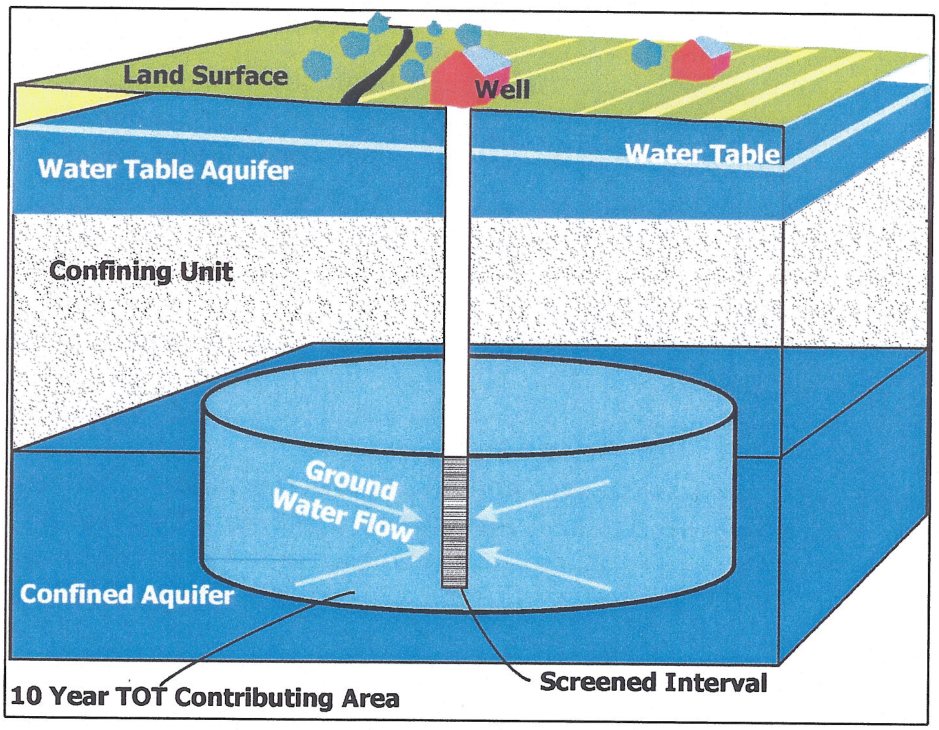
SOURCE WATER ASSESSMENT

FOR THE COMMUNITY WATER SYSTEMS
IN TALBOT COUNTY, MD



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Maryland Department of the Environment
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MDE

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SUMMARY

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County. The required components of this report as described in Maryland's Source Water Assessment Program (SWAP) are 1) delineation of an area that contributes water to each source, 2) identification of potential sources of contamination within the areas, and 3) determination of the susceptibility of each water supply to contamination. Recommendations for protecting the drinking water supplies conclude this report.

The sources of water supply wells in Talbot County are confined Coastal Plain aquifers. The twelve community water systems included in this report are currently using 25 wells that draw from unconsolidated Coastal Plain sediments. The confined wells are completed in the Aquia, Cheswold, Federalsburg, Magothy, Piney Point, and Upper Patapsco Aquifers respectively. The Source Water Assessment areas were delineated by the WSP using U.S. EPA approved methods specifically designed for each source.

Potential point sources of contamination within the assessment areas were noted from field inspections and contaminant inventory databases. The more common potential sources of contamination identified are underground storage tanks and controlled hazardous substance generators commonly associated with commercial areas. In confined aquifer settings, sources of contamination at the land surface are generally not a threat unless there is a pathway for direct injection into the deeper aquifer such as through unused wells or along well casings that have no grout seal. Aerial photographs showing unused wells, and spot satellite images of the wellhead protection areas are enclosed at the end of the report.

The susceptibility analysis is based on a review of the existing water quality data for each water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifers. It was determined that some of the community water systems are susceptible to naturally occurring arsenic (based on the new EPA standard), and fluoride, and some may be susceptible to radon. The twelve systems were determined not to be susceptible to volatile organic compounds, synthetic organic compounds, and microbiological contaminants.

Executive Summary
BAYVIEW

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Bayview community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Bayview water system, located in the Coastal Plain Physiographic Province of northwestern Talbot County, is currently using one well that draws water from the confined unconsolidated sediments of the Aquia aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for this source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 3a is an aerial photograph showing potential sources of contamination within and near the wellhead protection area.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Bayview water supply is susceptible to arsenic (based on the new EPA standard), and may be susceptible to radon-222. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic, or radiological compounds

EXECUTIVE SUMMARY
CLAIBORNE

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Claiborne community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Claiborne water system, located in the Coastal Plain Physiographic Province of northwestern Talbot County, is currently using one well that draws water from the confined unconsolidated sediments of the Aquia aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 3a is an aerial photograph showing potential sources of contamination within the wellhead protection area.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Claiborne water supply is susceptible to arsenic (based on the new EPA standard), and may be susceptible to radon-222. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic, or radiological compounds

Executive Summary
EASTON

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Easton community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Easton water system, located in the Coastal Plain Physiographic Province of central Talbot County, currently has seven wells that draw water from the confined unconsolidated sediments of the Aquia, Magothy, and Upper Patapsco aquifers respectively. The wellhead protection areas were delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifers. It was determined that Easton Well 9 is susceptible to arsenic (based on the new EPA standard), and Plants 3 and 4 are susceptible to fluoride. Well 7 may be susceptible to combined radium 226 and 228. The susceptibility of the water supply to radon-222 could not be determined due to the absence of sampling data. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic or radiological compounds.

Executive Summary
MARTINGHAM UTILITIES

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Martingham Utilities community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Martingham Utilities water system, located in the Coastal Plain Physiographic Province of northwestern Talbot County, is currently using two wells that draw water from the confined unconsolidated sediments of the Aquia aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Martingham Utilities water supply is susceptible to arsenic (based on the new EPA standard), and may be susceptible to radon-222. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic, or radiological compounds

EXECUTIVE SUMMARY
TOWN OF OXFORD

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Town of Oxford's community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Town of Oxford water system, located in the Coastal Plain Physiographic Province of southern Talbot County, is currently using two wells that draw water from the confined unconsolidated sediments of the Aquia aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Town of Oxford's water supply is susceptible to arsenic (based on the new EPA standard), and fluoride. The susceptibility of the water supply to radon-222 could not be determined due to the absence of sampling data. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic or radiological compounds.

EXECUTIVE SUMMARY
SAINT MICHAELS

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Saint Michaels community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Saint Michaels water system, located in the Coastal Plain Physiographic Province of western Talbot County, is currently using two wells that draw water from the confined unconsolidated sediments of the Aquia aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 3b is an aerial photograph showing potential sources of contamination within the wellhead protection area.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Saint Michaels water supply is susceptible to arsenic (based on the new EPA standard). The susceptibility of the water supply to radon-222 could not be determined due to the absence of sampling data. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic, or radiological compounds

EXECUTIVE SUMMARY
TOWN OF TRAPPE

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Town of Trappe's community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Town of Trappe's water system, located in the Coastal Plain Physiographic Province of southern Talbot County, is currently using two wells that draw water from the confined unconsolidated sediments of the Piney Point aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Town of Trappe's water supply is susceptible to arsenic (based on the new EPA standard), and may be susceptible to radon-222, and gross alpha. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic or radiological compounds.

EXECUTIVE SUMMARY
WESTLANDS

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Westlands community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Westlands water system, located in the Coastal Plain Physiographic Province of central Talbot County, is currently using one well that draws water from the confined unconsolidated sediments of the Cheswold aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Westlands water supply is not susceptible to regulated inorganic compounds, volatile organic compounds, synthetic organic compounds, microbiological pathogens, and radiological compounds.

Executive Summary
JENSEN'S HYDE PARK MOBILE HOME PARK

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Jensen's Hyde Park Mobile Home Park community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Jensen's Hyde Park Mobile Home Park water system, located in the Coastal Plain Physiographic Province of northeastern Talbot County, is currently using two wells that draw water from the confined unconsolidated sediments of the Federalsburg, and Aquia aquifers respectively. The wellhead protection areas were delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Jensen's Hyde Park Mobile Home Park water supply is susceptible to arsenic and fluoride, and may be susceptible to radon-222. The system is not susceptible to volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other regulated inorganic or radiological compounds.

EXECUTIVE SUMMARY
SWANN HAVEN MOBILE HOME PARK

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Swann Haven Mobile Home Park community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Swann Haven Mobile Home Park water system, located in the Coastal Plain Physiographic Province of eastern Talbot County, is currently using four wells that draw water from the confined unconsolidated sediments of the Federalsburg aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Swann Haven Mobile Home Park water supply may be susceptible to radon-222. The system is not susceptible to regulated inorganic compounds, volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other radiological compounds.

EXECUTIVE SUMMARY
TALBOT MOBILE HOME PARK

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Talbot Mobile Home Park community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Talbot Mobile Home Park water system, located in the Coastal Plain Physiographic Province of northeastern Talbot County, is currently using one well that draws water from the confined unconsolidated sediments of the Federalsburg aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. It was determined that the Talbot Mobile Home Park water supply may be susceptible to radon-222. The system is not susceptible to regulated inorganic compounds, volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other radiological compounds.

EXECUTIVE SUMMARY
FOSTER'S MOBILE HOME PARK

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted a Source Water Assessment for the twelve community water systems in Talbot County, including the Foster's Mobile Home Park community supply. The required components of this report as described in Maryland's Source Water Assessment Program (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. Recommendations for protecting the drinking water supply conclude this report.

The sources of the community water supply wells in Talbot County are confined Coastal Plain aquifers. The Foster's Mobile Home Park water system, located in the Coastal Plain Physiographic Province of northern Talbot County, is currently using one well that draws water from the confined unconsolidated sediments of the Cheswold aquifer. The wellhead protection area was delineated by the WSP using U.S. EPA's approved methods specifically designed for each source.

Point sources of contamination were identified within and near the assessment area from field inspections and contaminant inventory databases. Figure 1 is a satellite image photograph showing the locations of each of the wellhead protection areas.

