Final

Source Water Assessment

for the

Mountain Lake Park Water System

Garrett 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:

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February 2004

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LIST OF ACRONYMS AND ABBREVIATIONS

AST	Aboveground Storage Tank
BMP	Best Management Practice
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
CHS	Controlled Hazardous Substances
COMAR	Code of Maryland Regulations
CREP	Conservation Reserve Program
DWEL	Drinking Water Equivalent Level
ft	Foot/Feet
gpd	Gallon(s) Per Day
gpm	Gallon(s) Per Minute
GPS	Global Positioning System
GWUDI	Ground Water Under the Direct Influence
in.	Inch(es)
IOC	Inorganic Compound
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
mg/L	Milligram(s) Per Liter
MGS	Maryland Geological Survey
mL	Milliliter(s)
NPL	National Priorities List
pCi/L	Picocurie(s) Per Liter
PWSID	Public Water System Identification
SDWA	Safe Drinking Water Act
SDWR	Secondary Drinking Water Regulations
SOC	Synthetic Organic Compound
SWAP	Source Water Assessment Plan
SWPA	Source Water Protection Area
SWPP	Source Water Protection Plan

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

µg/L	Microgram(s) Per Liter
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WHPA	Well Head Protection Area

1. INTRODUCTION

EA Engineering, Science, and Technology was tasked to perform a Source Water Assessment for the Mountain Lake Park water system in Garrett County, Maryland. EA has performed this study under Purchase Order No. U00P3200205, as authorized by the Maryland Department of the Environment (MDE).

The Mountain Lake Park system serves the residents of the town of Mountain Lake Park in southeast Garrett County. The water treatment plant, supply wells, and springs for the system are located on property adjacent to the Town of Mountain Lake Park. The springs and wells are located on approximately 380 acres that are owned by Garrett County. The Mountain Lake Park system serves a population of 2,500 with 1004 connections. Three wells and ten springs supply the water for this system (Figure 1).

1.1 GROUND-WATER SUPPLY SYSTEM INFORMATION

The majority of the water supplied by the Mountain Lake Park system is from the nine springs located in a heavily forested area. Of the three ground-water wells in the system, Well 2 is the only active well. Wells 1 and 3 are used as backup wells during dry/drought periods when the surface water springs are not flowing. Wells 2 and 3 are located near the water treatment plant, upgradient on the north side of a small-dammed stream. Well 1 is located on the opposite side (south side) of the dammed stream near the supply springs.

All ten of the supply springs are located south of the stream. Spring 1, which is located closest to the dammed stream, accounts for most of the water supplied. Springs 6 and 9, which are no longer in use due to microbiological contaminant issues, are located near a power line corridor. Spring 4, which is not listed in Table 2, is dry and has not been in used for some time.

In total, the system can safely yield 230,000 gallons per day (gpd). Table 1 contains a summary of the well construction data. Table 2 contains a summary of available data for the ten springs that supply this system.

TABLE 1. WELL INFORMATION

Source ID	Source Name	Permit No.	Total Depth (ft)	Casing Depth (ft)	Aquifer
3	Mountain Lake Park 1	GA880742	187	45	Greenbrier Formation
4	Mountain Lake Park 2	GA881252	238	43	Greenbrier Formation
5	Mountain Lake Park 3	GA881298	238	50	Greenbrier Formation

TABLE 2. SPRING INFORMATION

Source ID	Source Name	Flow Rate (gpm)	Aquifer
02	Spring 1	50	Greenbrier Formation
02	Spring 2	1	Greenbrier Formation
02	Spring 3	0	Greenbrier Formation
02	Spring 5	4.5	Greenbrier Formation
01	Spring 6	6	Greenbrier Formation
02	Spring 7	2	Greenbrier Formation
02	Spring 8	1	Greenbrier Formation
01	Spring 9	7	Greenbrier Formation
02	Spring 10	15	Greenbrier Formation
02	Spring 11	15	Greenbrier Formation

Each supply wellhead was observed to be in good condition with a secure cap. Each spring was protected from direct surface water infiltration by a concrete spring vault. The vaults were covered to prevent the entrance of surface drainage or debris into the spring basin and were constructed at least 5 ft beneath the surface. Each vault was secure and in good condition with no apparent indications of direct surface water recharge into the vaults through cracks in the concrete.

According to MDE, the contact responsible for this system is Mark Tonkovich of the Garrett County Public Utilities. The direct superintendent for Mountain Lake Park is Allen Festerman of the Garrett County Sanitary District (OT-4, ST-4).

Presently, the system disinfects all water from the well and springs with calcium hypochlorite. Also, soda ash is added for corrosion control. This system also utilizes a sodium fluoride saturator to inject fluoride into the water.

1.2 HYDROGEOLOGY

Garrett County lies entirely within the Appalachian Plateau physiographic province, and is the westernmost county in Maryland. Pleistocene terraces and recent flood plains found along the larger streams and consolidated sedimentary rocks of the mid-Paleozoic (Devonian, Mississippian, and Pennsylvanian age) dominate the surface and subsurface geology. The Mid-Paleozoic units are folded into broad anticlines and synclines that trend northeast-southwest. The anticlinal structures are underlain by Devonian rocks and contain three distinct gas fields. The synclinal structures form the coal basins of the region and are underlain by Pennsylvanian rocks.

The ground water and spring water used by Mountain Lake Park is derived from the Paleozoic (Mississippian age) Greenbrier Formation. The rocks of the Mississippian age consist of red and green shale, thin-bedded sandstone, calcareous shale, argillaceous limestone, and massive conglomeratic sandstone. The Greenbrier Formation is a "red and green shale with lenticular limestone and limy sandstone." This is a moderately important water-bearing unit along the flanks of the anticlinal structures [Maryland Geological Survey (MGS) 1980].

The source of ground water in Garrett County is from infiltration of rainfall or snowmelt. The availability of ground water in the predominantly sedimentary bedrock depends on the lithology of the rock, the permeability of the substrate, and the presence or absence of secondary openings from fracturing and weathering. The reported well yields from 48 wells in the Greenbrier Formation are 1 to 300 gallons per minute (gpm), with an average yield of 13.3 gpm (MGS 1980).

