Final

Source Water Assessment

for the

Benjamins Village / Homestead Mobile Home Park Water System

Cecil County, Maryland

Prepared for:

Maryland Department of the Environment
Water Management Administration
Water Supply Program
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230-1719

Prepared by:

EA Engineering, Science, Technology, Inc.
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May 2003

Project No. 61726.01

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LIST OF ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
CCL	Contaminant Candidate List
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CHS	Controlled Hazardous Substances
COMAR	Code of Maryland Regulations
CREP	Conservation Reserve Program
DWEL	Drinking Water Equivalent Level
ft	Foot/Feet
gal	Gallon(s)
GIS	Geographical Information System
gpd	Gallon(s) Per Day
gpm	Gallon(s) Per Minute
GPS	Global Positioning System
GWUDI	Ground Water Under Direct Influence
IOC	Inorganic Compound
L	Liter(s)
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
mg	Milligram(s)
MGS	Maryland Geological Survey
MHP	Mobile Home Park
mrem	Millirem(s)
MTBE	Methyl-Tert-Butyl-Ether
OU	Operable Unit
pCi	Picocurie(s)
PWSID	Public Water System Identification
SDWA	Safe Drinking Water Act
SDWR	Secondary Drinking Water Regulations
SOC	Synthetic Organic Compound

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

SWAP	Source Water Assessment Plan
SWPA	Source Water Protection Area
µg	Microgram(s)
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WHPA	Wellhead Protection Area

EXECUTIVE SUMMARY

EA Engineering, Science, and Technology was tasked to perform a Source Water Assessment for the Bejamins Village / Homestead Mobile Home Park (MHP) water system in Cecil County, Maryland. This water system is identified as Public Water System Identification (PWSID) 0070209 by the Maryland Department of the Environment (MDE). EA has performed this study under Purchase Order No. U00P3200205, as authorized by MDE.

The required components of this report as described in Maryland's Source Water Assessment Plan (SWAP) are:

- Delineation of the area that contributes water to the source
- Identification of potential sources of contamination
- Determination of the susceptibility of the water supply to contamination
- Recommendations for protecting the drinking water supply

The source of the MHP's water supply is the Port Deposit Gneiss, which is an unconfined crystalline rock aquifer. The Source Water Protection Area (SWPA) for the five ground-water supply wells was delineated using the watershed delineation method for fractured bedrock wells. The shape of the SWPA is oval in shape and is generally based on land topography and a calculation of the total ground-water contributing area during a drought and is approximately 100 acres in area.

Potential point and non-point sources of contamination within the assessment area were identified based on site visits, a review of MDE's databases, and a review of sewer service area and land use maps. Septic systems, a wastewater treatment plant, a former Superfund site, an inactive well, and a truck driving school were observed in or near the SWPA. Croplands and pastures account for a majority of the SWPA and can be considered non-point sources of contaminants. Well information and water quality data were also reviewed.

The susceptibility analysis for the Bejamins Village / Homestead MHP water supply is based on a review of the water quality data, potential sources of contamination, aquifer characteristics, and well integrity. It was determined that the Bejamins Village / Homestead MHP water supply is highly susceptible to volatile organic compounds and radon-222, has a moderate susceptibility to nitrates, and has a low susceptibility to synthetic organic compounds, other inorganic compounds, other radionuclides, and microbiological contaminants.

Recommendations to protect the ground-water supply include creating a SWPA protection team, resident awareness, and communication with county officials about future planning and land use.

1. INTRODUCTION

EA Engineering, Science, and Technology was tasked to perform a Source Water Assessment for the Benjamins Village / Homestead Mobile Home Park (MHP) water system in Cecil County, Maryland. EA has performed this study under Purchase Order No. U00P3200205, as authorized by the Maryland Department of the Environment (MDE).

The Benjamins Village / Homestead MHP water system serves the mobile home communities of Benjamins Village and Homestead in Cecil County. The water treatment plant and the supply wells for the system are located within the development. The Benjamins Village / Homestead MHP water system serves a population of 300 with 99 connections. The water is supplied by five wells (Figure 1).