The susceptibility analysis is based on a review of the existing water quality data for the water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and the inherent vulnerability of the aquifer. The susceptibility of the water supply to radon-222 could not be determined due to the absence of sampling data. It was determined that the Foster's Mobile Home Park water supply is not susceptible to regulated inorganic compounds, volatile organic compounds, synthetic organic compounds, microbiological pathogens, and other radiological compounds.

INTRODUCTION

The Water Supply Program has conducted a Source Water Assessment for 12 community water systems in Talbot County. Talbot County is located on the Delmarva Peninsula along the eastern shore of the Chesapeake Bay. The county is bounded by Queen Anne's County to the north, by Tuckahoe Creek, and the Choptank River to the east and south, and by the Chesapeake Bay to the west (Figure 1). Based on July 2001 data, the total population of Talbot County is 34,000 persons (Md. Assoc. of Counties, 2001). The County lies within the Atlantic Coastal Plain Physiographic Province. All of the community systems in Talbot County obtain their water supply from confined, unconsolidated Coastal Plain sediments.

WELL INFORMATION

Well information for each system was obtained from the Water Supply Program's database, site visits, well completion reports, sanitary survey inspection reports, and published reports. A total of 25 wells are used by the 12 systems assessed in this report. Seven of the wells were drilled after 1973 and should comply with Maryland's well construction regulations for grouting and casing. A review of the available well completion report data indicates that eight other wells drilled between 1970-1972 were also grouted around their respective casings. The Easton Utilities 2001 Consumer Confidence Report states that each of the Easton wells were constructed with concrete encasement around the well casings to prevent local contamination from the ground surface. Five other wells that were drilled prior to 1973, when current regulations went into effect, may not meet the current construction standards. Well completion report data was not available for three of the wells. Table 1 contains a summary of well information for each of the community water systems.

Site surveys verified unused wells at Claiborne and St. Michaels respectively. Unused wells that have not been properly abandoned and sealed may provide a direct route for ground water contamination to an aquifer. Field inspections verified that Easton Wells 6, 7, 8, and 9 are cased below ground surface in enclosed structures (Figure 1).

HYDROGEOLOGY

Talbot County is underlain by unconsolidated sediments of the Coastal Plain Physiographic Province, which is characterized by low topographic relief. The sediments were deposited in a southeasterly thickening wedge extending from the Fall Line to the Continental Shelf (USGS Water Supply Paper 2355-A, 1999). They consist of nearly flat-lying layers of clay, silt, sand, gravel, and shells that overlie a complex assemblage of crystalline bedrock. The age of the deposits (from oldest to youngest), range from Cretaceous, just above the crystalline basement rocks, to Tertiary, to Quaternary near the land surface (Mack, Webb, & Gardner, 1971). A schematic cross section showing the hydrogeologic units beneath Talbot County is shown in Figure 2 (Drummond, 2001). Note that the deeper aquifers are overlain by confining clay units of low permeability that may inhibit the infiltration of contaminants from the land surface (Figure 2). The major aquifers used by the community water systems in this report include the Miocene aquifers, Federalsburg, and Cheswold of the Calvert Formation, and the Piney Point, Aquia, Magothy, and Upper Patapsco Formations respectively. The Federalsburg, and Cheswold Aquifers have only one substantial overlying confining layer, whereas the deeper aquifers have multiple confining units providing yet additional protection from surficial contamination. Based on well log data near the Westlands property, the thickness of the confining unit above the Cheswold Aquifer is 71 feet. The average thickness of the confining unit overlying the Federalsburg Aquifer at Jensen's Hyde Park, Swann Haven, and Talbot Mobile Home Parks respectively is 81 feet. A generalized description of the water bearing properties and lithology of the major aquifers and confining units of Talbot County is shown in Table 2 (Drummond, 2001). Recent data from the MGS report (Drummond, 2001) places the Easton Wells 6, 7, 8, 10, and 12 in the Magothy and not the Matawan Formation as is stated in the MDE Ground Water Appropriation Permit. Also, the MGS report indicates that Easton Well 11 is completed in the Upper Patapsco Formation, and not the Magothy Formation as is stated in the current permit. For the purpose of this report, the most recent data from the MGS report was used in describing the aquifers for the Easton municipal supply wells.

SOURCE WATER ASSESSMENT AREA DELINEATION

For ground water systems, a Wellhead Protection Area (WHPA) is considered to be the source water assessment area for the system. Based on the methodology described in Maryland's Source Water Assessment Plan (MDE, 1999), wells drilled into confined aquifers in the Coastal Plain pumping an average of 10,000 gallons per day (gpd) or greater are to be delineated using a volumetric equation referred to as "The Florida Method". The method is used to calculate the volume of aquifer needed to store the quantity of water pumped from the well for a 10-year period. The equation is as follows:

$$r = \sqrt{\frac{Qt}{\pi n H}}$$

where: r = calculated fixed radius (ft)
Q = pumping rate of well (ft^3 / yr)
t = time of travel in years (yr)
n = aquifer porosity (dimensionless)
H = length of well screen (ft)

A porosity (n) of 25% was assumed for each of the aquifers based on the lithology, and as a conservative estimate. The volumetric equation was solved for each well using the pertinent data as shown in Table 3. The resulting WHPAs are radial zones of transport based on a 10-year time of travel (Figure 1). Systems with multiple wells that share the same aquifer and whose radial areas overlap were combined to form one larger WHPA. The protection areas for assessment purposes are located within the aquifer below the confining layers at depths below the land surface. Diagram 1 is a conceptual illustration of a WHPA in a confined Coastal Plain aquifer.

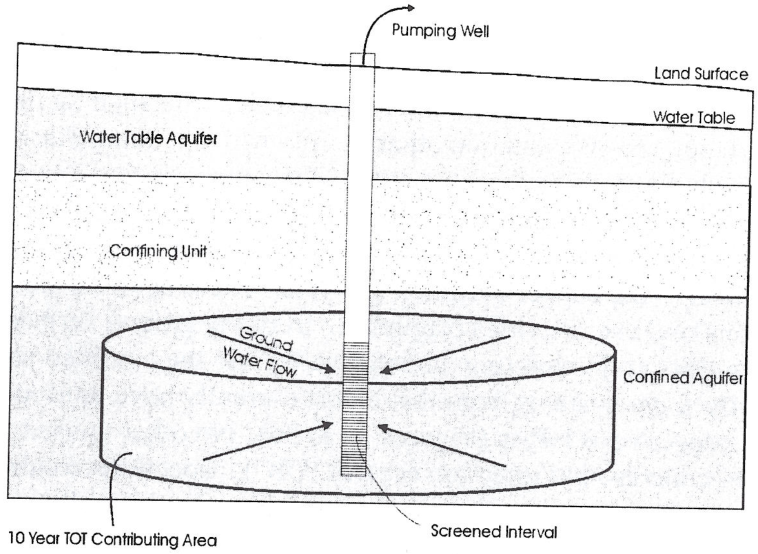

Diagram 1. Conceptual Illustration of a Zone of Transport for a Confined Aquifer

The Wellhead Protection areas for public water systems using an average of less than 10,000 gpd whose wells are completed in confined Coastal Plain aquifers is a fixed radius of 600 feet around the well (MDE, 1999). This radius is based on the volumetric equation from the previous page assuming a minimum aquifer thickness of 20 feet, a porosity of 25%, and an average daily pumpage of 10,000 gpd. The WHPAs for Bayview, Claiborne, Westlands, Foster's, and Swann Haven Mobile Home Parks respectively were delineated using this method. A 600-foot radius was also delineated for Jensen's Hyde Park Mobile Home Park Well 2 since the calculated fixed radius was less than this minimum established assessment area (Table 3).

Potential Sources of Contamination

Potential sources of contamination are classified as either point or non-point sources. Examples of point sources of contamination are leaking underground storage tanks, landfills, discharge permits, large-scale feeding operations, and known ground water contamination sites. These sites are generally associated with commercial or industrial facilities that use chemical substances that may, if inappropriately handled, contaminate ground water via a discrete point location. Non-point sources of contamination are associated with certain types of land use practices such as the use of pesticides, application of fertilizers, sludge or animal wastes, or septic systems all that may lead to ground water contamination over a larger area. All of the community water systems in this report draw water from confined aquifers. In confined aquifer settings, sources of contamination at the land surface are generally not a threat unless there is a pathway for direct injection into the deeper aquifer such as through unused wells or along well casings that have no grout seal.

Several inspections of facilities located within and near the WHPAs were conducted by MDE staff to determine the potential of any unpermitted ground water discharges (e.g. open floor drains), and unused wells. Six such facilities received a notice of violation (NOV), and one other facility had a pending discharge issue that is now resolved. Four of the facilities with NOVs have since taken corrective actions and are now in compliance. The details of these inspections are discussed in Appendix A. Ground water discharges to the shallow unconfined aquifers should not pose a threat to the deeper confined aquifers. These aquifers are naturally protected from land use activities originating from the ground surface unless there is a pathway for direct injection (e.g. unused wells) into the confined aquifer. Two of the community water systems from this report currently have unused wells located within their respective WHPAs (Figures 3a & 3b). No other unused wells were reported from underground injection control (UIC) inspections conducted by MDE staff. However, there may be others (e.g. unused residential wells) that are currently not inventoried, due to limitations in database, and inspection staff resources. Reports of additional sites that were inspected are available from MDE.

Based on a MDE Waste Management Administration database review, four sites within the wellhead protection areas of Easton Wells 6, 8, 11, and 12 have been identified as having historical or potential ground water contamination concerns. Appendix B provides general site information and fact sheets for these facilities. There are also several facilities in the Easton and St. Michaels areas that have underground storage tanks located within or near their respective WHPAs. Many of these facilities have had their tanks replaced with newer ones due to leaks or non-compliance with current State tank regulations. Other facilities had their USTs permanently removed due to leaks or non-compliance issues. Still others are currently under investigation by the MDE Oil Control Program. None of these sites should present a water quality threat to any of the community supply wells from this report due to the natural confining clay layers that protect the aquifers from contamination that occurs near the ground surface. Contamination from these sites may threaten the water quality of the shallow unconfined aquifers only. The reader may contact the specific programs within the MDE Waste Management Administration for additional information regarding potential contaminant sites in Talbot County.