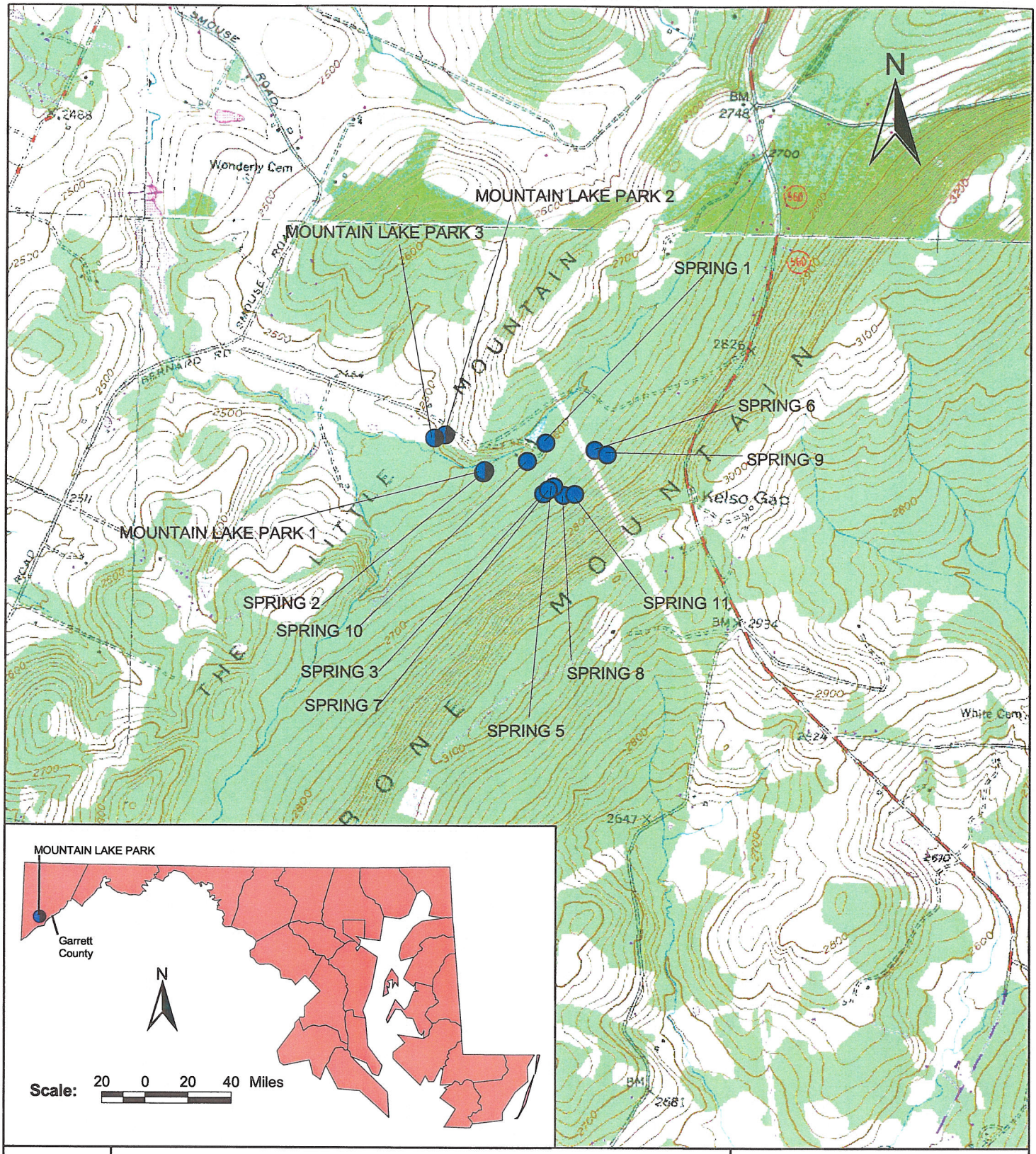


Figure 1. Mountain Lake Park
Location Map of Supply Wells and Springs

Source Water Assessment Program
2003

Legend:

- Supply Well
- Supply Spring

Scale:
1000 0 1000 2000 Feet

Source:

United States Geologic Survey. 1948 (photorevised 1981). *7.5-minute Series Topographic Map for Table Rock, MD.*
United States Geologic Survey. 1949 (photorevised 1981). *7.5-minute Series Topographic Map for Gorman, MD-WV.*
United States Geologic Survey. 1948 (photorevised 1981). *7.5-minute Series Topographic Map for Deer Park, MD.*
United States Geologic Survey. 1948 (photorevised 1974). *7.5-minute Series Topographic Map for Oakland, MD.*

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 Source Water Assessment Plan (SWAP) (MDE 1999), the watershed drainage area that contributes ground water to the supply wells and springs methodology was used.

This original delineation shape was 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 gpd per acre (or approximately 5.4 in. per year) was used to estimate the total ground-water contribution area required to supply the well.

For Mountain Lake Park, the current Water Appropriation Permit issued by the MDE Water Rights Division is for an average withdrawal of 230,000 gpd. 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 575 acres. The delineated SWPA is approximately 577 acres (Figure 2), and is therefore adequate to meet the average daily ground-water usage during a drought.

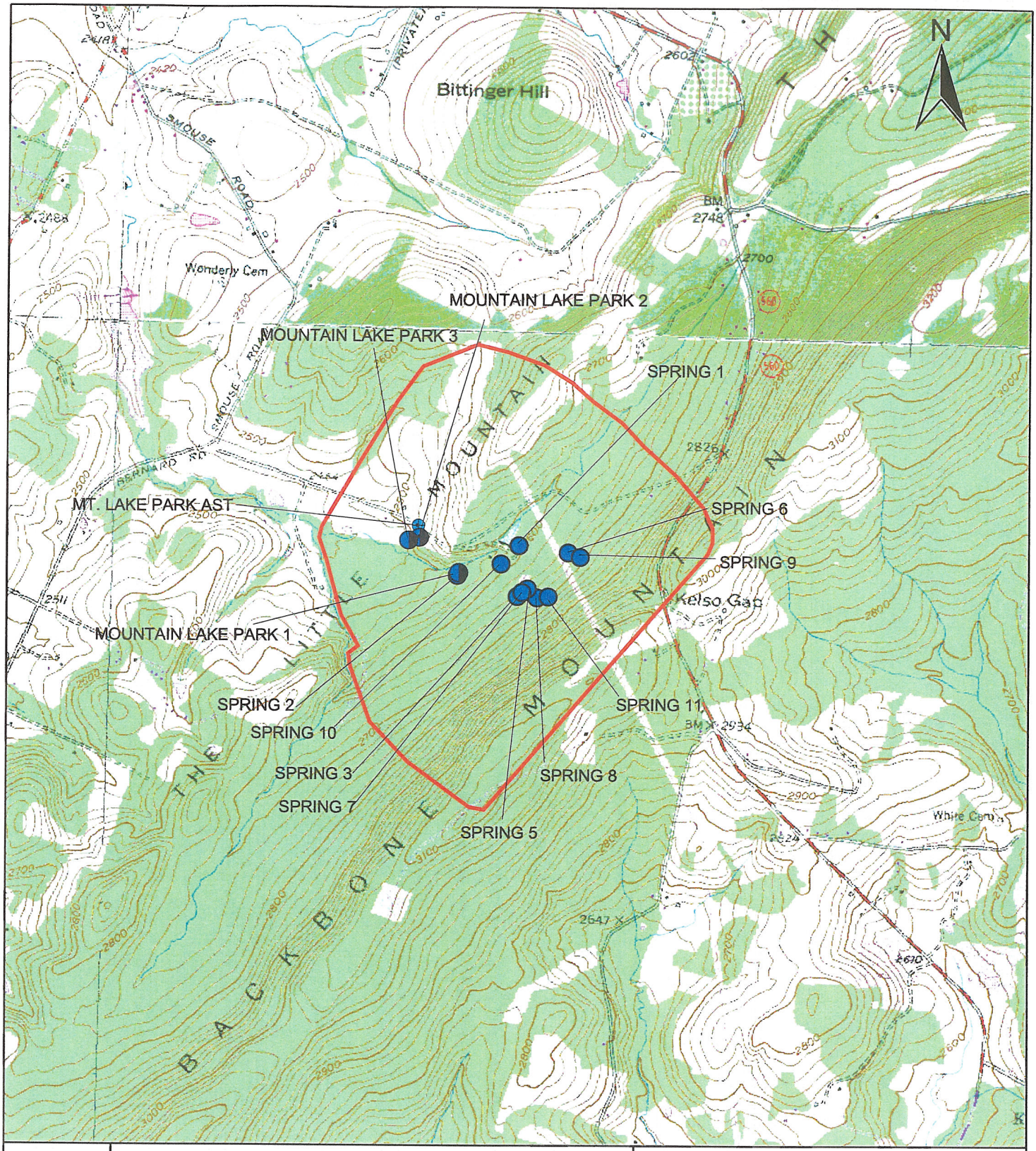


Figure 2. Mountain Lake Park Source Water Protection Area Map with Potential Sources of Contamination