1.1 GROUND-WATER SUPPLY SYSTEM INFORMATION

A review of the well data and sanitary surveys of the system indicates that well numbers 2 and 6 were drilled in 1974, in accordance with the State's current well construction standards, which were implemented in 1973. The completion date of Benjamin 2 - Well 6 was 1999 and, therefore, was drilled in accordance with State well construction standards. Wells 1, 2, 3, and 4 have pumping rates of 15, 30, 10, and 40 gallons per minute (gpm) respectively. The newest well, Benjamin 2 - Well 6 (CE942983), has a pumping rate of approximately 50 gpm, but it is uncertain if this well has been connected to the system to date. An additional Benjamin Well (CE054643) is not in use, but it is unknown if this well has been properly abandoned. Homestead Well 1, completed in May 1974 (CE730835), is reportedly abandoned. Table 1 contains a summary of the well construction data.

TABLE 1. WELL INFORMATION

Source ID	Source Name	Permit No.	Total Depth (ft)	Casing Depth (ft)	Aquifer
01	Benjamin 1	CE730335	90	42	Port Deposit Gneiss
03	Homestead 2	CE660444	50	32	Port Deposit Gneiss
04	Homestead 3	CE700157	96	20	Port Deposit Gneiss
05	Homestead 4	CE730225	90	40	Port Deposit Gneiss
06	Benjamin 2	CE942983	80	41	Port Deposit Gneiss

Each of the wells was completed 1 to 2 ft above grade. Each well was observed secure and in good repair. Well 1was located within a shed that also housed a hydropneumatic tank.

According to the MDE Public Water Supply Inspection Report for the water system dated August 2002, the operators of the water system are David Jones and David McKinney of Maryland Water Treatment.

Currently, the raw ground water is treated with soda ash for corrosion control and sodium hypochlorite (bleach) for disinfection. The finished water is then stored in a 1,000-gal hydropneumatic tank and a 25,000-gal storage tank prior to distribution.

1.2 HYDROGEOLOGY

Cecil County has two distinct physiographic provinces, the Piedmont and the Atlantic Coastal Plain, divided by the Fall Line. In the northern third of the county, Precambrian to early Paleozoic crystalline igneous and metamorphic rock of the Piedmont province is exposed at the surface. In the southern two-thirds of the county, the crystalline rocks are overlain by Coastal Plain deposits consisting largely of unconsolidated pebbly sand, sand, sandy clay, and clay. The deposits form a wedge-shaped mass of materials that range in thickness from inches along the Fall Line to as much as 1,600 ft in the southeastern corner of the County (Overbeck et al. 1958).

The ground water used by the Benjamins Village / Homestead MHP is from production wells drilled into the Port Deposit Gneiss formation. The Port Deposit Gneiss Formation is described as a "moderately to strongly deformed intrusive complex composed of gneissic biotite quartz diorite, hornblende-biotite quartz diorite, and biotite granodiorite, with all rocks foliated and some strongly sheared" [Maryland Geological Survey (MGS 1968)].

The source of the ground water in Cecil County is from precipitation in the form of rainfall or snow melt. The water table in the aquifer generally mimics the surface topography. The availability of ground water in the crystalline rock of the area depends on the nature and distribution of secondary openings resulting from fracturing and weathering. The yield of a well in crystalline rock depends primarily on the amount of fracture openings penetrated by the well. The well yield range of 43 wells in the Port Deposit Gneiss ranges from 2 to 100 gallons per minute (gpm) with 35 percent of the wells having well yields greater than 10 gpm. The range of specific capacity, which relates well yield to drawdown, of 43 wells in the Port Deposit Gneiss range from less than 0.1 to 4.0 gallons per minute per foot of drawdown (Otton et al. 1988).

2. DELINEATION OF THE AREA CONTRIBUTING WATER TO SOURCE

For ground-water systems, a Wellhead Protection Area (WHPA) is considered to be the Source Water Protection Area (SWPA) for the system. Consistent with the recommended delineation in the Maryland SWAP (MDE 1999), the watershed drainage area that contributes ground water to the supply wells methodology was used.