WATER QUALITY DATA

Water Quality data was reviewed from the Water Supply Program's database and system files for Safe Drinking Water Act contaminants. The State's SWAP defines a threshold for reporting water quality data as 50% of the Maximum Contaminant Level (MCL). If a monitoring result is at or greater than 50% of a MCL, this assessment will describe the sources of such a contaminant and, if possible, locate the specific sources which are the cause of the elevated contaminant level. All data reported is from the finished (treated) water unless otherwise noted. Four of the systems currently do not use water treatment. The treatment methods currently in use for the remaining 8 systems included in this report are summarized in Table 4.

A review of the monitoring data since 1993 indicates that the water supplies for the 12 systems in this report meet the drinking water standards with a few exceptions (Table 5). Tables 6a-6d provide a list of all detections above 50% of the MCL. Results that exceeded an MCL are shown in bold. Among the inorganic compounds tested, arsenic, and fluoride were the predominant contaminants detected. Gross alpha and radium 226 & 228 were detected at levels greater than 50% of their respective MCLs for Easton, and the Town of Trappe (Table 6c). Radon-222 was routinely detected, but at levels less than that proposed by EPA for regulations in drinking water (Table 6b). No standard has been established for radon in drinking water. Volatile organic compounds have been detected at low levels in the Easton water supply only. However, repeat samples did not confirm the reported volatile organic detections. Synthetic Organic Compounds were detected in 8 of the 12 systems tested from this report. However, the only SOC compound detected above 50% of its respective MCL is often found in laboratory blanks, and therefore should not represent actual water quality of the affected systems (Table 6d).

Inorganic Compounds (IOCs)

A review of the available data shows that arsenic, fluoride, and mercury were the only IOCs detected above 50% of their respective MCLs (Table 6a). Mercury was detected in only one sample at Jensen's Hyde Park Mobile Home Park in 1994, and was not detected again in 3 sets of sampling since that time.

Arsenic was detected in 8 of the 12 systems, and was detected in repeat sampling for 6 of the systems (Table 6a). With the exception of one detect in the Piney Point Formation for the Town of Trappe, arsenic was detected in wells drawing from the Aquia Aquifer only (Table 6a). Based on available data, arsenic was not detected in the wells completed in the shallower Miocene aquifers. The data also suggests that arsenic levels tend to decrease at greater depths in the Aquia Aquifer.

Fluoride was detected in repeat sampling for all of the systems in this report. It was detected above 50% of the MCL of 4 parts per million (ppm) in 3 systems whose wells draw water from the Aquia and Magothy Aquifers respectively.

Iron was detected above 50 % of the secondary MCL of 0.3 ppm at Bayview, Claiborne, Easton, Oxford, Trappe, Westlands, and Talbot Mobile Home Park respectively. It was also detected in repeat sampling at Bayview, and Claiborne. Iron is present in all of the aquifers described in this report. No other regulated IOCs were detected at levels of concern for the 12 community systems.

Radionuclides

There is currently no MCL for Radon-222, however EPA has proposed an MCL of 300 picocuries per Liter (pCi/L) or an alternate of 4000 pCi/L for community water systems if the State has a program to address the more significant risk from radon in indoor air. Radon-222 has been detected at levels slightly above 50% of the more conservative, proposed MCL of 300 pCi/L in 7 of the 8 community systems that have tested for this contaminant (Table 6b). The available data indicates that radon was detected in wells drawing from the Federalsburg, Piney Point, and Aquia Aquifers, respectively.

Gross alpha was detected above the 50% MCL threshold from 1 set of sampling data for the Town of Trappe in 1997 (Table 6c). Sampling results in April 2001 show no detects of gross alpha from a composite sample taken at the storage tank. Radium 226 & 228 was detected once at 3.9 pCi/L in 2001 at Easton's Well 7 (Table 6c). The MCL for combined radium 226 & 228 is 5 pCi/L. No other radiological contaminants were detected at levels of concern for the other community water systems in this report.

Volatile Organic Compounds (VOCs)

PCE was the only VOC that was detected above the 50% MCL threshold of 5 parts per billion (ppb) from the 12 community systems in this report (Table 6d). The VOC was detected once at Easton Wells 7, 8, and 11 in 1995. The VOC was not detected again in 6 subsequent sets of sampling data since 1995. Other VOCs that were detected at low levels well below their respective MCLs at Easton in 1994 and 1995 are xylenes, trichloroethylene (TCE), and toluene. These contaminants were not detected again in any of the Easton Plants from four subsequent sets of samples taken since March 1995. No other VOCs were detected from available sampling results of the remaining 11 systems since 1993.

Synthetic Organic Compounds (SOCs)

The only SOC detected above the 50% threshold was Di (2-Ethylhexyl) Phthalate (Table 6d). This contaminant was found in laboratory blank samples accompanying these detections, and therefore should not affect actual water quality of this system. This SOC was also detected at low levels well below its respective MCL of 6 ppb at 7 other systems from this report.

Dalapon was detected from one set of available sampling data in 1997 for Bayview, and Claiborne, at levels well below its MCL of 200 ppb. No other SOCs were detected from available sampling results for the remaining systems.

Microbiological Contaminants

Ground water under the direct influence of surface water (GWUDI) raw water testing was not conducted for any of the 12 community water systems in Talbot County, since the wells draw water from confined aquifers that are considered not at risk to surface water influence.

All of the systems, however, have monthly routine bacteriological samples that were collected as required by the Safe Drinking Water Act. Of the 12 systems from this report, 4 do not use any type of water treatment (Table 4). Therefore, routine bacteriological results at these systems may be representative of raw water. The samples collected from the remaining 8 systems are from finished (treated) water, which may not be indicative of the source water conditions. Six of the systems have had no positive routine bacteriological samples in all samples collected since 1997 (Table 7). Six systems had positive total coliform results in at least one sample, but none of these systems have had positive bacteria results in more than 6% of the total samples collected since 1997. No positive fecal coliform results were reported from any of the 12 community systems collected monthly since 1997.

SUSCEPTIBILITY ANALYSIS

The wells serving the Talbot County community water systems draw water from confined aquifers. Confined aquifers are naturally protected from land use activities at the ground surface due to the confining layers that provide a barrier for water movement from the surface into the aquifers below. A properly constructed well with the casing extended to the confined aquifer and with sufficient grout should be well protected from contamination. Confined aquifers are recharged very slowly from the water stored in the confining unit above, and from precipitation that infiltrates into the formation where it reaches the ground surface. Figure 4 illustrates the subcrop area of the Aquia aquifer (the area where it reaches the ground surface). Note that this area is in Queen Anne's County, approximately 10 miles northwest of the northern-most Talbot County border. Generally, water stored in confined aquifers has traveled great distances from its origin at the ground surface. Based on time-of-travel calculations performed by MDE staff, a contaminant that enters the sub-crop area of the Aquia aquifer in Queen Anne's County would take over 50,000 years to be withdrawn from an Aquia well in the Easton area of Talbot County. Likewise, the travel-time of a contaminant through the very low permeability confining layers, to ultimately reach the Aquia aquifer would take millions of years!

The susceptibility analysis of the individual water supplies to each group of contaminants has been completed based on the following criteria: 1) the presence of potential contaminant sources within the WHPA, 2) water quality data, 3) well integrity and 4) the aquifer conditions.

Inorganic Compounds

Arsenic is present in the wells of 7 systems at 0.010 ppm or greater (Table 6a). EPA lowered the MCL for arsenic from 0.050 ppm to 0.010 ppm on February 22, 2002. The regulations will be effective for new sources on or after January 23, 2004. Existing water systems must meet the new standard by January 23, 2006. Arsenic is a naturally occurring element that is present in aquifer material at 8 of the systems in this report. Based on a preliminary study by MGS, the highest arsenic concentrations from the major Coastal Plain aquifers in Maryland are from the Aquia aquifer (Bolton, 2003).

Based on the new EPA standard of 0.010 ppm, the following systems **are** susceptible to arsenic due to the levels and persistence of this contaminant found: Bayview, Claiborne, Easton Well 9, Martingham Utilities, Oxford, St. Michaels, Trappe, and Jensen's Hyde Park Mobile Home Park. From available sampling data reported since 1993, the remaining systems from this report were determined **not** susceptible to arsenic contamination (Table 8).

Fluoride is a naturally occurring element that is present in aquifer material at all of the systems in this report. As water moves through the aquifer sands, elements such as fluoride are leached into the water. Based on the levels and persistence of this contaminant in available sampling data, the following systems **are** susceptible to this contaminant: Easton Plants 3 & 4, Oxford, and Jensen's Hyde Park Mobile Home Park (Table 8). The fluoride detections for the remaining system were below levels of concern, and therefore, were determined **not** susceptible to this contaminant.

Iron is a naturally occurring element that is present in aquifer material at 50% of the secondary MCL or above at 7 systems in this report. Excessive iron levels can cause taste, color, and odor problems in drinking water as well as iron bacteria build-up around well screens. The secondary MCL for iron is 0.3 ppm. Iron removal treatment was installed at Easton Plant 5 (Table 4).

Mercury may also be a naturally occurring element present in aquifer material. It is also used in batteries and electrical switches. It was detected in only one sample at Jensen's Hyde Park Mobile Home Park in 1995, and has not been detected since in three subsequent samples. Therefore, the system was determined **not** to be susceptible to this contaminant.

Based on available water quality data, all of the systems in this report were determined **not** susceptible to regulated inorganic compounds other than arsenic, and fluoride (Table 8).

Radionuclides

An MCL for radon-222 has not been adopted yet for Maryland. However, the U.S. EPA is proposing an MCL of 300 pCi/L or an alternative of 4000 pCi/L for drinking water if the State has a program to reduce the more significant risk from radon in indoor air, which is the primary health concern. Radon is present in 7 of the 8 systems that have tested for this contaminant at levels above 50% of the more conservative proposed MCL of 300 pCi/L (Table 6b). Radon is present in ground water due to radioactive decay of uranium bearing minerals in the sediment that makes up the aquifer material. The EPA has information on proposed regulations for radon in indoor air and drinking water on their web site (http://www.epa.gov/safewater/radon.html). The systems in Table 6b may be susceptible to radon-222 if the more conservative MCL of 300 pCi/L is adopted.