Source Water Assessment Program
2003

Legend:
- Supply Well
- Supply Spring
- SWPA Boundary
- Miscellaneous

Source:
United States Geologic Survey. 1948 (photorevised 1981). *7.5-minute Series Topographic Map for Table Rock, MD.*
United States Geologic Survey. 1949 (photorevised 1981). *7.5-minute Series Topographic Map for Gorman, MD-WV.*
United States Geologic Survey. 1948 (photorevised 1981). *7.5-minute Series Topographic Map for Deer Park, MD.*
United States Geologic Survey. 1948 (photorevised 1974). *7.5-minute Series Topographic Map for Oakland, MD.*

Scale:
1000 0 1000 2000 Feet

3. INVENTORY OF POTENTIAL CONTAMINANTS WITHIN THE DELINEATED AREA

A field survey was performed on 12 December 2002 to confirm potential sources of contamination identified in MDE databases around the ground-water wells. These databases include the Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS), which includes National Priorities List (Superfund) sites, Maryland Registered Underground Storage Tank (UST) sites, Maryland Leaking Underground Storage Tank (LUST) sites, landfills, pesticide dealers, ground-water discharge permits, and Controlled Hazardous Substances (CHS) generator sites.

During the field survey, other sources of potential contamination not in the U.S. Environmental Protection Agency (USEPA) or Maryland databases were noted and the location was surveyed using a global positioning system (GPS) receiver for mapping purposes (Figure 2).

3.1 POINT SOURCES

Approximately 30 ft from Well 2 is a rusted aboveground storage tank (AST). If this tank was not abandoned properly, it can still discharge its contents to the ground-water aquifer through the soil overburden. This tank does not appear to be in use and was on an abutting property.

3.2 NON-POINT SOURCES

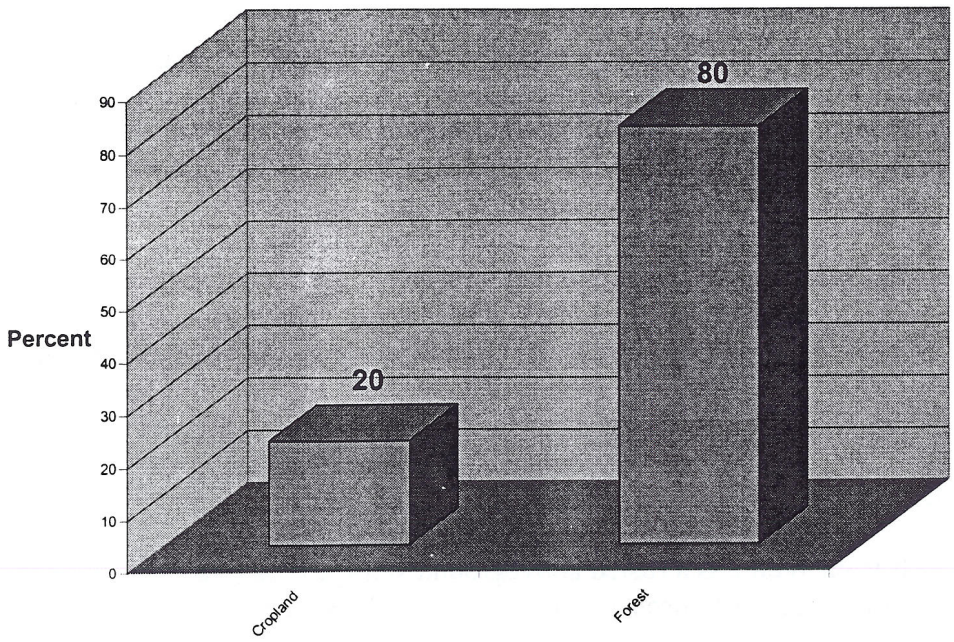
Using the Maryland Office of Planning 2000 Land Use/Land Cover map for Garrett County, potential non-point sources within the SWPA were also evaluated by land use designation (Figure 3). A summary of the percent and acreage of each type of land use is presented in the graphs on the following page.

From an interpretation of the graphs, forest (462 acres) and cropland (115 acres) account for 100 percent of the SWPA. The use of fertilizers and pesticides in croplands is common. However, pastures were observed in the SWPA during the site visit. Animal waste is also a source of nitrate and microbiological pollution. Therefore, there is potential for the migration of potential contaminants from pastures and croplands into the ground water.

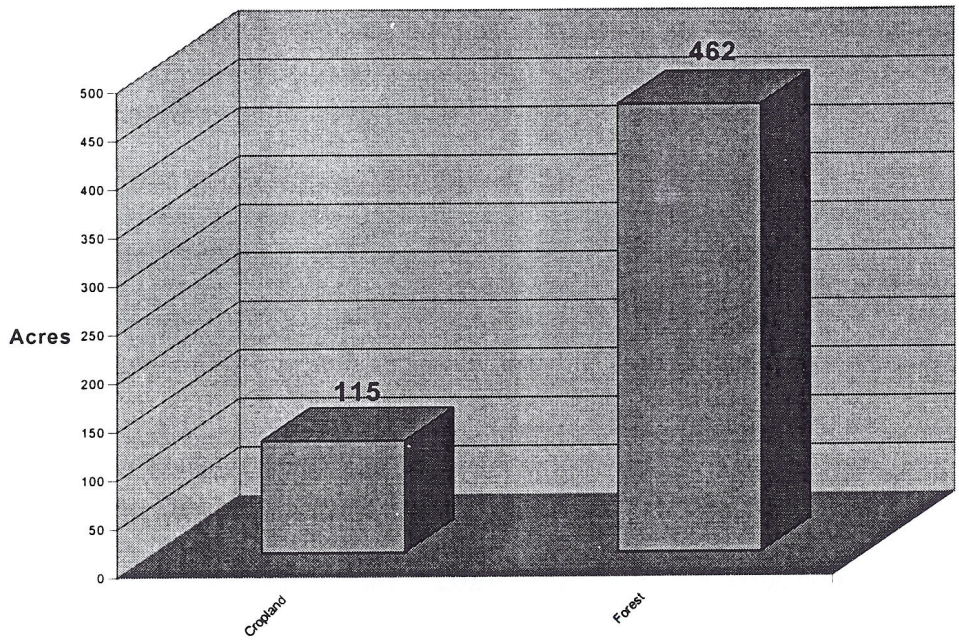
The supply springs and Well 1 were located in the forested area of the SWPA. While forest lands are not usually associated with non-point sources of pollution, it was reported by the water supply operator that a significant deer population lives in the area. During a site visit, deer droppings and one deer carcass were observed in the area around the supply springs. Deer also often use power line corridors for grazing. Supply Springs 6 and 9, which are no longer in use due to microbiological problems, were located near a power line corridor.

Using the 1993 Maryland Office of Planning Garrett 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 100 percent of the SWPA does not have public sewer service and is not planned for service for at least 10 years. A few residential buildings were observed in the SWPA near Wells 2 and 3.