This original delineation shape was then modified by accounting for surface water bodies, topography, significant land features, and by using a conservative calculation of total ground-water recharge during a drought. For conservative purposes, a drought condition recharge value of 400 gallons per day (gpd) per acre (or approximately 5.4 inches per year) was used to estimate the total ground-water contribution area required to supply the well.

For the Benjamins Village / Homestead MHP, the current Water Appropriation Permit issued by the MDE Water Rights Division is for 14,000 gpd for the five wells. To determine the total ground-water contribution area during a drought, the following equation was used:

Recharge Area (acre) = Average Use (gpd)/Drought Condition Recharge (gpd/acre)

From the equation above, the total ground-water contributing area during a drought is approximately 35 acres. The delineated SWPA is approximately 100 acres (Figure 2), and is therefore adequate to meet the average daily ground-water usage during a drought.

3. INVENTORY OF POTENTIAL CONTAMINANTS WITHIN THE DELINEATED AREA

A field survey was performed on 4 November 2002 to confirm potential sources of contamination around the ground-water wells identified in MDE databases. These databases include the Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS), which includes National Priority List (Superfund) sites, Maryland Registered Underground Storage Tank (UST) sites, Maryland Leaking Underground Storage Tank (LUST) sites, landfills, pesticide dealers, ground-water discharge permits, colonial tanks, and Controlled Hazard Substances (CHS) generator sites.

During the field survey, other sources of potential contamination not in the MDE databases were noted and the location was surveyed using a Global Positioning System (GPS) receiver for mapping purposes in a Geographical Information System (GIS) software package, ARCVIEW GIS (Figure 2).

3.1 POINT SOURCES

Septic system drain fields and a wastewater treatment plant were observed onsite. Septic system and wastewater treatment plant discharge could contain contaminants if there is insufficient treatment of biological contaminants such as coliforms and inorganic compounds such as nitrogen. Septic system discharge could also contain contaminants that the systems were not designed to treat, such as solvents and fuels.

The former Superfund site Bainbridge Naval Training Center is located in the SWPA to the southwest of the mobile home park. However, the cleanup at the site is complete (USEPA 2003). The majority of the cleanup effort at this site was for asbestos removal. Two Operable Units (OUs) were identified as sources of contaminants to ground water including the Old Base Landfill and the Fire Training Area. A Record of Decision, where the selected remedial action is detailed for the sites, include, capping the former landfill to prevent further rain water infiltration and long term ground-water monitoring for manganese, iron, and chlorobenzene.

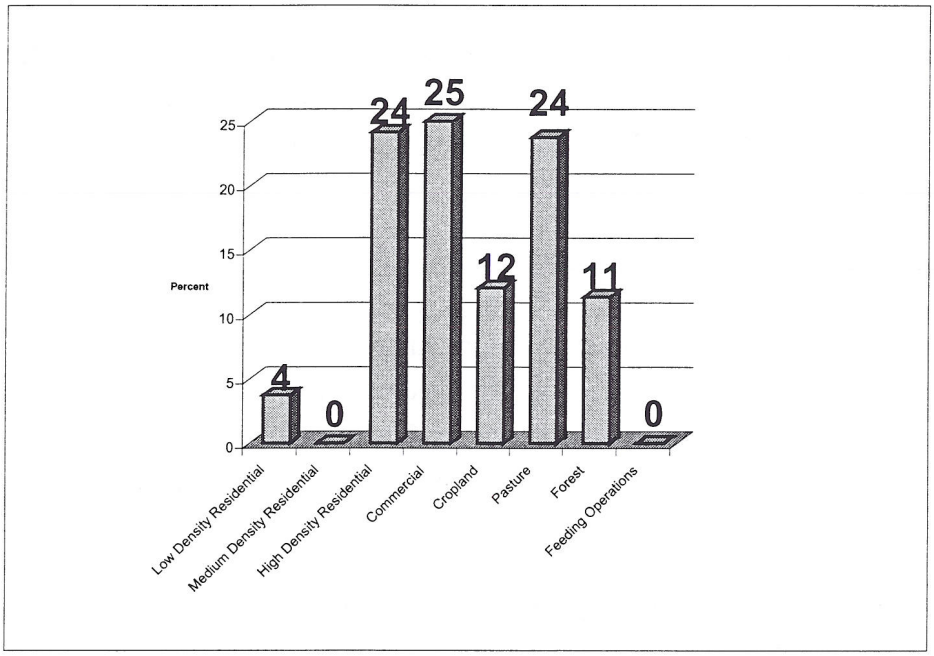
One inactive well exists at the property and it is unknown if the well has been properly abandoned. Improperly abandoned wells can become pathways for contaminants to enter the ground-water aquifer.