If the higher MCL of 4000 pCi/L is adopted, none of the 8 systems that have tested for this contaminant will be susceptible to radon. Easton, Oxford, St. Michaels, and Foster's Mobile Home Park do not have radon results available, and their susceptibility to this contaminant cannot be determined at this time.

Easton Well 7 may be susceptible to combined radium 226 and 228 due to the presence of this contaminant from 2001 sampling results (Table 6c). Radium is also a naturally occurring element that may be present in aquifer material. Another radiological contaminant that was detected in one set of sampling results above 50% of its respective MCL at the Town of Trappe is gross alpha emitters (Table 6c). These result from the decay of radionuclides in natural deposits that make up the aquifer material. The Town of Trappe's wells may therefore be susceptible to gross alpha. Radiological contaminants were not detected at levels of concern for the remaining systems in this report based on available sampling data (Table 8).

Volatile Organic Compounds

Incidents of ground water contamination by VOCs are known to exist within or near the wellhead protection areas of Easton and St. Michaels. Facilities that have potential point sources of VOCs (e.g. USTs) are located within or near these WHPAs. However, none of these sites should present a water quality threat to the supply wells due to the natural confining clay layers that protect the aquifers from contamination that occurs near the ground surface. Based on well log data, the cumulative thickness of the clay layers overlying the Aquia aquifer wells range from about 230 to 355 feet. The protective clay layers above the Magothy wells range from about 424 to 521 feet, and about 737 feet above Easton's Upper Patapsco Well 11. Therefore, contamination from these sites should only threaten the water quality of the shallow, unconfined aquifers only.

Out of the 12 systems assessed in this report, VOCs were detected from past sampling results since 1993 at the Town of Easton only. Due to the close proximity of these wells to power generating substations, and nearby commercial, and industrial activities, these wells may be more susceptible to volatile organic compounds than wells that do not have any potential point sources of contamination located within their respective WHPAs. Water quality results from 1994 and 1995 indicate VOC detects at all of the Easton Plants. However, there has not been any subsequent VOC detects from four sets of sampling data since that timeframe.

Tetrachloroethylene (PCE) was detected at the MCL once in May 1995 at the Easton Well 11 (Table 6d). It also was detected at low levels from one set of sampling results at Easton Wells 7, and 8 in March of that year. The source of this contaminant in drinking water may be from the improper disposal of solvents used in dry cleaning, and from industrial discharges.

Single detections of xylenes, and toluene were encountered at levels well below their respective MCLs in March 1995 at Easton's Wells 6-10. Xylenes are by-products of gasoline refining, paints, inks, and detergents. Toluene is present in gasoline and used in paint thinners. These contaminants were not detected again in any of the Easton Plants from four subsequent sets of samples taken since March 1995.

Trichloroethylene (TCE) was detected in all of the Easton Plants at levels well below the MCL of 5 ppb on June 29, 1994, and again on March 29, 1995 at Plant 1 only. TCE is a metal degreaser used as a cleaning agent at factories or materials laboratories. This VOC was not detected again in any of the Easton Plants from four subsequent sets of samples taken since March 1995.

Based on the water quality data, well integrity, and confined aquifer characteristics, the twelve systems from this report were determined **not** susceptible to VOCs.

Synthetic Organic Compounds

The sources of SOCs to ground water include point and non-point sources. Non-point sources include pesticides applied to agricultural fields, and residential lawns.

The only contaminant in this group detected above 50% of the MCL was di (2-ethylhexyl) phthalate, which can be attributed to its presence in laboratory blank samples, and therefore does not represent actual water quality (Table 6d). The only other SOC that was detected at levels well below its respective MCL of 200 ppb was dalapon. This contaminant was detected once from one set of available sampling results at Bayview and Claiborne in 1997. Dalapon is a herbicide used on orchards, beans, lawns, and road/railway lines.

A confined aquifer waiver has been issued for synthetic organic compounds. The waiver permits confined systems to reduce the sampling frequency of SOCs to once every 12 years. Based on the available water quality data, and confined aquifer characteristics, all of the systems in this report were determined **not** susceptible to SOC contamination (Table 8).

Microbiological Contaminants

Sources of microbiological pathogens in surface water are improperly treated wastewater (discharge to surface water or failing septic systems), waste material from mammals, and urban runoff in developed areas. Ground water is generally thought to be not susceptible to contamination by pathogenic microorganisms due to the natural filtration ability of soil and aquifer material. Water stored in confined aquifers has traveled great distances through the naturally filtering sands, and is considered " very old". Microbial organisms in ground water generally have a maximum survival time of one year, and therefore they would have long since perished in a confined aquifer setting. Additionally, confined aquifer wells are generally well protected from microbiological contaminants originating from the ground surface due to the overlying protective confining layers.

Wells completed in confined Coastal Plain sediments are considered "no risk" to surface water influence. Six of the systems in this report had positive total coliform results in at least one sample (Table 7). This does not imply, however, that the wells of these systems are susceptible to bacteriological contaminants from the aquifer source. There are numerous ways that bacteria can enter a water system despite raw water being free of bacteria. They may include any of the following: damaged well casing, improperly sealed well cap that allows insect or rodent intrusion, damaged or improperly sealed electrical conduit, damaged or improperly installed pitless adaptor, cracked distribution piping, improperly grouted well casing, improperly screened air vent, cracks or damage to storage tank structures, improper flushing of the distribution system etc.

Based on available sampling data, and confined aquifer characteristics, the source water at each of the 12 community systems in this report is **not** susceptible to microbiological pathogens present at the surface including *Giardia* and *Cryptosporidium* (Table 8).

Management of the Source Water Assessment Area

With the information contained in this report, the individual community water system owners as well as the Talbot County government are in a position to protect their water supplies by staying aware of the areas delineated for source water protection and evaluating future development and land use planning. Specific management recommendations for consideration are listed below. The following recommendations are intended for individual water systems.

Public Awareness and Outreach

- The Consumer Confidence Report should list that this report is available to the general public through their county library, or by contacting MDE.

Monitoring

- Systems should continue to monitor for all Safe Drinking Water Act contaminants as required by MDE.
- Systems whose arsenic concentrations exceed the new lower standard of 0.010 ppm should consider locating water from a different depth of the existing aquifer where levels may be present at concentrations below the new MCL, or to drill a new well into a different aquifer with acceptable water quality.
- Annual raw water bacteriological testing is a good check on well integrity.

Contingency Plan

- All water system owners should have a Contingency Plan for their water system. COMAR 26.04.01.22 requires all community water systems to prepare and submit for approval a plan for providing a safe and adequate drinking water supply under emergency conditions.

Contaminant Source Inventory Updates/ Inspections

- Water system owners should conduct its own survey of their wellhead protection areas to ensure that there are no additional potential sources of contamination. Updated records of new development within the WHPAs should be maintained.
- Periodic inspections and a regular maintenance program for the supply wells will ensure their integrity and protect the aquifers from contamination.
- The unused wells at Claiborne and St. Michaels should be properly abandoned and sealed according to current State well construction standards. Also, the community systems should work with the Talbot County Health Department to ensure that there are no other unused wells within the respective WHPAs. An improperly abandoned well may provide a direct route for ground water contamination to an aquifer.

Changes in Use

- Water system owners are required to notify the MDE Water Supply Program if new wells are to be added or if they wish to increase their water useage. Drilling a new well outside the current wellhead protection area would modify the area; therefore the Water Supply Program should be contacted if a new well is being proposed.

References

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Water Supply Division, Planning and Engineering Section, 1987, The Quantity and Natural Quality of Ground Water in Maryland: Maryland Department of Natural Resources Water Resources Administration, 150 p.

OTHER SOURCES OF DATA

Water Appropriation and Use Permits
Public Water Supply Sanitary Survey Inspection Reports
MDE Water Supply Program Oracle® Database
MDE Waste Management Sites Database
GeoSPOT Satellite Images
Department of Natural Resources Digital Orthophoto Quarter Quadrangles
USGS Topographic 7.5-Minute Quadrangles

TABLES

PWSID 1	PWS NAME	PLANT ID 2	SRC. ID 3	USE CODE 4	SOURCE NAME	WAPID 5	AVE. AMT. (gpd)	WELL PERMIT NO.	WELL DEPTH (ft.)	CASING DEPTH (ft.)	YEAR DRILLED	AQUIFER
0200001	BAYVIEW	01	01	P	WELL 1	TA1965G005	3700	TA650133	366	312	1965	AQUIA FORMATION
0200002	CLAIBORNE	01	01	P	WELL 2	TA1983G015	5800	TA810470	347	317	1983	AQUIA FORMATION
0200002	CLAIBORNE	00	99	U	WELL 1			n/a	364	314	1934	AQUIA FORMATION
0200003	EASTON	01	01	P	WELL 6	TA1971G005	1100000	TA037628	1051	1015	1960	MAGOTHY FORMATION
0200003	EASTON	02	02	P	WELL 7	TA1971G005	1100000	TA046762	1057	918	1962	MAGOTHY FORMATION
0200003	EASTON	03	03	P	WELL 8	TA1971G005	1100000	TA660012	1092	850	1965	MAGOTHY FORMATION
0200003	EASTON	04	04	P	WELL 9	TA1971G105	150000	TA710080	669	580	1971	AQUIA FORMATION
0200003	EASTON	04	05	P	WELL 10	TA1971G005	1100000	TA811091	1040	1012	1987	MAGOTHY FORMATION
0200003	EASTON	05	06	P	WELL 11	TA1971G205	1200000	TA811967	1184	1143	1988	UPPER PATAPSCO FORMATION
0200003	EASTON	05	07	F	WELL 12	TA1971G005	1100000	TA941915	1200	1130	2003	UPPER PATAPSCO FORMATION
0200004	MARTINGHAM UTILITIES	01	01	P	WELL 1	TA1971G002	65000	TA720142	406	387	1972	AQUIA FORMATION
0200004	MARTINGHAM UTILITIES	01	02	P	WELL 2	TA1971G002	65000	TA720143	395	376	1972	AQUIA FORMATION
0200005	TOWN OF OXFORD	01	01	P	WELL 1	TA1970G002	140000	TA700109	600	570	1970	AQUIA FORMATION
0200005	TOWN OF OXFORD	02	02	P	WELL 2	TA1970G002	140000	TA810271	578	538	1983	AQUIA FORMATION
0200006	ST MICHAELS	01	01	U	WELL 1			n/a	455	n/a	1928	AQUIA FORMATION
0200006	ST MICHAELS	03	02	P	WELL 2	TA1979G004	325000	TA650050	465	410	1965	AQUIA FORMATION
0200006	ST MICHAELS	02	03	P	WELL 3	TA1979G004	325000	TA812105	446	399	1989	AQUIA FORMATION

