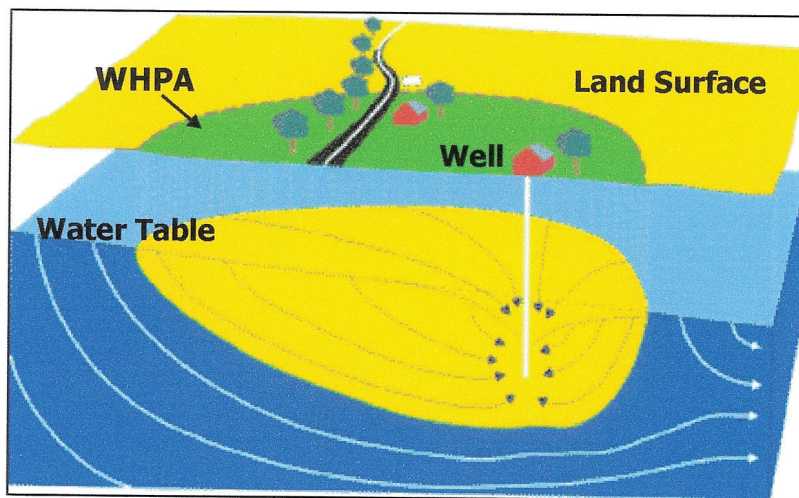


**SOURCE WATER ASSESSMENT
FOR THE TOWN OF CHARLESTOWN
CECIL COUNTY, MD**



**Prepared By
Maryland Department of the Environment
Water Management Administration
Water Supply Program
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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 Town of Charlestown's 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 supply to contamination. The first two steps have been addressed in the Town of Charlestown WHP Plan as well as recommendations for protecting the drinking water supply (ALWI, 2000). The WSP is responsible for completing the susceptibility determinations for this system.

The source for the Charlestown ground water supply is a semi-confined aquifer in the Coastal Plain known as the Potomac Group. The system currently uses three wells (2 production and 1 standby) to obtain their drinking water. The wellhead protection area (WHPA) for the Charlestown wells were 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. Site E from Table 1 is still under investigation by the MDE Oil Control Program (Case # 7-1673CE). 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 Charlestown production wells. An aerial photograph of the well locations is shown on Figure 2.

The susceptibility analysis of Charlestown's 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 Charlestown's water supply is susceptible to volatile organic compounds (e.g. solvents and gasoline), but is not susceptible to inorganic compounds, synthetic organic compounds, radionuclides, or microbiological contaminants.

**Table 1. Point Source and Potential Contamination Hazards
Charlestown Wellhead Protection Area**

Site ID	Zone Designation	Site Name	Potential Hazard	Data Source (See Footnotes)
A	2	Charlestown Elementary	Underground Storage Tank	4
B	3	Charlestown Fire Company	Underground Storage Tank	4
C	3	Water Well Site	Well	5
D	3	MDE Oil Control Monitoring Well	Well	5
E	3	Trading Post	Leaking Underground Storage Tank	2
F	2	CSX Railroad	Hazardous Waste	1
G	3	Water Well Site	Well	3

DATA SOURCE: 1 - Field Reconnaissance; 2 - EDR Report; 3 - WAP Report; 4 - Field Reconnaissance and EDR Report; 5 - Field Reconnaissance and MDE Report

REFERENCES

Advanced Land and Water, Inc., 2000, Wellhead Protection Plan for the Charlestown 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. CE1988G087

Water Treatment Plant Inspection Reports

MDE Water Supply Program Oracle Database

Department of Natural Resources 1995 Digital Orthophoto Quarter Quadrangles for North East NW

USGS 7.5 Minute Series Topographic Maps, Havre De Grace & North East Quadrangles

Maryland Office of Planning 1997 Cecil County Land Use Map

Maryland Office of Planning 1995 Cecil County Sewerage Coverage Map