In addition, a truck driving school exists along Route 276 within the SWPA to the east of the mobile home park.

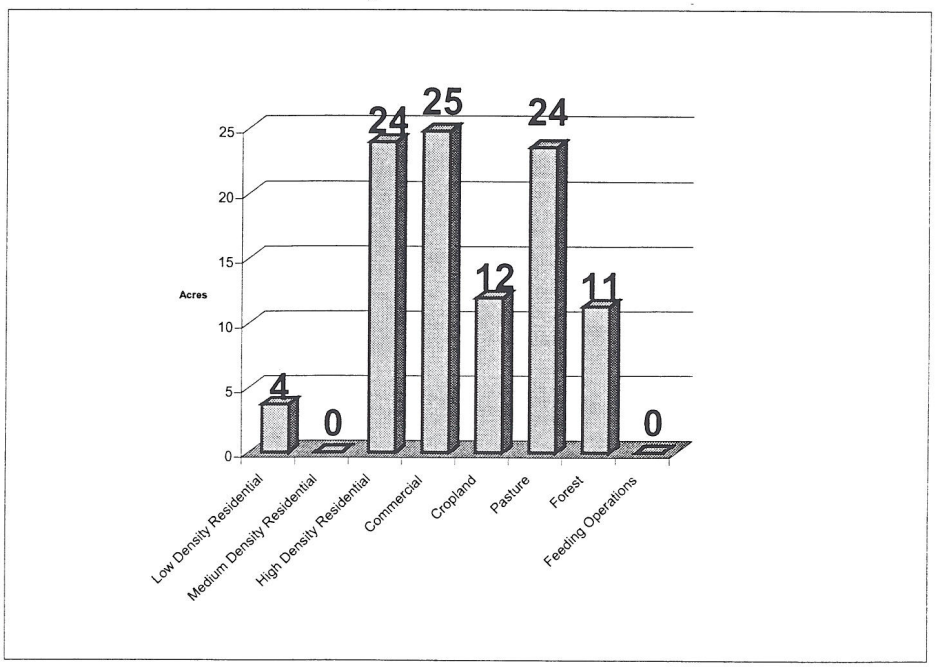
3.2 NON-POINT SOURCES

Using the Maryland Office of Planning's 2000 Land Use/Land Cover map for Cecil County, potential non-point sources within the SWPA area were also evaluated by land use designation. This assessment was performed by overlaying the SWPA shape on the land use coverage layer in ArcView GIS (Figure 3). A summary of the percent and acreage of each type of land use is presented in the graphs below:

PERCENTAGE OF EACH LAND USE TYPE



ACREAGE OF EACH LAND USE TYPE



From an interpretation of the graphs above, residential areas (28 acres), pastures (24 acres), and croplands (12 acres) account for a majority of the SWPA (100 acres). The use of fertilizers and pesticides in croplands and on residential lawns is common. Excessive animal waste in pasture areas can be a source of nitrate pollution in ground water. Therefore, there may be potential for the migration of potential contaminants from these non-point sources into the ground water.