PERCENTAGE OF EACH LAND USE TYPE



ACREAGE OF EACH LAND USE TYPE



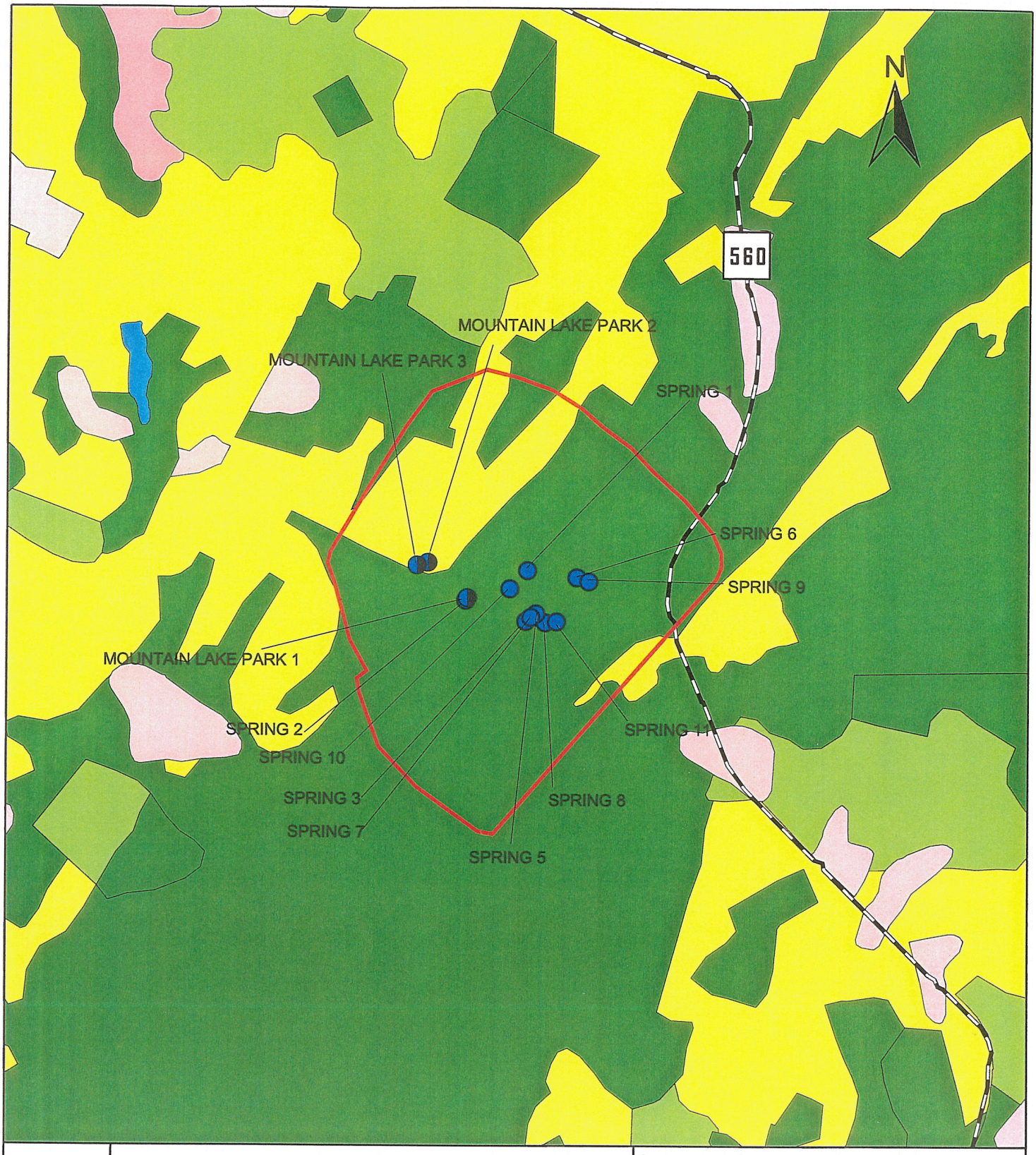


Figure 3. Mountain Lake Park Land Use Map of the Source Water Protection Area

Source Water Assessment Program
2003

Scale: 1000 0 1000 2000 Feet

Source: Maryland Office of Planning, 2000.

Legend:

- Supply Well
- Supply Spring
- SWPA Boundary
- Major Roads

Land Use

- Low Density Residential
- Medium Density Residential
- Cropland
- Pasture
- Forest
- Water

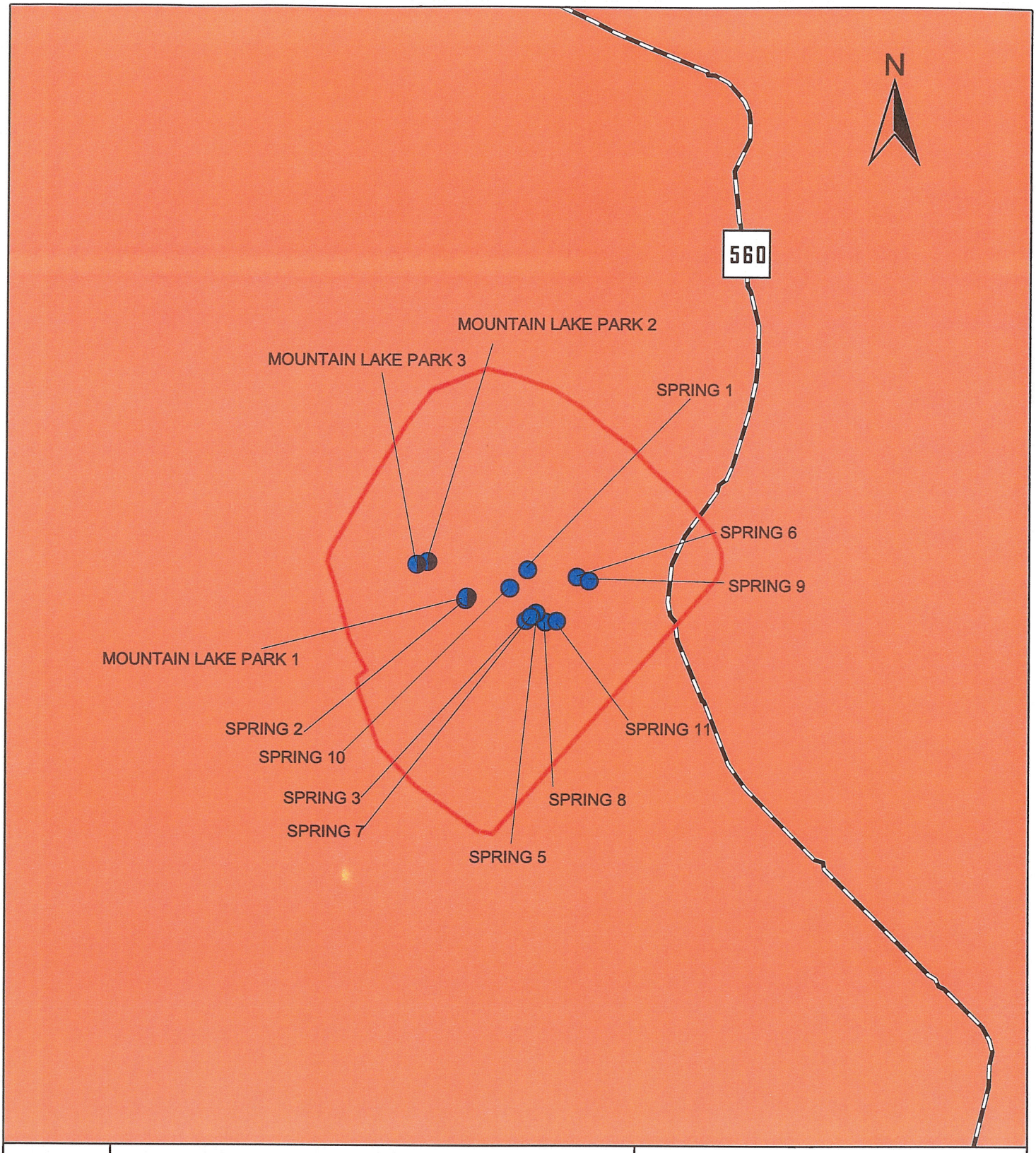


Figure 4. Mountain Lake Park Sewer Service Map of the Source Water Protection Area

Source Water Assessment Program
2003

Legend:

- Supply Well
- Supply Spring
- SWPA Boundary
- Major Roads
- Sewer
- No planned service area

Source: Maryland Office of Planning, 1993.