Table 1. Well Information for the Talbot County Community Supply Wells

PWSID [1]	PWS NAME	PLANT ID [2]	SRC. ID [3]	USE CODE [4]	SOURCE NAME	WAPID [5]	AVE. AMT. (gpd)	WELL PERMIT NO.	WELL DEPTH (ft.)	CASING DEPTH (ft.)	YEAR DRILLED	AQUIFER
0200006	ST MICHAELS	00	99	M	MNTRG.			TA812002	445	400	1988	AQUIA FORMATION
0200007	TOWN OF TRAPPE	03	01	P	WELL 4	TA1979G006	210000	TA670099	433	371	1967	PINEY POINT FORMATION
0200007	TOWN OF TRAPPE	03	02	P	WELL 5	TA1979G006	210000	TA700134	429	374	1970	PINEY POINT FORMATION
0200008	WESTLANDS	01	01	P	WELL 1	TA2003G005	3400	n/a	130	n/a	n/a	CHESWOLD AQUIFER
0200201	JENSENS HYDE PARK M.H.P.	01	01	P	WELL 1	TA1973G001	35000	TA730027	137	126	1972	FEDERALSBURG AQUIFER
0200201	JENSENS HYDE PARK M.H.P.	01	02	P	WELL 2	TA1973G101	10000	TA811027	666	405	1986	AQUIA FORMATION
0200202	SWANN HAVEN M.H.P	01	01	P	WELL 1	n/a	13500	TA700133	140	120	1970	FEDERALSBURG AQUIFER
0200202	SWANN HAVEN M.H.P	05	02	P	WELL 4	n/a	13500	TA710089	125	n/a	1971	FEDERALSBURG AQUIFER
0200202	SWANN HAVEN M.H.P	02	03	P	WELL 3	n/a	13500	TA710153	140	125	1971	FEDERALSBURG AQUIFER
0200202	SWANN HAVEN M.H.P	04	05	P	WELL 5	n/a	13500	TA730929	120	110	1977	FEDERALSBURG AQUIFER
0200204	TALBOT M.H.P.	01	01	P	WELL 1	TA1962G002	12600	TA047331	192	133	1962	FEDERALSBURG AQUIFER
0200206	FOSTERS M.H.P	01	01	P	WELL 1	TA2003G002	3000	n/a	180	n/a	n/a	CHESWOLD AQUIFER

Table 1 (continued). Well Information for the Talbot County Community Supply Wells

[1] PWSID = Public Water System Identification

[2] PLANT ID = Plant Identification. The water point of entry to a system from each well

[3] SRC. ID = Source Identification. Each well is considered a unique water source

[4] P = Production, U = Unused, M = Monitoring, F = Future

[5] WAPID = Water Appropriation Permit Identification

Table 2. Generalized hydrogeology and stratigraphy of Queen Anne's and Talbot Counties

System	Series	Hydrogeologic unit	Stratigraphic unit	Approximate thickness (feet)	Lithology	Water-bearing properties
Quaternary	Pleistocene	Columbia aquifer	Kent Island Formation	0-40	Loose, light-colored medium to coarse sand and dark-colored, massive silt clay.	Functions as an unconfined or semi-confined aquifer. Yields moderate amounts of water to shallow wells. Vulnerable to contamination from surface sources.
Tertiary	Pliocene (?) and/or Upper Miocene (?)		Pensauken Formation	0-80	Orange to reddish brown, fine to coarse sand and gravelly sand.	
	? Miocene	Miocene aquifers/ confining unit	Chesapeake Group: Choptank Formation	0-360	Gray quartz sand and dark gray silt with clay with abundant shell material.	Contains multiple aquifers in the southeastern part of the study area. Elsewhere functions as a leaky confining unit.
			Chesapeake Group: Calvert Formation			
	Eocene	Piney Point aquifer	Piney Point Formation	0-175	Green to gray, fine to coarse glauconitic quartz sand with abundant shell material.	An important confined aquifer in the southeastern part of the study area.
		Nanjemoy confining unit	Nanjemoy Formation	0-260	Green to gray glauconitic sandy silt and clay.	Functions as a leaky confining unit in all but the northwestern part of the study area.
		Aquia aquifer	Unnamed Lower Eocene sand	120-260	Green to gray, fine to medium, glauconitic quartz sand with abundant shell material and layers of calcite-cemented sand.	An important confined aquifer throughout most of the study area. Produces the majority of fresh water on the central Eastern Shore, for domestic, commercial, and public-supply wells. Contains brackish water along the bay shore of Kent Island.
	Paleocene		Aquia Formation			
			Hornerstown Formation			
Cretaceous	Upper Cretaceous	Severn/ Monmouth confining unit	Monmouth Formation	70-180	Dark gray to dark green glauconitic sandy, silty clay.	Functions as a tight confining unit.
		Matawan aquifer/ confining unit	Matawan Group (undivided)	100-150	Dark gray to dark green glauconitic sandy, silty clay with lenses of light gray, fine to medium quartz sand.	Functions as a poor aquifer in the Kent Island area, elsewhere as a confining unit. Produces water relatively low in iron.
		Magothy aquifer/ confining unit	Magothy Formation	100-120	Light gray, fine to coarse quartz sand and gray to black lignitic clay.	Functions as a confined aquifer in parts of the study area, elsewhere as a confining unit. Produces water high in iron.
	?	Upper Patapsco aquifer	Potomac Group: Patapsco Formation	50-150 (?)	Light gray to white fine to very coarse quartz sand. Interbedded with dark gray and variegated clay.	A productive confined aquifer throughout the study area; produces water high in iron.
	Lower Cretaceous	Middle Patapsco confining unit		800-900 (?)	Dark gray and variegated clay, interbedded with light gray to white, fine quartz sand.	Functions as a tight confining unit; may contain localized water-bearing zones.
		Lower Patapsco aquifer		150-180 (?)	Fine to medium quartz sand, interbedded with dark gray and variegated silty clay.	A very productive confined aquifer in the Kent Island area, and possibly elsewhere. Produces water relatively low in iron.
		Arundel confining unit	Potomac Group: Arundel Formation	~600	Predominantly gray, red, and variegated silty clay.	Functions as a very tight confining unit.
		Patuxent aquifer	Potomac Group: Patuxent Formation	~80	Fine to coarse, silty quartz sand with partially-pyritized lignite.	A poor aquifer in the Kent Island area, and possibly elsewhere.
Paleozoic	–	–	Basement Complex	–	Variable types of crystalline and sedimentary rocks.	Not used for water supply in the study area.

From MGS Report of Investigations No. 72 By David D. Drummond, 2001

PWSID	PWS NAME	PLANT ID	SOURCE NAME	[1] AVE. PERMIT AMT. (gpd)	AVE. WELL PUMPAGE (gpd)	AVE. WELL PUMPAGE (ft^3/year)	[2] TOTAL WELL SCREEN LENGTH (ft)	[3] CALCULATED WHPA RADIUS (ft)	DELINEATED WHPA RADIUS (ft)
0200001	BAYVIEW	01	WELL 1	3700	3700	180523.994	54	206	*600
0200002	CLAIBORNE	01	WELL 2	5800	5800	282983.558	30	347	*600
0200003	EASTON	01	WELL 6	1100000	235000	11465713.1	30	2206	2300
0200003	EASTON	02	WELL 7	1100000	200000	9758053.74	25	2229	2300
0200003	EASTON	03	WELL 8	1100000	279000	13612485	59	1714	1800
0200003	EASTON	04	WELL 9	150000	150000	7318540.3	89	1023	1100
0200003	EASTON	04	WELL 10	1100000	107000	5220558.75	28	1541	1600
0200003	EASTON	05	WELL 11	1200000	1200000	58548322.4	41	4264	4300
0200003	EASTON	05	WELL 12	1100000	279000	13612485	28	2488	2500
0200004	MARTINGHAM UTILITIES	01	WELL 1	65000	40950	1997961.5	19	1157	1200
0200004	MARTINGHAM UTILITIES	01	WELL 2	65000	24050	1173405.96	19	887	900
0200005	TOWN OF OXFORD	01	WELL 1	140000	65800	3210399.68	30	1167	1200
0200005	TOWN OF OXFORD	02	WELL 2	140000	74200	3620237.94	40	1073	1100
0200006	ST MICHAELS	03	WELL 2	325000	152750	7452713.54	48	1406	1500
0200006	ST MICHAELS	02	WELL 3	325000	172250	8404123.78	47	1509	1600
0200007	TOWN OF TRAPPE	03	WELL 4	210000	96600	4713139.95	39	1240	1300
0200007	TOWN OF TRAPPE	03	WELL 5	210000	113400	5532816.47	47	1224	1300
0200008	WESTLANDS	01	WELL 1	3400	3400	165886.914	10	460	*600
0200201	JENSENS HYDE PARK M.H.P.	01	WELL 1	35000	35000	1707659.4	11	1406	1500
0200201	JENSENS HYDE PARK M.H.P.	01	WELL 2	10000	10000	487902.687	28	471	*600
0200202	SWANN HAVEN MOBILE HOME PARK	01	WELL 1	4500	1125	54889.0523	20	187	*600
0200202	SWANN HAVEN MOBILE HOME PARK	05	WELL 4	4500	1125	54889.0523	10	264	*600
0200202	SWANN HAVEN MOBILE HOME PARK	02	WELL 3	4500	1125	54889.0523	15	216	*600
0200202	SWANN HAVEN MOBILE HOME PARK	04	WELL 5	4500	1125	54889.0523	10	264	*600
0200204	TALBOT MOBILE HOME PARK	01	WELL 1	12600	12600	614757.385	10	885	900
0200206	FOSTERS MOBILE HOME PARK	01	WELL 1	3000	3000	146370.806	10	432	*600