Using the 1993 Maryland Office of Planning's Cecil County sewerage coverage, potential non-point sources from other septic system users in the SWPA were assessed (Figure 4). By overlaying the SWPA on the sewerage coverage layer in ArcView GIS, it was determined that approximately 45 percent of the SWPA does not have public sewer service, 35 percent is either on public sewer service or is under construction, and 20 percent should expect sewer service within 5 years.

4. REVIEW OF WATER QUALITY DATA

Water quality data was obtained from the MDE Water Supply Program database of Safe Drinking Water Act (SDWA) contaminants. The results reported are for finished (treated) ground water (unless noted).

A review of the water quality data from 1991 to 2002 has been performed for Benjamins Village / Homestead MHP's finished water samples. All detected compounds from ground-water samples collected are shown in Appendix A.

Ground-water analytical results were compared to 50 percent of the and United States Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCLs) or the USEPA Secondary Drinking Water Regulations (SDWR). If no MCL or DWSR is available, the Drinking Water Equivalent Level (DWEL) was substituted as recommended by the USEPA Office of Water.

4.1 GENERAL WATER QUALITY PARAMETERS

One ground-water sample collected on 21 November 1996 was reported with a pH of 5.6. This is below the SDWR range of 6.5 to 8.5. SDWR parameters are non-enforceable federal guidelines regarding cosmetic effects, such as tooth or skin discoloration, or aesthetic effects, such as taste, odors, or color.

4.2 VOLATILE ORGANIC COMPOUNDS

No volatile organic compounds (VOCs) were reported in the ground-water samples above 50 percent of the USEPA MCL.

Low levels of methyl-tert-butyl-ether (MTBE) were reported in ground-water samples collected in March 1998 and in April 1999 and ranged from 2.1 to 8.6 µg/L. MTBE is presently on the USEPA Contaminant Candidate List (CCL) for evaluation of whether placement on the Primary Drinking Water Standards list is warranted. Due to its presence on the CCL, MTBE currently has no MCL; however, the USEPA has an advisory level of 20 to 40 µg/L for the compound. MTBE is commonly found in gasoline as a oxygenate additive.

The disinfection by-products chloroform and dibromochloromethane (commonly known as trihalomethanes) were also reported in the water samples and ranged in concentration from 0.7 to 21 µg/L. Effective 1 January 2004, the MCL for total trihalomethanes will be 80 µg/L.

The gasoline constituents ethylbenzene, toluene, and xylenes were also reported in water samples collected in November 2000 and in July 2002. Ethylbenzene was reported in the water samples with concentrations of 3.6 and 6.4 µg/L. The MCL for ethylbenzene is 700 µg/L. Toluene was reported in the water samples with concentrations of 22 and 10 µg/L. The MCL for toluene is 1,000 µg/L. Total xylenes were reported in the water samples with concentrations of 21 and 32.4 µg/L. The MCL for total xylenes is 10,000 µg/L.

4.3 SYNTHETIC ORGANIC COMPOUNDS

No synthetic organic compounds (SOCs) were detected in the ground-water samples collected and submitted for analysis.

4.4 INORGANIC COMPOUNDS

Only one inorganic compound, nitrate, was reported above 50 percent of the MCL of 10 mg/L in two of the ground-water samples collected. A summary of all detected nitrate concentrations in the ground-water samples collected is shown in the Table 2 below.

TABLE 2. SUMMARY OF NITRATE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	Unit
01	17-Feb-93	Nitrate	2.7	mg/L
01	22-Jun-93	Nitrate	3.3	mg/L
01	18-Dec-94	Nitrate	3	mg/L
01	13-Dec-95	Nitrate	4.16	mg/L
01	02-Oct-96	Nitrate	3.41	mg/L
01	21-Nov-96	Nitrate	3.1	mg/L
01	11-Mar-97	Nitrate	3.5	mg/L
01	16-Dec-98	Nitrate	3.4	mg/L
01	12-Apr-99	Nitrate	3.2	mg/L
01	24-Dec-99	Nitrate	3.15	mg/L
01	21-Dec-00	Nitrate	**5.66**	mg/L
01	15-Feb-02	Nitrate	2.72	mg/L

ND = Not Detected.
Shaded values are greater than 50 percent of the MCL.