Scale: 1000 0 1000 2000 Feet

4. REVIEW OF WATER QUALITY DATA

Water quality data were 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 1991-2002 has been performed for Mountain Lake Park finished water samples. A summary of the ground-water sample analysis is shown in Appendix A.

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

4.1 GENERAL WATER QUALITY PARAMETERS

No general water quality parameters were reported in the ground-water samples at concentrations greater than 50 percent of the comparison criteria.

One ground-water sample collected on 6 November 1996 was reported with a pH value of 6.7, which is within the normal SDWR range of 6.5 to 8.5.

4.2 VOLATILE ORGANIC COMPOUNDS

No volatile organic compounds (VOCs) were reported in ground-samples greater than 50 percent of the comparison criteria.

Low-level concentrations of methylene chloride were detected in ground-water samples collected on 15 November 1990 (0.7 µg/L) and 18 February 1991 (1 µg/L). Methylene chloride has a USEPA MCL of 5 µg/L.

The disinfection by-products bromodichloromethane, chloroform and dibromochloromethane (along with bromofrom) are commonly known as trihalomethanes; these were also reported in the water samples and ranged in concentration from 0.6 to 1.0 µg/L, which is less than the current MCL for all trihalomethanes of 100 µg/L. The MCL will be lowered to 80 µg/L in January 2004.

A concentration of 1,1,1-trichloroethane (1 µg/L) was detected in a ground-water sample collected on 15 November 1990 at a concentration less than the MCL of 200 µg/L. No concentrations of 1,1,1-trichloroethane were reported in any water samples since 1990.

4.3 SYNTHETIC ORGANIC COMPOUNDS

No synthetic organic compounds (SOCs) were reported in any ground-water samples.

4.4 INORGANIC COMPOUNDS

No inorganic compounds (IOCs) were reported in ground-water samples greater than 50 percent of the comparison criteria.

Low-level concentrations of nitrate were reported in ground-water samples collected between 8 November 1995 and 20 March 2001, and ranged from 0.2 to 1.5 mg/L. A low-level concentration of nitrite (0.002 mg/L) was reported in a ground-water samples collected on 6 November 1996. Both analytes were reported less than the USEPA MCL of 10 and 1 mg/L, respectively.

Sulfate was detected in ground-water samples collected on 27 April 1994 (6.1 mg/L) and 6 November 1996 (5.2 mg/L), and was less than the SDWR for sulfate of 250 mg/L.

Sodium was detected in ground-water samples collected on 6 November 1996 (1.4 mg/L) and 1 December 1999 (2.19 mg/L) at concentrations less than the EPA drinking water advisory level for sodium, which ranges from 30 to 60 mg/L.

Fluoride (0.68 mg/L) was detected in a ground-water sample collected on 25 October 2000 less than the USEPA MCL for fluoride of 4.0 mg/L.

Arsenic (0.001 mg/L) was detected in a ground-water sample collected on 27 April 1994 less than the current MCL of 0.05 mg/L and less than the future MCL of 0.01 mg/L, which will be effective in January 2006. No arsenic was detected in samples taken after 1994.

Cadmium (0.000111 mg/L) was detected in a ground-water sample collected on 27 April 1994 less than the USEPA MCL of 0.005 mg/L. No other samples collected since 1994 were reported to contain cadmium.

Nickel (0.001 mg/L) was detected in a ground-water sample collected on 27 April 1994 less than the DWEL for nickel of 0.7 mg/L. No other samples collected since 1994 were reported to contain nickel.

4.5 MICROBIOLOGICAL CONTAMINANTS

Monthly ground-water sampling and analysis is performed for total and fecal coliform bacteria per the Total Coliform Rule.

A routine water sample submitted for analysis in February 2000 was reported to contain total coliform bacteria. The sample was not reported to contain fecal coliform bacteria. However, none of the ten repeat water samples were reported to contain total coliform bacteria.

No other monthly samples submitted from January 1997 through July 2002 were reported to contain total or fecal coliform.

However, during the production of this report, a routine monthly water sample collected in July 2003 (from the point-of-entry) was reported to contain total and fecal coliform. This sample was collected after 3 days of precipitation, which totaled more than 1 in. of rain. Daily water samples were collected from the point-of-entry and the first customers for the next 6 days to monitor the water quality.

Decreasing concentrations of total and fecal coliform were reported in the raw water samples collected over the 6 days. No total coliform or fecal coliform was reported in the water samples collected from the point-of-entry, which is located after water treatment, by the third day of sampling.

The results of this sampling event are included as Appendix B.

4.5.1 Ground Water Under the Direct Influence (GWUDI)

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 Reports was reviewed.

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 help break down contaminants. 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.

Water samples for GWUDI determination were collected from the five sources (Appendix A). The results and the GWUDI determinations are described below.

Source 1 – Springs 6 and 9

Two wet-weather samples and two dry-weather samples were collected in 1998 and 1999. Concentrations of total coliform (as much as 200.5 organisms/100 mL) and fecal coliform (as much as 22.2 organisms/100 mL) were reported in water samples collected during dry conditions and after storm conditions in 1998 and 1999. MDE has classified the water from these springs as GWUDI.

Source 2 – Springs 1, 2, 3, 4, 5, 7, 8, 10, and 11

Two wet-weather samples and two dry-weather samples were collected in 1998 and 1999. Concentrations of total coliform (as much as 200.5 organisms/100 mL) and fecal coliform (2 organisms/100 mL) were reported in water samples collected during dry conditions and after storm conditions in 1998 and 1999. MDE has classified the water from these springs as GWUDI.

Source 3 – Well 1

Two wet-weather samples and two dry-weather samples were collected in 1998 and 1999. Only total coliforms were reported in two dry-weather samples collected on 28 June 1999 (1 organism/100 mL) and 6 December 1999 (3.1 organisms/100 mL). No fecal coliform were reported in the wet or dry conditions samples. MDE has classified the water from this well as not GWUDI.

Source 4 – Well 2

One wet-weather sample was collected on 9 December 1998. No total or fecal coliform was reported in the water sample. MDE has classified the water from this well as not GWUDI.

Source 5 – Well 3

One wet-weather sample was collected on 9 December 1998. No total or fecal coliform was reported in the water sample. MDE has classified the water from this well as not GWUDI.

4.6 RADIONUCLIDES

Radon-222, was reported at a concentration greater than 50 percent of the more conservative proposed MCL [300 picocuries per liter (pCi/L)] in a ground-water sample collected on 1 December 1999. No further samples were collected and submitted for analysis of radon-222. A summary of all radon-222 concentrations in the ground-water samples collected is shown in Table 3.

TABLE 3. SUMMARY OF RADON-222 ANALYSIS

Plant ID	Sample Date	Contaminant	Result	Unit
01	12/1/99	Radon-222	870	pCi/L

Note: Shaded value is greater than the more conservative proposed MCL.