Table 3. WHPA Calculations by the Florida Method for the Talbot County Community Water Systems

[1] Swann Haven M.H.P. had no Water Appropriation Permit available. Therefore, the ave. daily useage was based on 45 connections at 100 gpd per connection

[2] For conservative purposes, a total well screen length of 10 feet was assumed when screen data was not available

[3] A porosity of 25% was assumed for each of the aquifers based on lithology and as a conservative estimate

* For public water systems using < 10,000 gpd, a fixed radius of 600 ft. was delineated around the wells (MDE, 1999)

PWSID	PWS NAME	PLANT ID	TREATMENT METHOD	REASON FOR TREATMENT
0200001	BAYVIEW	1	HYPOCHLORINATION, POST	DISINFECTION
0200002	CLAIBORNE	1	HYPOCHLORINATION, POST	DISINFECTION
0200003	EASTON	1	GASEOUS CHLORINATION, POST	DISINFECTION
0200003	EASTON	2	GASEOUS CHLORINATION, POST	DISINFECTION
0200003	EASTON	3	GASEOUS CHLORINATION, POST	DISINFECTION
0200003	EASTON	4	GASEOUS CHLORINATION, POST	DISINFECTION
0200003	EASTON	5	COAGULATION	IRON REMOVAL
0200003	EASTON	5	FILTRATION, RAPID SAND	IRON REMOVAL
0200003	EASTON	5	FLOCCULATION	IRON REMOVAL
0200003	EASTON	5	GASEOUS CHLORINATION, PRE	OXIDATION OF IRON & DISINFECTION
0200003	EASTON	5	pH ADJUSTMENT	IRON REMOVAL
0200004	MARTINGHAM UTILITIES	1	HYPOCHLORINATION, PRE	DISINFECTION
0200005	TOWN OF OXFORD	1	GASEOUS CHLORINATION, POST	DISINFECTION
0200005	TOWN OF OXFORD	2	POST	DISINFECTION
0200006	ST MICHAELS	2	GASEOUS CHLORINATION, PRE	DISINFECTION
0200006	ST MICHAELS	3	GASEOUS CHLORINATION, PRE	DISINFECTION
0200007	TOWN OF TRAPPE	1	GASEOUS CHLORINATION, POST	DISINFECTION
0200007	TOWN OF TRAPPE	2	GASEOUS CHLORINATION, POST	DISINFECTION
0200007	TOWN OF TRAPPE	3	GASEOUS CHLORINATION, POST	DISINFECTION
0200008	WESTLANDS	1	NO TREATMENT	
0200201	JENSENS HYDE PARK M.H.P.	1	GASEOUS CHLORINATION, POST	DISINFECTION
0200202	SWANN HAVEN M.H.P.	1	NO TREATMENT	
0200202	SWANN HAVEN M.H.P.	2	NO TREATMENT	
0200202	SWANN HAVEN M.H.P.	3	NO TREATMENT	
0200202	SWANN HAVEN M.H.P.	4	NO TREATMENT	
0200204	TALBOT M.H.P.	1	NO TREATMENT	
0200206	FOSTERS M.H.P.	1	NO TREATMENT	

Table 4. Treatment Methods for the Talbot County Community Water Systems

PWSID	PWS NAME	PLANT ID	Nitrate		SOCs		VOCs		IOCs (except nitrate)	
			No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL
0200001	BAYVIEW	1	12	0	1	0	4	0	7	2
0200002	CLAIBORNE	1	14	0	1	0	6	0	5	4
0200003	EASTON	1	12	0	3	0	10	0	7	0
0200003	EASTON	2	12	0	4	0	8	0	7	0
0200003	EASTON	3	12	0	4	0	8	0	8	1
0200003	EASTON	4	24	0	6	0	11	0	12	11
0200003	EASTON	5	14	0	4	0	11	1	8	0
0200004	MARTINGHAM UTILITIES	1	13	0	1	0	4	0	4	3
0200005	TOWN OF OXFORD	1	11	0	1	0	10	0	7	5
0200005	TOWN OF OXFORD	2	12	0	1	0	3	0	6	4
0200006	ST MICHAELS	2	13	0	1	0	2	0	3	2
0200006	ST MICHAELS	3	12	0	1	0	5	0	5	3
0200007	TOWN OF TRAPPE	1	8	0	3	0	2	0	6	0
0200007	TOWN OF TRAPPE	2	4	0	2	0	1	0	6	0
0200007	TOWN OF TRAPPE	3	7	0	1	0	1	0	1	1
0200008	WESTLANDS	1	15	0	1	0	6	0	6	0

Table 5. Total Water Quality Samples Collected for the Talbot County Community Water Systems

PWSID	PWS NAME	PLANT ID	Nitrate		SOCs		VOCs		IOCs (except nitrate)	
			No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL
0200201	JENSENS HYDE PARK M.H.P.	1	14	0	3	*2	9	0	9	3
0200202	SWANN HAVEN M.H.P	1	17	0	1	0	7	0	2	0
0200202	SWANN HAVEN M.H.P	2	7	0	1	0	5	0	2	0
0200202	SWANN HAVEN M.H.P	3	7	0	1	0	6	0	2	0
0200202	SWANN HAVEN M.H.P	4	6	0	1	0	5	0	2	0
0200202	SWANN HAVEN M.H.P	5	2	0	0	0	1	0	0	0
0200204	TALBOT M.H.P.	1	12	0	1	0	6	0	4	0
0200206	FOSTERS M.H.P.	1	15	0	2	0	6	0	4	0

Table 5 (continued). Total Water Quality Samples Collected for the Talbot County Community Water Systems

* Results were detected in laboratory blank samples, and therefore do not represent actual water quality

PWSID	PWS NAME	PLANT ID	CONTAMINANT NAME	MCL (ppm)	SAMPLE DATE	RESULT (ppm)	REMARKS
0200001	BAYVIEW	1	ARSENIC	*0.010	12-Feb-01	0.048	
0200001	BAYVIEW	1	ARSENIC	*0.010	20-Feb-01	0.014	
0200002	CLAIBORNE	1	ARSENIC	*0.010	14-Mar-96	0.015	
0200002	CLAIBORNE	1	ARSENIC	*0.010	2-Mar-98	0.033	
0200002	CLAIBORNE	1	ARSENIC	*0.010	12-Feb-01	0.009	
0200002	CLAIBORNE	1	ARSENIC	*0.010	1-May-02	0.009	
0200003	EASTON	3	FLUORIDE	4	15-Nov-00	2.26	
0200003	EASTON	4	FLUORIDE	4	19-Aug-91	3.5	raw water Well 9
0200003	**EASTON**	**4**	**FLUORIDE**	**4**	**19-Aug-91**	**4.6**	**raw water Well 9**
0200003	EASTON	4	FLUORIDE	4	19-Aug-91	3.32	raw water Well 9 & 10
0200003	EASTON	4	FLUORIDE	4	19-Aug-91	3	raw water Well 9 & 10
0200003	EASTON	4	ARSENIC	*0.010	7-Dec-95	0.006	
0200003	EASTON	4	ARSENIC	*0.010	10-Oct-01	0.009	raw water Well 9
0200003	EASTON	4	ARSENIC	*0.010	6-Aug-03	0.005	
0200003	EASTON	4	ARSENIC	*0.010	6-Aug-03	0.006	
0200003	EASTON	4	FLUORIDE	4	28-Jun-94	3.5	raw water Well 9
0200003	EASTON	4	FLUORIDE	4	29-Jun-94	3.1	raw water Well 10
0200003	EASTON	4	FLUORIDE	4	2-Apr-97	4	
0200003	EASTON	4	FLUORIDE	4	24-Apr-97	2.88	
0200003	EASTON	4	FLUORIDE	4	24-Apr-97	3.92	raw water Well 9
0200003	EASTON	4	FLUORIDE	4	17-Nov-97	3.78	
0200003	EASTON	4	FLUORIDE	4	17-Nov-97	3.56	
0200003	EASTON	4	FLUORIDE	4	15-Nov-00	3.99	
0200003	EASTON	4	FLUORIDE	4	15-Nov-00	3.4	
0200003	EASTON	4	FLUORIDE	4	6-Aug-03	3.83	
0200003	EASTON	4	FLUORIDE	4	6-Aug-03	3.08	
0200004	MARTINGHAM UTILITIES	1	ARSENIC	*0.010	23-May-95	0.034	
0200004	MARTINGHAM UTILITIES	1	ARSENIC	*0.010	2-Mar-98	0.037	
0200004	MARTINGHAM UTILITIES	1	ARSENIC	*0.010	20-Mar-01	0.04	
0200005	TOWN OF OXFORD	1	FLUORIDE	4	16-Jun-94	2.12	raw water Well 1
0200005	TOWN OF OXFORD	1	ARSENIC	*0.010	7-Mar-96	0.01	
0200005	TOWN OF OXFORD	1	ARSENIC	*0.010	31-Aug-99	0.017	
0200005	TOWN OF OXFORD	1	ARSENIC	*0.010	15-Aug-02	0.01	
0200005	TOWN OF OXFORD	1	ARSENIC	*0.010	21-Apr-03	0.014	
0200005	TOWN OF OXFORD	2	ARSENIC	*0.010	7-Mar-96	0.012	
0200005	TOWN OF OXFORD	2	ARSENIC	*0.010	31-Aug-99	0.011	
0200005	TOWN OF OXFORD	2	ARSENIC	*0.010	15-Aug-02	0.012	
0200005	TOWN OF OXFORD	2	ARSENIC	*0.010	21-Apr-03	0.014	
0200006	ST MICHAELS	2	ARSENIC	*0.010	21-Jan-99	0.037	

Table 6a. Regulated Inorganic Compound (IOC) Results Above 50% of the MCL

PWSID	PWS NAME	PLANT ID	CONTAMINANT NAME	MCL (ppm)	SAMPLE DATE	RESULT (ppm)	REMARKS
0200006	ST MICHAELS	2	ARSENIC	*0.010	31-Jan-02	0.035	
0200006	ST MICHAELS	3	ARSENIC	*0.010	29-Oct-96	0.03	
0200006	ST MICHAELS	3	ARSENIC	*0.010	14-Sep-99	0.036	
0200006	ST MICHAELS	3	ARSENIC	*0.010	31-Jan-02	0.032	
0200007	TOWN OF TRAPPE	3	ARSENIC	*0.010	25-Oct-00	0.013	
0200201	JENSENS HYDE PARK M.H.P.	1	FLUORIDE	4	23-Jun-94	3.56	raw water Well 2
0200201	JENSENS HYDE PARK M.H.P.	1	FLUORIDE	4	23-Oct-95	2.1	
0200201	JENSENS HYDE PARK M.H.P.	1	MERCURY	0.002	23-Oct-95	0.0014	
0200201	JENSENS HYDE PARK M.H.P.	1	ARSENIC	*0.010	29-Jul-03	0.007	

Table 6a (continued). Regulated Inorganic Compound (IOC) Results Above 50% of the MCL

* EPA lowered the MCL for arsenic from 0.050 ppm to 0.010 ppm on February 22, 2002. The regulations will be effective for new sources on or after January 23, 2004. Existing water systems must meet the new standard by January 23, 2006.