Nitrate is a primary drinking water standard parameter. Elevated levels of nitrates may occur due to the influx of agricultural animal waste, agricultural chemicals or fertilizers, and/or septic system effluent into the drinking water.

4.5 MICROBIOLOGICAL CONTAMINANTS

Monthly ground-water sampling and analysis is performed for total and fecal coliform bacteria. Total coliform is a parameter under the National Primary Drinking Water Regulations.

One routine water sample of five submitted for analysis in June 2000 was reported to contain total coliform bacteria. No samples were reported to contain fecal coliform bacteria. However, four repeat ground-water samples were not reported to contain total or fecal coliform bacteria.

No other samples collected monthly since January 1997 through August 2002 were reported to contain coliform bacteria.

To assess the potential of Ground Water Under the Direct Influence (GWUDI) of surface water, ground-water sampling records (during dry and storm conditions) in MDE databases were assessed and information from Public Water Supply Inspection Reports were reviewed.

If significant variances in the ground-water results from dry and storm conditions are observed, it is possible that the ground water is under the direct influence of surface water. Surface water that directly recharges the aquifer through major fractures in rock does not pass through the soil overburden that both filters and contains beneficial microorganisms that break down potential contaminants. One GWUDI sample was collected on 16 December 2000 and was not reported to contain total or fecal coliforms.

From an assessment of the GWUDI ground-water results, the ground-water supply for Benjamins Village / Homestead MHP is not under the direct influence of surface water.

4.6 RADIONUCLIDES

Radon-222, was reported above the more conservative proposed MCL of 300 picocuries per liter (pCi/L) in a water sample collected in April 2000 at 2,505 pCi/L as shown in Table 3.

TABLE 3. SUMMARY OF RADON-222 ANALYSIS

Plant ID	Sample Date	Contaminant	Result	Unit
01	24-Apr-00	Radon-222	**2,505**	pCi/L

ND = Not Detected.
Shaded values are greater than the more conservative proposed MCL.

The MCL used for comparing detections of radon-222 was 300 pCi/L. This is a proposed MCL established by USEPA since there is no current MCL for this contaminant (USEPA 1999).

However, if a state has a program to address the more significant risk from radon in indoor air, then 4,000 pCi/L can be used as an alternate MCL. For the purpose of this investigation, the more conservative number was utilized.

Gross alpha and beta particles were also reported in one water sample collected in January 2001. The reported concentrations of gross alpha (2 pCi/L) and gross beta (3 pCi/L) were below the respective MCLs of 15 and 50 pCi/L.

5. SUSCEPTIBILITY ANALYSIS

To evaluate the susceptibility of the ground-water source to contamination, the following criteria were used:

1. available water quality data
2. presence of potential contaminant sources in the SWPA
3. aquifer characteristics
4. well integrity
5. the likelihood of change to the natural conditions

The aquifer that supplies Benjamins Village / Homestead MHP's drinking water is an unconfined aquifer.

For the Susceptibility Analysis in this report, rankings of "high," "moderate," and "low" susceptibility to contamination were utilized after a review of current information. However, other SWAP reports for the State of Maryland also utilized rankings of "is," "may be," and "is not" susceptible to contamination. For consistency between the ranking systems, the following details their equivalence. The ranking of "highly susceptible" is equivalent to "is susceptible," "moderately susceptible" is equivalent to "may be susceptible," and "low susceptibility" is equivalent to "is not susceptible."

5.1 VOLATILE ORGANIC COMPOUNDS

MTBE, trihalomethanes, and the gasoline constituents toluene, ethylbenzene, and xylenes, were reported in the water samples collected. Each reported concentration was reported below 50 percent of the MCL or the USEPA advisory level.

The reported trihalomethanes may be the result of the disinfection process using sodium hypochlorite (bleach).