Low levels of gross alpha were detected in ground-water samples collected on 11 February 1992 (2 pCi/L) and 26 October 1995 (1.3 pCi/L), less than the MCL for gross alpha of 15 pCi/L.

Also, gross beta was detected in ground-water samples collected on 1 September 1993 (2.2 pCi/L), 26 October 1995 (8.5 pCi/L), and 1 December 1999 (1 pCi/L), less than the MCL of 50 pCi/L.

5. SUSCEPTIBILITY ANALYSIS

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

1. Available water quality data
2. Presence of potential contaminant sources in the SWPA
3. Aquifer characteristics
4. Spring and well integrity
5. Likelihood of change to the natural conditions

The aquifer that supplies the Mountain Lake Park drinking water is unconfined. In general, unconfined aquifers are more susceptible to contamination from surface activities than confined aquifers, which are naturally protected by a layer of generally impermeable material such as clay. However, the unconfined aquifers utilized by these systems are overlain by relatively thick soil overburden, which serves as a natural microbiological and chemical filter for contaminants. According to the Soil Survey of Garrett County, Maryland [U.S. Department of Agriculture (USDA) 1974], the soils in Garrett County are generally stoney to silty loams, which both generally have a high organic carbon content. Depending on the physical properties of the contaminant, the depth of the overburden, and the size of the spill, contaminants could partition to the organic carbon in the soil before reaching the ground-water 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

No VOCs were reported at concentrations greater than 50 percent of the MCL.

The trihalomethanes reported in the water samples are likely by-products of the chlorination process to eliminate waterborne bacteria. The reported concentrations were less than the MCL of 100 µg/L and the future MCL of 80 µg/L.

Methylene chloride (also known as dichloromethane) was reported in water samples collected in November 1990 and February 1991. Methylene chloride is a common laboratory cross-contaminant.

In a single water sample, a low concentration of 1,1,1-trichloroethane was detected. This compound is commonly released during degreasing activities and from paints and glues. The detected concentration was less than the MCL and is likely from an isolated release, and has not been reported since 1990.

The land upgradient of the springs (south of the stream) in the SWPA is generally forest. The land upgradient of Wells 2 and 3 is generally used as croplands; however, grazing animals were observed during the site visit.

The Mountain Lake Park system has ten springs that are used to provide the majority of the ground-water supply. From observations during site visits there were three spring types including:

- Springs are located in surface water drainage areas that were dry
- Springs were located in shallow streams
- Contact springs

Therefore, the majority of the ground water that discharges at the springs is derived primarily from upgradient surface water runoff and losing streams.

VOCs, which readily dissolve in water, released upgradient of the springs could impact the surface water and, therefore, the water derived from the springs. However, no point sources of VOCs were reported or identified during the site visit upgradient of the springs.

From well construction data, there is approximately 40 ft of overburden that will buffer the portion of the aquifer used by the system from VOC contamination.

Based on the water quality review, the lack of point and non-point sources of VOCs upgradient of the springs, and the well construction information, the water supply has a low susceptibility to VOC contamination.

5.2 SYNTHETIC ORGANIC COMPOUNDS

No SOC concentrations were reported in the ground-water samples.

Land use in the SWPA consists of forests and croplands. Pesticides and herbicides are used on croplands, which generally are located on the north side of the stream in the SWPA. The ground water used by the system on the north side of the stream is from Wells 2 and 3. From well construction data, there is approximately 40 ft of overburden that will buffer the portion of the aquifer used by the system from SOC contamination. Most SOCs are not readily dissolved in water and have a high affinity to sorb to soil particles; therefore, SOC contaminants are unlikely to affect the ground water used by the wells.

Surface water systems are generally more susceptible to SOC contamination from runoff from croplands impacted with pesticides and/or herbicides. However, the ground-water springs located in the SWPA are in forest and are located south of the stream, which acts as surface water flow boundary.

Based on the water quality review, the well construction data, the land use within the SWPA, and the observations made during the site visit, the water supply for Mountain Lake State Park has a low susceptibility to SOC contamination.

5.3 INORGANIC COMPOUNDS

No IOC concentrations were reported greater than 50 percent of the MCL in any of the water samples analyzed.

Arsenic was detected in a single water sample (0.001 mg/L) collected in April 1994. Currently, the MCL is 0.05 mg/L, but beginning in 2006, the MCL will decrease to 0.01 mg/L. This sample is below both the pre-and post-change MCL. Arsenic is typically discharged as a compound in some older pesticides and herbicides and is also a naturally occurring element.

Sodium, sulfate, and fluoride were each detected in water samples. The reported concentrations were within the typical Garrett County water quality parameters and less than the SDWR levels for each compound (MGS 1980).

Nitrate is a common contaminant in ground-water supply systems. Nitrate contamination can be the result of septic system effluent and from land use activities. Croplands were reported and observed in the northern half of the SWPA; however, some grazing animals were also observed. Manure from grazing animals and the over-application of nitrogen-based crop fertilizers are common non-point sources of nitrate. However, no concentrations of nitrate have been reported greater than 1.5 mg/L. No trends in the reported nitrate concentrations in the water nitrate concentrations in the water samples have been observed over-time.

The springs on the south side of the SWPA are located in forests, which are not generally associated with non-point sources of pollution. However, it was reported and observed that a significant deer population lives in the forest area around the springs and uses the springs and streams for drinking water. While the springs are encased and protected from direct infiltration, it was observed during the site visit that the ground water used by the springs could be derived from shallow upgradient surface steams and surface runoff and is not filtered significantly prior to entering the spring vaults. Therefore, it is possible for the resident deer population to affect the spring water with nitrogen compounds.

Based on the water quality reviews, the land use in the SWPA, and the observations made during the site visit, the water supply for Mountain Lake Park has a moderate susceptibility to nitrate contamination and a low susceptibility to other IOCs.

5.4 RADIONUCLIDES

Radon-222 was reported above the more conservative proposed MCL of 150 pCi/L in the water sample collected on 1 December 1999 (870 pCi/L).

Radon-222 is typically produced as a by-product of the radioactive decay of unstable minerals such as uranium in the subsurface aquifer. The MCL of 300 pCi/L is currently not enforceable,

and MDE is waiting for the USEPA final rule to determine how radon will be regulated for public water systems (USEPA 1999).

Gross beta and gross alpha particles have been detected in samples during several rounds of sampling; however, the detected concentrations are less than the USEPA MCLs.

Based on the water quality review and the natural occurrence of radionuclides in ground water, the water supply for Mountain Lake Park has a moderate susceptibility to radon-222 and a low susceptibility to other radionuclides.

5.5 MICROBIOLOGICAL CONTAMINATION

In general, no total or fecal coliform has historically been reported in the monthly ground-water analyses of treated water. However, a routine monthly water sample collected in July 2003 (after 3 days of precipitation) was reported to contain total and fecal coliform. In July 2003, no determination on whether the springs were under the direct influence of surface water had been made. It was assumed that Springs 6 and 9 were the most susceptible to microbiological contaminants from surface water infiltration due to previous GWUDI sample results. Both of these springs are located next to a utility corridor, which is often used by deer as a grazing area. The use of these springs was discontinued in 2002.

However, on 7 August 2003, MDE classified the active springs as GWUDI. With the detection of coliforms in the monthly sample collected after the July 2003 rain event, it appears that the other springs are under the direct influence of surface water after rain events or snow melts. While the springs in use are encased and protected from direct infiltration, it was observed during the site visit that the ground water used by the springs can be derived from shallow upgradient surface steams and surface runoff which is not filtered significantly prior to entering the spring vaults. Therefore, it is possible for the deer population to affect the spring water with microbiological compounds from feces and one observed carcass.