PWSID	PWS NAME	PLANT ID	CONTAMINANT NAME	MCL (pCi/L)	SAMPLE DATE	RESULT (pCi/L)
0200001	BAYVIEW	1	RADON-222		12-Feb-01	240
0200002	CLAIBORNE	1	RADON-222		12-Feb-01	210
0200004	MARTINGHAM UTILITIES	1	RADON-222		20-Mar-01	170
0200007	TOWN OF TRAPPE	2	RADON-222		11-Apr-94	200
0200201	JENSENS HYDE PARK M.H.P.	1	RADON-222		22-Apr-02	260
0200202	SWANN HAVEN MOBILE HOME PARK	1	RADON-222		18-Apr-94	235
0200202	SWANN HAVEN MOBILE HOME PARK	1	RADON-222		27-Oct-97	220
0200202	SWANN HAVEN MOBILE HOME PARK	2	RADON-222		18-Apr-94	265
0200202	SWANN HAVEN MOBILE HOME PARK	2	RADON-222		27-Oct-97	285
0200202	SWANN HAVEN MOBILE HOME PARK	3	RADON-222		18-Apr-94	205
0200202	SWANN HAVEN MOBILE HOME PARK	3	RADON-222		27-Oct-97	210
0200202	SWANN HAVEN MOBILE HOME PARK	4	RADON-222		27-Oct-97	180
0200202	SWANN HAVEN MOBILE HOME PARK	5	RADON-222		18-Apr-94	275
0200204	TALBOT MOBILE HOME PARK	1	RADON-222		6-Feb-01	210

Table 6b. Radon-222 Results above 50% of the More Conservative Proposed MCL of 300 pCi/L

PWSID	PWS NAME	PLANT ID	CONTAMINANT NAME	MCL (pCi/L)	SAMPLE DATE	RESULT (pCi/L)
0200003	EASTON	2	COMBINED RADIUM (226 & 228)	5	6-Aug-01	3.9
0200003	EASTON	2	RADIUM-228	5	6-Aug-01	3.9
0200007	TOWN OF TRAPPE	1	GROSS ALPHA	15	30-Sep-97	8
0200007	TOWN OF TRAPPE	2	GROSS ALPHA	15	30-Sep-97	8

Table 6c. Other Radiological Results above 50% of the MCL

PWSID	PWS NAME	PLANT ID	CONTAMINANT NAME	MCL (ppb)	SAMPLE DATE	RESULT (ppb)
0200003	EASTON	5	TETRACHLOROETH-YLENE (PCE)	5	24-May-95	5
0200201	**JENSENS HYDE PARK M.H.P.**	**1**	**DI(2-ETHYLHEXYL) PHTHALATE**	**6**	**23-Oct-95**	***7.57**
0200201	JENSENS HYDE PARK M.H.P.	1	DI(2-ETHYLHEXYL) PHTHALATE	6	22-Apr-02	*3.8

Table 6d. Volatile Organic & Synthetic Organic Compounds (VOC & SOC) Results above 50% of the MCL

* Results were detected in laboratory blank samples, and therefore do not represent actual water quality

PWSID	PWS NAME	No. of Samples	No. of Positive Samples	Disinfection Treatment?
0200001	BAYVIEW	71	0	Y
0200002	CLAIBORNE	71	0	Y
0200003	EASTON	73	2	Y
0200004	MARTINGHAM UTILITIES	71	0	Y
0200005	TOWN OF OXFORD	71	2	Y
0200006	ST MICHAELS	68	0	Y
0200007	TOWN OF TRAPPE	71	1	Y
0200008	WESTLANDS	71	1	N
0200201	JENSENS HYDE PARK M.H.P.	71	0	Y
0200202	SWANN HAVEN MOBILE HOME PARK	69	1	N
0200204	TALBOT MOBILE HOME PARK	71	0	N
0200206	FOSTERS MOBILE HOME PARK	72	4	N

Table 7. Routine Bacteriological Samples from Distribution for each Community System Since 1997

PWSID	SYSTEM NAME	Is the Water System Susceptible to…. Inorganic Compounds (except fluoride & arsenic)	Fluoride	Arsenic	Radionuclides	Volatile Organic Compounds	Synthetic Organic Compounds	Microbiological Contaminants
0200001	BAYVIEW	NO	NO	YES	YES*	NO	NO	NO
0200002	CLAIBORNE	NO	NO	YES	YES*	NO	NO	NO
0200003	EASTON	NO	YES (Pls. 3 & 4))	YES (Well 9)	YES (Well 7)	NO	NO	NO
0200004	MARTINGHAM UTILITIES	NO	NO	YES	YES*	NO	NO	NO
0200005	TOWN OF OXFORD	NO	YES	YES	?	NO	NO	NO
0200006	ST MICHAELS	NO	NO	YES	?	NO	NO	NO
0200007	TOWN OF TRAPPE	NO	NO	YES	YES*	NO	NO	NO
0200008	WESTLANDS	NO	NO	NO	NO	NO	NO	NO
0200201	JENSENS HYDE PARK M.H.P.	NO	YES	YES	YES*	NO	NO	NO
0200202	SWANN HAVEN MOBILE HOME PARK	NO	NO	NO	YES*	NO	NO	NO
0200204	TALBOT MOBILE HOME PARK	NO	NO	NO	YES*	NO	NO	NO
0200206	FOSTERS MOBILE HOME PARK	NO	NO	NO	?	NO	NO	NO

Table 8. Susceptibility Analysis Summary

* Based on the lower proposed MCL of 300 pCi/L for radon-222

FIGURES

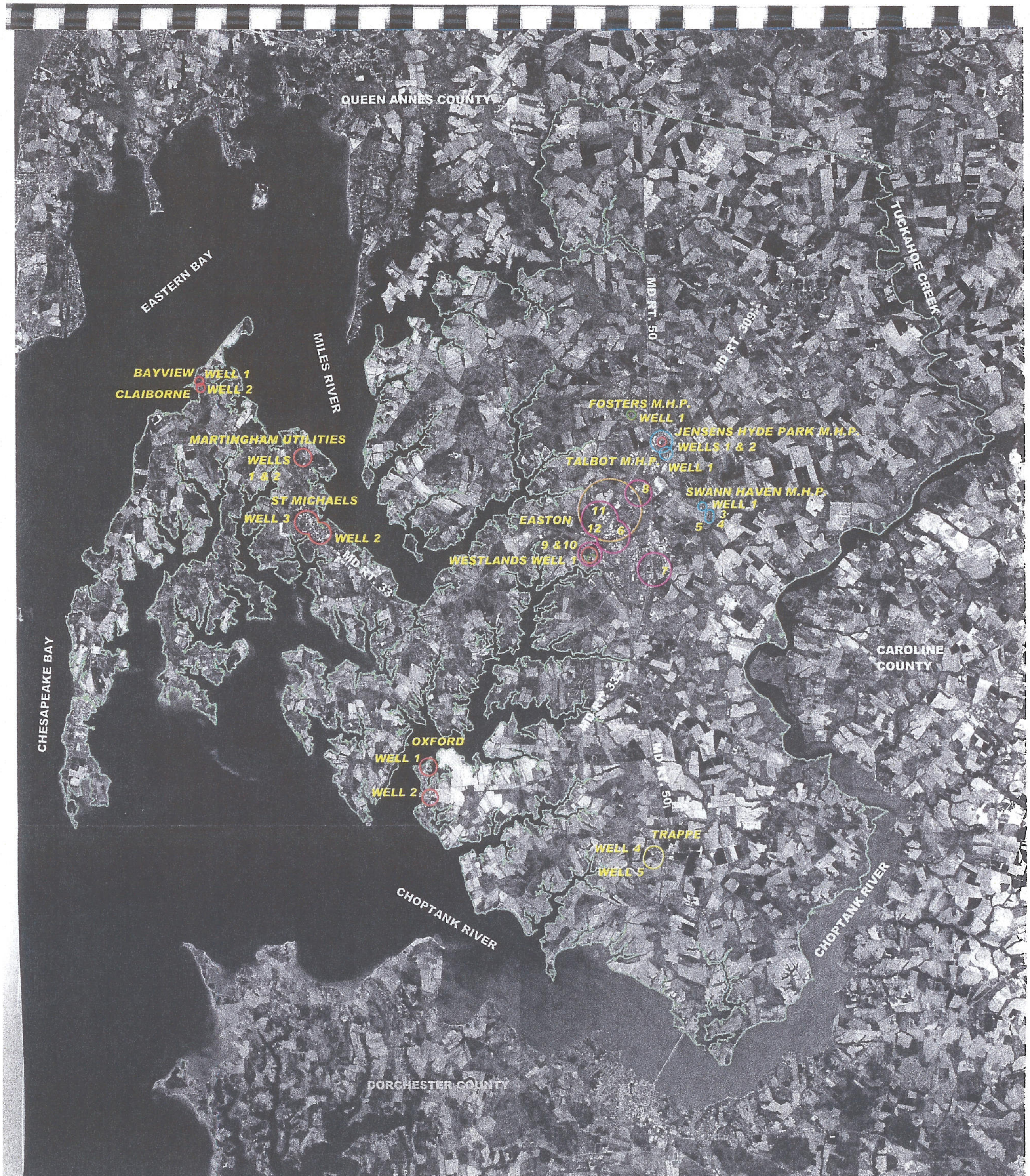
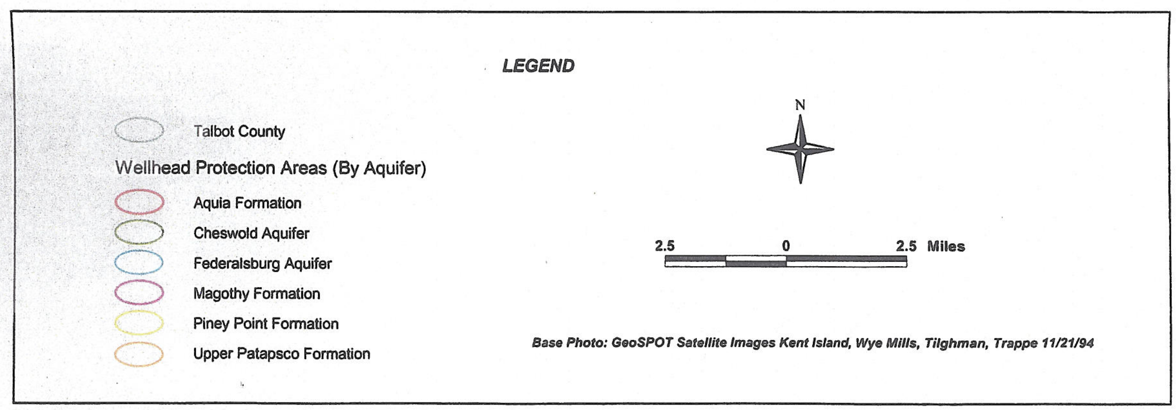