Two potential sources of the gasoline constituents and MTBE were observed within or adjacent to the SWPA that may impact the ground water. The sources are the truck driving school along Route 276 and the Bainbridge Naval Training Center. However, the trucks used at the school most likely use diesel fuel, which contains minor amounts of VOCs. There may be other unidentified sources of the VOCs such as unknown gasoline storage tanks.

Based on the water quality data reviewed and the identification of facilities that may potentially cause VOC contamination in the SWPA, the water supply at Benjamins Village / Homestead MHP is highly susceptible to impacts from VOCs.

6. RECOMMENDATIONS FOR PROTECTING THE WATER SUPPLY

With the information contained in this report, Benjamins Village / Homestead MHP has a basis for better understanding of the risks to its drinking water supply. Being aware of the SWPA, knowing potential contaminant sources, evaluating current and future development, working with agricultural producers and soil conservation agencies, and effective outreach and education are examples of management practices that will help protect the water supply.

Recommendations for the protection of the ground-water supply are intended for the mobile home park owner and its residents. Specific management recommendations for consideration are listed below.

6.1 PROTECTION TEAM

The management of the mobile home park should be aware of the SWPA boundary and evaluate the possible effects to the quality of the ground water prior to building or making any changes.

6.2 PUBLIC AWARENESS AND OUTREACH

The management of the mobile home park should consider discussing with property owners and businesses located within the SWPA of the activities that may have impacts to the ground water and its quality.

The management of the mobile home park should also consider sending pamphlets, flyers, or bill stuffers to its residents to educate them about the SWPA. An example pamphlet, "Gardening in a Wellhead Protection Area" is available from MDE. The residents should also be encouraged to notify the mobile home park management any significant spills from gasoline or any other potentially hazardous substances.

Placing signs at the SWPA boundaries is an effective way to make the public aware of protecting their source of water supply, and to help in the event of spill notification and response.

The Executive Summary of this report should also be listed in the Consumer Confidence Report for the water system, and should also indicate that the report is available to the general public by contacting the MHP owner, the local library, or MDE.

6.3 PLANNING/NEW DEVELOPMENT

The mobile home park should also inform the Cecil County Health and Planning Departments of any concerns to future development or zoning changes of properties that are within the SWPA.

7. REFERENCES

The following sources of information were consulted as a part of this investigation:

1. Bolton, David W. 1996. *Network Description and Initial Water-Quality Data From a Statewide Ground-Water Quality Network in Maryland.* Maryland Geological Survey Report of Investigations No. 60.

2. Maryland Department of the Environment (MDE), Water Supply Program. 1999. Maryland's Source Water Assessment Plan, 36. pp.

3. Maryland Geological Survey (MGS). 1968. *Cecil County Geologic Map adapted from Maryland Geological Survey's Geologic Map of Maryland.*

4. Otton, E. G, R. E Willey, R. A McGregor, G. Achmad, S. N. Hiortdahl, J.M. Gerhart. 1988. *Water Resources and Estimated Effects of Ground-Water Development, Cecil County, Maryland.* United States Department of the Interior, Geologic Survey. Bulletin 34.

5. Overbeck, R.M., T.H. Slaughter, and A.E Hulme, 1958. *Water Resources of Cecil, Kent, and Queen Annes Counties.* Maryland Department of Geology, Mines and Water Resources Bulletin No. 21.

6. United States Environmental Protection Agency (USEPA). 2001. *A Small Systems Guide to the Total Coliform Rule.* Office of Water. EPA 816-R-01-017A. June.

7. United States Environmental Protection Agency (USEPA). 1999. *Proposed Radon in Drinking Water Rule*. Office of Water. EPA 815-F-99-006. October.

8. United States Environmental Protection Agency (USEPA). 2003. Hazardous Site Cleanup Division Website. Accessed 14 March 2003. http://www.epa.gov/reg3hwmd/super/MD/naval-bainbridge/pad.htm.