Each of the three wells were not classified as GWUDI. While croplands and grazing areas were observed near Wells 2 and 3, there is approximately 40 ft of overburden that will buffer the portion of the aquifer used by the system from microbiological contamination. From documentation reviewed, the supply well was constructed after 1973, the year that current well construction techniques were required. Each wellhead was observed to be in good condition.

Based on the water quality reviews, the GWUDI results, the observations made during the site visits, and the integrity of the spring encasements, the water supply for the Mountain Lake Park system has a high susceptibility to microbiological contamination.

6. RECOMMENDATIONS FOR PROTECTING THE WATER SUPPLY

With the information contained in this report, the Mountain Lake Park 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 water supplier and its residents. Specific management recommendations for consideration are listed below.

6.1 PROTECTION TEAM

The team should represent all the interests in the community, such as water suppliers, community associations officers, the County Health Department, local planning agencies, local businesses, developers, property owners, and residents within and near the SWPAs. The team should work to reach a consensus on how to protect the water supply.

6.2 PUBLIC AWARENESS AND OUTREACH

The water supplier should consider discussing with property owners and businesses located within the SWPA the activities that could have impacts to the ground water and its quality.

The water supplier 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 Mountain Lake Park management of 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 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 water supplier, the local library, or MDE.

6.3 PLANNING/NEW DEVELOPMENT

The water supplier should also inform the Garrett County Health and Planning Departments of any concerns about future development or zoning changes for properties that are within the SWPA.

The water supplier should be aware of the SWPA limits and evaluate the possible effects to the quality of the ground water prior to building or making any changes.

6.4 MONITORING

The water supplier should continue to monitor the ground water for all SWDA contaminants as required by MDE.

The water supplier should consider performing GWUDI testing on each spring to assess their susceptibility to surface water runoff. The results of the testing may help to determine an appropriate treatment technique.

Annual wet weather raw water sampling at the springs and the wells for microbiological contaminants is a good way to check the integrity of each source type.

Interim monitoring for turbidity, chlorine, and coliform bacteria should be performed in accordance with the MDE letter dated 7 August 2003.

6.5 CONTINGENCY PLAN

As required by the Code of Maryland Regulations (COMAR) 26.04.01.22, all water system owners are required to prepare and submit a plan to provide safe drinking water under emergency conditions for approval by MDE. Currently, there is a connection to the Oakland water system as a second source.

The water supplier should develop a Spill Contingency Plan. Quick and effective spill response in the event of accidental spills or leaks is an important element in the water supplier's SWPP. This plan should identify the procedures and resources to be used to mitigate any discharge of oil or hazardous substances in the SWPA. It should also establish responsibilities, duties, procedures, and resource containment, mitigation, and cleanup of accidental discharges of oil and hazardous substances that may occur within the SWPA. In all cases when spills may present a significant risk of contamination to ground water within the SWPA the local fire department should be notified of the incident.

6.6 CHANGES IN USES

The water supplier should consider implementing a filtration system prior to disinfection for the ground water from the supply springs, which have been classified as GWUDI by MDE. Disinfection and filtration can achieve the minimum mandatory removals and/or inactivations of 99.9 percent *Giardia* cysts and 99.99 percent enteric viruses (USEPA 1990). The seven most common filtration systems are shown below:

- Conventional treatment and direct filtration
- Direct filtration (gravity and pressure filters)
- Slow sand filtration
- Package plants
- Diatomaceous earth filtration
- Membrane filters
- Cartridge filters

The water supplier is required to inform the Water Supply Program at MDE of any changes to pumping rates and when a change in the number of wells or springs used is anticipated. Any changes to the pumping rate and/or the number of supply wells or springs will affect the size and shape of the SWPA.

The water supplier should utilize Wells 1 and 3 more often to prevent the well from falling into disrepair. If there are no plans to utilize Wells 1 and/or 3, they should be abandoned as soon as possible.

6.7 CONTAMINANT SOURCE INVENTORY UPDATES/INSPECTIONS

The water supplier should conduct its own survey of the SWPA to ensure that there are no additional potential sources of contamination.

A regular inspection and maintenance program of the supply wells should be considered to prevent a failure in the integrity of the well, which could provide a pathway for contaminants to the aquifer.

A regular inspection and maintenance program of the supply spring vaults should be considered to prevent a failure in the integrity of the spring encasement. In addition, a cleaning schedule should be considered to remove any organic material that may accumulate inside of the spring encasement.

Any depressions around the wellheads should be filled and graded to prevent surface water ponding that could occur during rain events. This will help to prevent surface water infiltration into the well.

6.8 PURCHASE CONSERVATION EASEMENTS OR PROPERTY

Loans are available for the purchase of property or for the purchase of easements for protection of the water supply. Eligible property must lie within the designated SWPA. Loans are currently offered at zero percent interest and zero points. Please contact the Water Supply Program of MDE for more information.

6.9 SPRING UPGRADES

While the springs are protected from direct infiltration, the spring water used by the system appears to be affected by upgradient surface water runoff.

A diversion ditch upgradient of the each spring could be constructed to prevent surface water flow into the spring encasement.

Rehabilitating the springs may eliminate the risk of surface water influence. An example of springhead design is included as Appendix C for your review. The installation or replacement of

gasket seals around the overflow pipes, access hatches, and lids will also reduce the likelihood of contamination by coliform organisms.

6.10 COOPERATIVE EFFORTS WITH OTHER AGENCIES

The water supplier may request the assistance of the University of Maryland Agricultural Extension Service, Soil Conservation Service to work with the nearby farmers to adopt Best Management Practices (BMPs) for cropland located within the SWPA. The nearby farmers can also participate in the New Conservation Reserve Program (CREP) applicable to the cropland located within the SWPA. Government funding is available to qualified farmers equal to the cost and financial benefit of farming the area. The Natural Resources Conservation Service is responsible for determining the relative environmental benefits of each acre offered for participation.

7. REFERENCES

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

1. United States Department of Agriculture Soil Conservation Service. 1974. Soil Survey of Garrett County, Maryland. Washington, D.C.

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

3. United States Environmental Protection Agency (USEPA). 1990. *Technologies for Upgrading Existing or Designing New Drinking Water Treatment Facilities.* EPA 625/4-89/023. USEPA Office of Drinking Water.

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

5. Maryland Geological Survey (MGS). 1980. *Garrett County Water-Well Records, Chemical-Quality Data, Ground-Water Use, Coal Test-Hole Data and Surface-Water Data.* 102 pp.