Figure 1. Wellhead Protection Areas for the Community Water Systems in Talbot County, MD



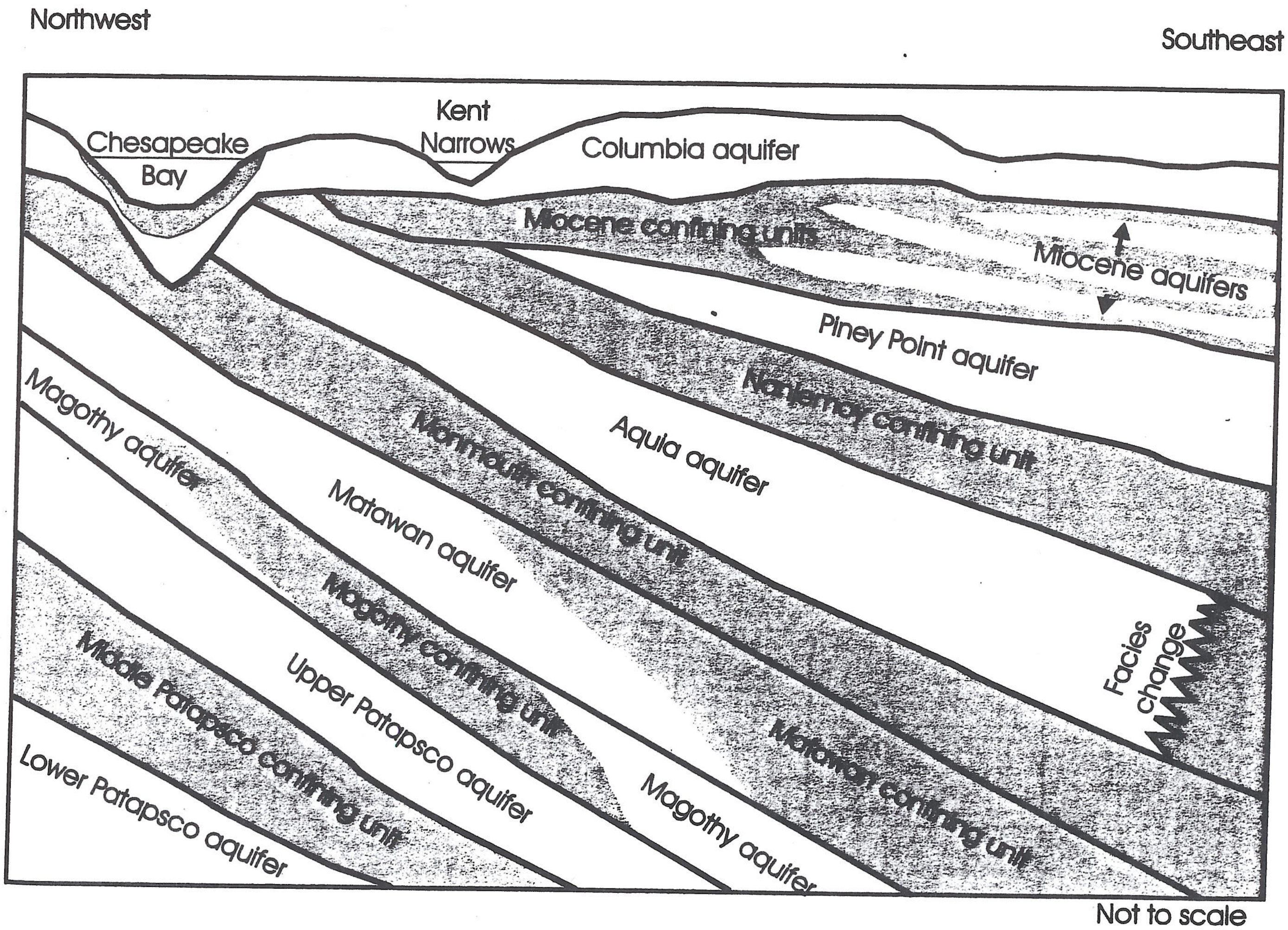


Figure 2. Schematic cross section showing the hydrogeologic units beneath Queen Anne's and Talbot Counties.

From MGS Report of Investigations No. 72 By David D. Drummond, 2001

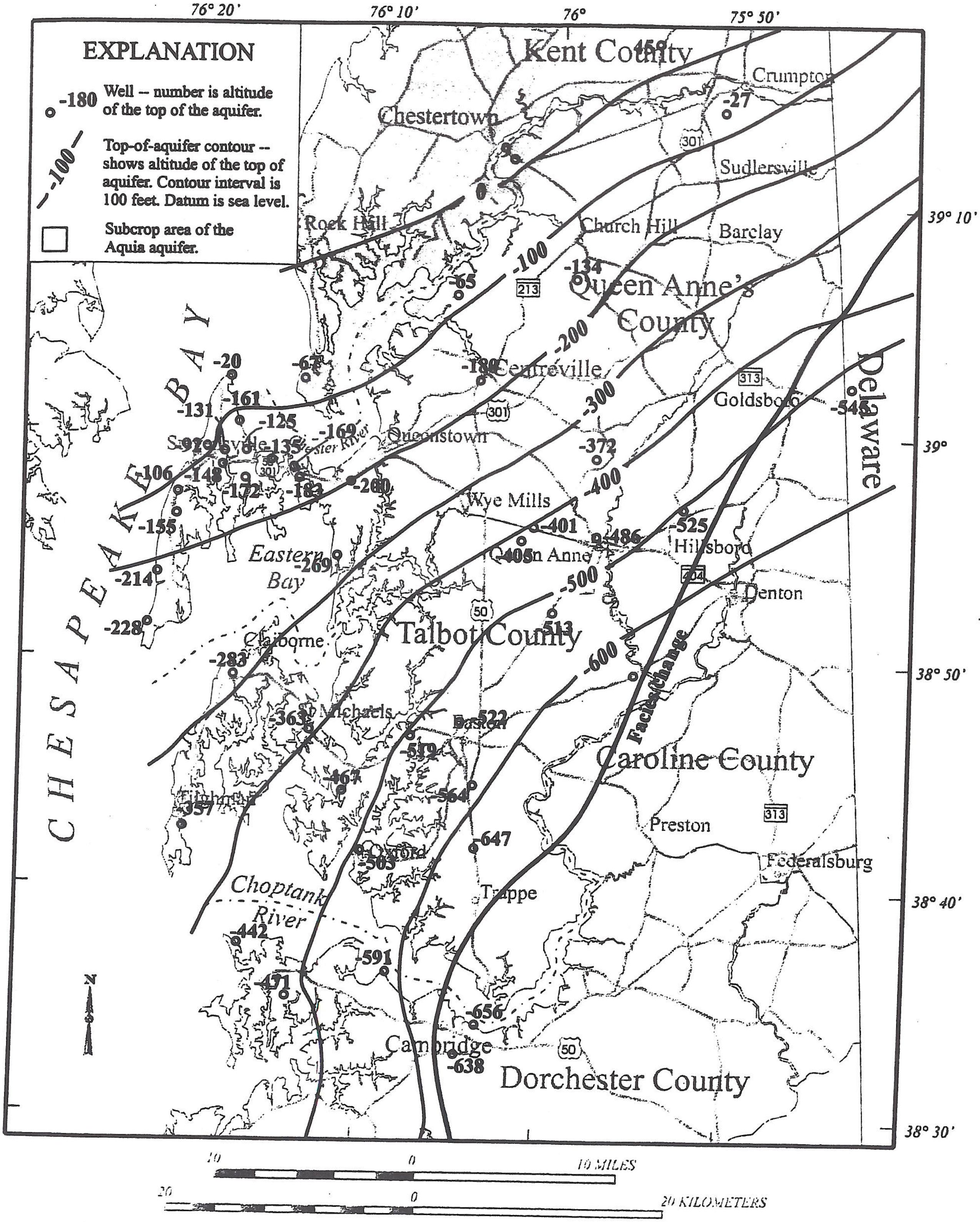


Figure 4. Altitude of the Top of the Aquia Aquifer

From MGS Report of Investigations No. 72 By David D. Drummond, 200