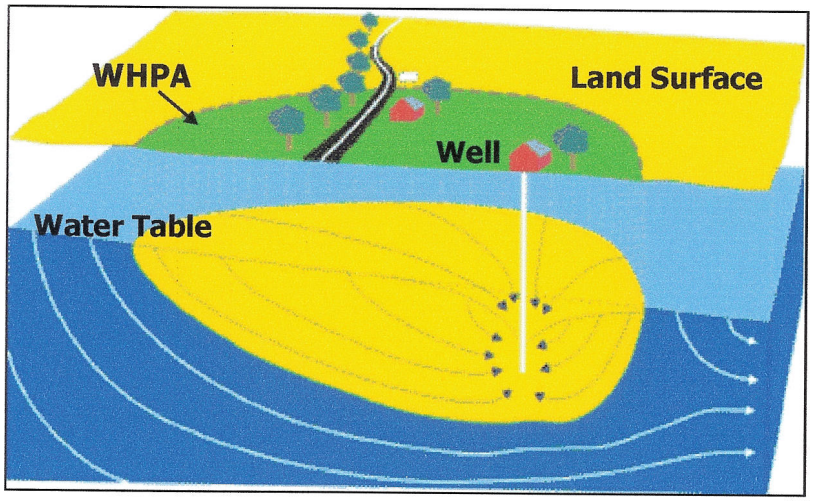
SOURCE WATER ASSESSMENT

FOR CHESAPEAKE CITY NORTH AND SOUTH

CECIL COUNTY, MD



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MDE

SUSCEPTIBILITY SUMMARY

In 1998, Cecil County was awarded a Wellhead Protection (WHP) grant by the Maryland Department of the Environment (MDE) to establish a WHP plan for eight community water systems. The studies were completed in August 2000 by Advanced Land and Water, Inc (ALWI). The 1996 amendments to the Safe Drinking Water Act require the State to conduct source water assessments for all of its public drinking water systems.

The Maryland Department of the Environment Water Supply Program (WSP) has conducted a source water assessment for the Chesapeake City North and South ground water supply based on the completed WHP Plan. The required components as described in Maryland's Source Water Assessment Plan (SWAP) are: (1) delineation of an area that contributes water to the source, (2) identification of potential sources of contamination, and (3) determination of the susceptibility of the water supplies to contamination. The first two steps have been addressed in the Chesapeake City WHP Plan as well as recommendations for protecting the drinking water supplies (ALWI, 2000). The WSP is responsible for completing the susceptibility determinations for these systems.

The source for the Chesapeake City North and South ground water supply is a semi-confined aquifer in the Coastal Plain known as the Potomac Group. Both systems have a production well and a standby well to obtain their drinking water. The standby well for each system is currently not in use. The two service areas are not presently interconnected. The wellhead protection area (WHPA) for the Chesapeake City wells was delineated for the Cecil County Office of Planning and Zoning by ALWI using U.S. EPA approved methods specifically designed for each source (ALWI, 2000). For ground water systems, a WHPA is considered to be the source water assessment area.

Table 1 shows the potential sources of contamination within the assessment area that were identified in the WHP Plan (ALWI, 2000). The delineated WHPA and the mapped contaminant point sources from Table 1 are shown on Figure 1. Well information and water quality data were also reviewed. No detects close to 50% of the maximum contaminant levels (MCLs) have been reported from available sampling data since 1993 for the Chesapeake City North and South production wells. Iron levels above secondary standards are present in the untreated water. Iron is removed at the treatment plants prior to distribution. An aerial photograph of the well locations is shown on Figure 2.

The susceptibility analysis of the Chesapeake City water supply was based on the review of the water quality data, potential sources of contamination, aquifer characteristics, and well integrity. It was determined that the Chesapeake City water supply is not susceptible to inorganic compounds, volatile organic compounds, synthetic organic compounds, radionuclides, or microbiological contaminants.

Table 1. Point Source and Potential Contamination Hazards
Chesapeake City Wellhead Protection Area

Site ID	Zonal Designation	Site Name	Potential Hazard	Data Source (see footnotes)
A	2	Dredge Spoils Deposit	Heavy Metals	1
B	2	Chesapeake City Elementary School	Well	1
C	2	Shaefer's Canal House	Well	3
D	3	Dredge Spoils Deposit	Heavy Metals	1

REFERENCES

Advanced Land and Water, Inc., 2000, Wellhead Protection Plan for the Chesapeake City Groundwater Supply System Cecil County, Maryland, 14 p.

Maryland Department of the Environment Water Supply Program, 1999, Maryland's Source Water Assessment Plan, 36 p.

OTHER SOURCES OF DATA

Water Appropriation and Use Permit No. CE1979G018
Water Treatment Plant Inspection Reports
MDE Water Supply Program Oracle Database
Department of Natural Resources 1995 Digital Orthophoto Quarter Quadrangles for Elkton SW & SE
USGS 7.5 Minute Series Topographic Map, Elkton Quadrangle
Maryland Office of Planning 1997 Cecil County Land Use Map
Maryland Office of Planning 1995 Cecil County Sewerage Coverage Map