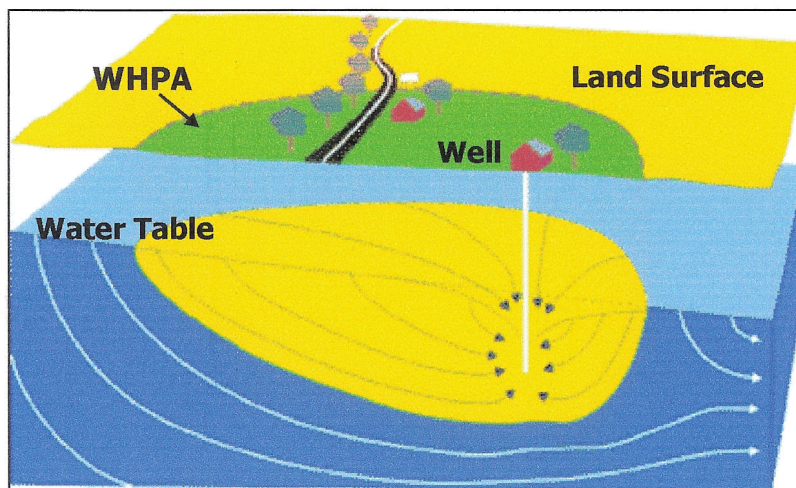


**SOURCE WATER ASSESSMENT**  
**FOR THE ELKTON-HOLLY HALL GROUND WATER SUPPLY**  
**CECIL COUNTY, MD**



**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 Elkton's Holly Hall 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 Elkton's 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 Holly Hall ground water supply is a semi-confined aquifer in the Coastal Plain known as the Potomac Group. The system currently uses two wells to obtain their drinking water. The wellhead protection area (WHPA) for the Holly Hall 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.

Tables 1 and 2 show the potential sources of contamination within the assessment areas that were identified in the WHP Plan (ALWI, 2000). The delineated WHPAs and the mapped contaminant point sources from Tables 1 and 2 are shown on Figure 1. Well information and water quality data were also reviewed. Tables 3a and 3b summarize the contaminant detects above 50% of the maximum contaminant levels (MCLs) since 1989 for each of the Holly Hall wells. An aerial photograph of the well locations is shown on Figure 2.

The susceptibility analysis of Holly Hall'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 Holly Hall'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 Zone 1 and 2 Contamination Hazards  
Elkton Wellhead Protection Area**

Site ID	Zone Designation	Site Name	Potential Hazard	Data Source (See Appendix)
AA	1	Advantage Dodge	Volatile Organic Compounds	1
SS	1	Williams Chevrolet	Volatile Organic Compounds	1
UU	1	WELL # 3	Above Ground Storage Tank	1
BB	1	Advantage Ford	Underground Storage Tank	3
NI	2	Royal Farms	Underground Storage Tank	1
RI	2	Meineke	Volatile Organic Compounds	1
S	2	Parts Plus	Volatile Organic Compounds	1
T	2	Jiffy Lube	Volatile Organic Compounds	1
Y	2	7-11	Underground Storage Tank	1
Z	2	Midas	Volatile Organic Compounds	1
NN	2	Cecil Custom Cycle	Volatile Organic Compounds	1
OO	2	Delaware Diesel	Volatile Organic Compounds	1
PP	2	Anchor Pontiac	Volatile Organic Compounds	1
VI	2	National Fireworks	Hazardous Waste	2
TP	2	Exxon	Underground Storage Tank	3
Q	2	WELL # 1	Above Ground Storage Tank	3
W	2	Kmart #9524	Underground Storage Tank	3
X	2	Mobil	Underground Storage Tank	3

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

**Table 2 Point Source and Potential Zone 3 Contamination Hazards  
Elkton Wellhead Protection Area**

Site ID	Zonal Designation	Site Name	Potential Hazard	Data Source (see footnotes)
A	3	L & H Cleaners	Chlorinated hydrocarbons	1
C	3	Sun Cleaners	Chlorinated hydrocarbons	1
D	3	Bridge Street Laundry	Underground Storage Tank	1
G	3	Elkton Cleaners	Chlorinated hydrocarbons	1
H	3	Elkton Wastwtr Treatment Plnt	Coliform Bacteria / NO <sub>3</sub>	1
K	3	Auto Body	Volatile Organic Compounds	1
L	3	Southern States	Underground Strge Tank	1
RR	3	M & M Auto Repair	Volatile Organic Compounds	1
UL	3	Star Cars	Volatile Organic Compounds	1
F	3	Elkton Gas & Light Company	Hazardous Waste	2
B	3	Boulden Truck Sales, Inc.	Leaking Undergrnd Storage Tnk	2
EL	3	American Home Fuels, Inc.	Above Ground Storage Tank	2
I	3	West End Auto	Above Ground Storage Tank	2
J	3	Charlie's Service Repair/	Underground Storage Tank	2
LE	3	Jerry Sutton	Underground Storage Tank	2
HT	3	Emergency Response	Emergency Response Spill	2
II	3	Swiss Inn, Inc	Underground Storage Tank	2
OB	3	Crown	Underground Storage Tank	3
	3	Holly Hall School	Hazardous Waste	3
BE	3	Mobil	Underground Storage Tank	3
MM	3	Roger's Customs	Hazardous Waste	3
OO	3	Steel Technologies, Inc	Hazardous Waste	3
RR	3	Konica	Hazardous Waste	3
UL	3	W.L. Gore & Associates, Inc.	Hazardous Waste	3
CC	3	William & Mary Loveall	Well	4
DD	3	Observation Well	Well	4
EE	3	Sentman Distributors	Well	4
KK	3	Elkton Indoor Tennis	Well	4
LL	3	Radio Station - WSER	Well	4

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

## SUMMARY OF WATER QUALITY SUSCEPTIBILITY ANALYSIS

CONT. ID	CONTAMINANT NAME	MCL (ppb)	SAMPLE DATE	RESULT (ppb)
2987	TETRACHLOROETHYLENE	5	14-Jun-89	6.1
2987	TETRACHLOROETHYLENE	5	05-Oct-89	9
2987	TETRACHLOROETHYLENE	5	22-Aug-90	6.2
2987	TETRACHLOROETHYLENE	5	24-Jan-91	3
2987	TETRACHLOROETHYLENE	5	08-Aug-91	2.5
2987	TETRACHLOROETHYLENE	5	23-Jul-92	2.5
2987	TETRACHLOROETHYLENE	5	05-Feb-93	3.3
2987	TETRACHLOROETHYLENE	5	08-Nov-94	3.5

Table 3a. VOC Results Above 50% of the MCL for Elkton Plant 1 Well 3, Finished Water Since 1989

CONT. ID	CONTAMINANT NAME	MCL (ppb)	SAMPLE DATE	RESULT (ppb)
2984	TRICHLOROETHYLENE	5	14-Jun-89	2.5

Table 3b. VOC Results Above 50% of the MCL for Elkton Plant 2 Well 1, Finished Water Since 1989

## REFERENCES

Advanced Land and Water, Inc., 2000, Wellhead Protection Plan for the Elkton Groundwater Supply System Cecil County, Maryland, 15 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. CE1961G007

Water Treatment Plant Inspection Reports

MDE Water Supply Program Oracle Database

Department of Natural Resources 1995 Digital Orthophoto Quarter Quadrangles for Elkton NW & NE

USGS 7.5 Minute Series Topographic Maps, Elkton & Newark West Quadrangles

Maryland Office of Planning 1997 Cecil County Land Use Map

Maryland Office of Planning 1995 Cecil County Sewerage Coverage Map