treatment to lower its asbestos content to below the maximum contaminant level.

The 44 samples analyzed for dioxin content have revealed that coastal Georgia drinking water, after treatment, harbors a very low to no dioxin level. The dioxin concentration range for the 44 samples is zero picograms/l to 0.827 picograms/l. Statistical analysis done at Georgia State University shows the mean dioxin concentration of coastal Georgia drinking water is 0.126 picograms/liter with a standard deviation of 0.231 picograms/liter (Fuller, 1994). This mean level is 4.874 picograms/liter less than the detection limit of five picograms/liter established by the EPA. The maximum contaminant level is $3x10^{-8}$ g/l (Georgia Rules for Safe Drinking Water).

All samples are analyzed by EPA and EPD certified laboratories using EPA approved analyses methods.

## CONCLUSION

Vulnerability assessments will show that most Georgia PWSs are not at risk to contamination from either constituent. Water systems that have asbestos pipe in their distribution system and maintain proper water treatment are not at risk to asbestos contamination, and coastal Georgia PWSs in close proximity to a wood treatment facility are not at risk to dioxin contamination. Continuation of the dioxin sampling will include other areas of Georgia resulting in a more representative, statewide data base.

EPD plans to continue issuing monitoring waivers to eligible PWSs.

## LITERATURE CITED

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