SOURCES OF DATA

Water Appropriation and Use Database
Public Water Supply Inspection Reports
Monitoring Reports
MDE Water Supply Program Oracle Database
MDE Waste Management Sites Database
Maryland Office of Planning 2000 Cecil County Land Use Map
Maryland Office of Planning 1993 Cecil County Land Use Map
USGS Topographic 7.5 minute Quadrangle Map – 1992 Rising Sun, Maryland Quad
USGS Topographic 7.5 minute Quadrangle Map – 1992 Havre de Grace, Maryland Quad
USGS Topographic 7.5 minute Quadrangle Map – 1953 (1985) Conowingo Dam, Maryland Quad
USGS Topographic 7.5 minute Quadrangle Map – 1953 (1985) Aberdeen, Maryland Quad

Appendix A

Detected Compounds in Ground-Water Samples

SUMMARY OF DETECTED COMPOUNDS IN BENJAMINS VILLAGE / HOMESTEAD MHP WATER SAMPLES				
Plant ID	**Sample Date**	**Contaminant Name**	**Result**	**Unit**
Volatile Organic Compounds				
01	09-Apr-96	CHLOROFORM	1	ug/L
01	12-Apr-99	CHLOROFORM	1.1	ug/L
01	24-Apr-00	CHLOROFORM	1.4	ug/L
01	30-Nov-00	CHLOROFORM	21	ug/L
01	10-Jan-01	CHLOROFORM	1.2	ug/L
01	30-Jul-02	CHLOROFORM	1	ug/L
01	30-Jul-02	DIBROMOCHLOROMETHANE	0.7	ug/L
01	30-Nov-00	ETHYLBENZENE	6.4	ug/L
01	30-Jul-02	ETHYLBENZENE	3.6	ug/L
01	23-Feb-91	METHYLENE CHLORIDE	1	ug/L
01	19-Mar-98	METHYL-TERT-BUTYL-ETHER	8.6	ug/L
01	12-Apr-99	METHYL-TERT-BUTYL-ETHER	2.1	ug/L
01	30-Nov-00	o-CHLOROTOLUENE	0.6	ug/L
01	30-Jul-02	o-XYLENE	12.1	ug/L
01	30-Jul-02	p-XYLENE	20.3	ug/L
01	30-Nov-00	TOLUENE	22	ug/L
01	30-Jul-02	TOLUENE	10	ug/L
01	30-Nov-00	XYLENES, TOTAL	21	ug/L
01	30-Jul-02	XYLENES, TOTAL	32.4	ug/L
Inorganic Compounds				
01	19-Sep-93	BARIUM	0.022	mg/L
01	17-Feb-93	NITRATE	2.7	mg/L
01	22-Jun-93	NITRATE	3.3	mg/L
01	18-Dec-94	NITRATE	3	mg/L
01	13-Dec-95	NITRATE	4.16	mg/L
01	02-Oct-96	NITRATE	3.41	mg/L
01	21-Nov-96	NITRATE	3.1	mg/L
01	11-Mar-97	NITRATE	3.5	mg/L
01	16-Dec-98	NITRATE	3.4	mg/L
01	12-Apr-99	NITRATE	3.2	mg/L
01	24-Dec-99	NITRATE	3.15	mg/L
01	21-Dec-00	NITRATE	5.66	mg/L
01	15-Feb-02	NITRATE	2.72	mg/L
01	21-Nov-96	NITRITE	0.005	mg/L
01	21-Nov-96	SODIUM	11	mg/L
01	12-Apr-99	SODIUM	50	mg/L
01	21-Nov-96	SULFATE	12.4	mg/L
01	12-Apr-99	SULFATE	16.3	mg/L
General Water Quality Parameters				
01	21-Nov-96	pH	5.6	s.u.
Radionuclides				
01	24-Apr-00	RADON-222	2,505	pCi/L
01	10-Jan-01	GROSS ALPHA	2	pCi/L
01	10-Jan-01	GROSS BETA	3	pCi/L
Microbiological Contaminants				
NA	1-Jun-00	TOTAL COLIFORM (ROUTINE)	Positive	NA

s.u. – standard units. NA – Not Applicable