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 Garrett County Land Use Map
Maryland Office of Planning 1993 Garrett County Sewer Service Map
USGS Topographic 7.5-minute Quadrangle Map – 1981 Table Rock, Maryland Quad
USGS Topographic 7.5-minute Quadrangle Map – 1981 Gorman, Maryland – West Virginia Quad
USGS Topographic 7.5-minute Quadrangle Map – 1981 Deer Creek, Maryland Quad
USGS Topographic 7.5-minute Quadrangle Map – 1974 Oakland, Maryland Quad

Appendix A

Results of Ground-Water Sample Analysis

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	11/15/1990	1,1,1,2-TETRACHLOROETHANE	--	
01	2/18/1991	1,1,1,2-TETRACHLOROETHANE	--	
01	1/18/1995	1,1,1,2-TETRACHLOROETHANE	--	
01	11/6/1996	1,1,1,2-TETRACHLOROETHANE	--	
01	7/3/1997	1,1,1,2-TETRACHLOROETHANE	--	
01	7/15/1998	1,1,1,2-TETRACHLOROETHANE	--	
01	12/1/1999	1,1,1,2-TETRACHLOROETHANE	--	
01	1/12/1990	1,1,1-TRICHLOROETHANE	--	
01	5/22/1990	1,1,1-TRICHLOROETHANE	--	
01	11/15/1990	1,1,1-TRICHLOROETHANE	1	200
01	2/18/1991	1,1,1-TRICHLOROETHANE	--	
01	1/18/1995	1,1,1-TRICHLOROETHANE	--	
01	11/6/1996	1,1,1-TRICHLOROETHANE	--	
01	7/3/1997	1,1,1-TRICHLOROETHANE	--	
01	7/15/1998	1,1,1-TRICHLOROETHANE	--	
01	12/1/1999	1,1,1-TRICHLOROETHANE	--	
01	11/15/1990	1,1,2,2-TETRACHLOROETHANE	--	
01	2/18/1991	1,1,2,2-TETRACHLOROETHANE	--	
01	1/18/1995	1,1,2,2-TETRACHLOROETHANE	--	
01	11/6/1996	1,1,2,2-TETRACHLOROETHANE	--	
01	7/3/1997	1,1,2,2-TETRACHLOROETHANE	--	
01	7/15/1998	1,1,2,2-TETRACHLOROETHANE	--	
01	12/1/1999	1,1,2,2-TETRACHLOROETHANE	--	
01	11/15/1990	1,1,2-TRICHLOROETHANE	--	
01	2/18/1991	1,1,2-TRICHLOROETHANE	--	
01	1/18/1995	1,1,2-TRICHLOROETHANE	--	
01	11/6/1996	1,1,2-TRICHLOROETHANE	--	
01	7/3/1997	1,1,2-TRICHLOROETHANE	--	
01	7/15/1998	1,1,2-TRICHLOROETHANE	--	
01	12/1/1999	1,1,2-TRICHLOROETHANE	--	
01	11/15/1990	1,1-DICHLOROETHANE	--	
01	2/18/1991	1,1-DICHLOROETHANE	--	
01	1/18/1995	1,1-DICHLOROETHANE	--	
01	11/6/1996	1,1-DICHLOROETHANE	--	
01	7/3/1997	1,1-DICHLOROETHANE	--	
01	7/15/1998	1,1-DICHLOROETHANE	--	
01	12/1/1999	1,1-DICHLOROETHANE	--	
01	1/12/1990	1,1-DICHLOROETHYLENE	--	
01	5/22/1990	1,1-DICHLOROETHYLENE	--	
01	11/15/1990	1,1-DICHLOROETHYLENE	--	
01	2/18/1991	1,1-DICHLOROETHYLENE	--	
01	1/18/1995	1,1-DICHLOROETHYLENE	--	
01	11/6/1996	1,1-DICHLOROETHYLENE	--	
01	7/3/1997	1,1-DICHLOROETHYLENE	--	
01	7/15/1998	1,1-DICHLOROETHYLENE	--	
01	12/1/1999	1,1-DICHLOROETHYLENE	--	
01	11/15/1990	1,1-DICHLOROPROPENE	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	2/18/1991	1,1-DICHLOROPROPENE	--	
01	1/18/1995	1,1-DICHLOROPROPENE	--	
01	11/6/1996	1,1-DICHLOROPROPENE	--	
01	7/3/1997	1,1-DICHLOROPROPENE	--	
01	7/15/1998	1,1-DICHLOROPROPENE	--	
01	12/1/1999	1,1-DICHLOROPROPENE	--	
01	11/15/1990	1,2,3-TRICHLOROBENZENE	--	
01	2/18/1991	1,2,3-TRICHLOROBENZENE	--	
01	1/18/1995	1,2,3-TRICHLOROBENZENE	--	
01	11/6/1996	1,2,3-TRICHLOROBENZENE	--	
01	7/3/1997	1,2,3-TRICHLOROBENZENE	--	
01	7/15/1998	1,2,3-TRICHLOROBENZENE	--	
01	12/1/1999	1,2,3-TRICHLOROBENZENE	--	
01	11/15/1990	1,2,3-TRICHLOROPROPANE	--	
01	2/18/1991	1,2,3-TRICHLOROPROPANE	--	
01	1/18/1995	1,2,3-TRICHLOROPROPANE	--	
01	11/6/1996	1,2,3-TRICHLOROPROPANE	--	
01	7/3/1997	1,2,3-TRICHLOROPROPANE	--	
01	7/15/1998	1,2,3-TRICHLOROPROPANE	--	
01	12/1/1999	1,2,3-TRICHLOROPROPANE	--	
01	11/15/1990	1,2,4-TRICHLOROBENZENE	--	
01	2/18/1991	1,2,4-TRICHLOROBENZENE	--	
01	1/18/1995	1,2,4-TRICHLOROBENZENE	--	
01	11/6/1996	1,2,4-TRICHLOROBENZENE	--	
01	7/3/1997	1,2,4-TRICHLOROBENZENE	--	
01	7/15/1998	1,2,4-TRICHLOROBENZENE	--	
01	12/1/1999	1,2,4-TRICHLOROBENZENE	--	
01	11/15/1990	1,2,4-TRIMETHYLBENZENE	--	
01	2/18/1991	1,2,4-TRIMETHYLBENZENE	--	
01	1/18/1995	1,2,4-TRIMETHYLBENZENE	--	
01	11/6/1996	1,2,4-TRIMETHYLBENZENE	--	
01	7/3/1997	1,2,4-TRIMETHYLBENZENE	--	
01	7/15/1998	1,2,4-TRIMETHYLBENZENE	--	
01	12/1/1999	1,2,4-TRIMETHYLBENZENE	--	
01	1/12/1990	1,2-DICHLOROETHANE	--	
01	5/22/1990	1,2-DICHLOROETHANE	--	
01	11/15/1990	1,2-DICHLOROETHANE	--	
01	2/18/1991	1,2-DICHLOROETHANE	--	
01	1/18/1995	1,2-DICHLOROETHANE	--	
01	11/6/1996	1,2-DICHLOROETHANE	--	
01	7/3/1997	1,2-DICHLOROETHANE	--	
01	7/15/1998	1,2-DICHLOROETHANE	--	
01	12/1/1999	1,2-DICHLOROETHANE	--	
01	1/12/1990	1,2-DICHLOROPROPANE	--	
01	5/22/1990	1,2-DICHLOROPROPANE	--	
01	11/15/1990	1,2-DICHLOROPROPANE	--	
01	2/18/1991	1,2-DICHLOROPROPANE	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	1/18/1995	1,2-DICHLOROPROPANE	--	
01	11/6/1996	1,2-DICHLOROPROPANE	--	
01	7/3/1997	1,2-DICHLOROPROPANE	--	
01	7/15/1998	1,2-DICHLOROPROPANE	--	
01	12/1/1999	1,2-DICHLOROPROPANE	--	
01	11/15/1990	1,3,5-TRIMETHYLBENZENE	--	
01	2/18/1991	1,3,5-TRIMETHYLBENZENE	--	
01	1/18/1995	1,3,5-TRIMETHYLBENZENE	--	
01	11/6/1996	1,3,5-TRIMETHYLBENZENE	--	
01	7/3/1997	1,3,5-TRIMETHYLBENZENE	--	
01	7/15/1998	1,3,5-TRIMETHYLBENZENE	--	
01	12/1/1999	1,3,5-TRIMETHYLBENZENE	--	
01	11/15/1990	1,3-DICHLOROPROPANE	--	
01	2/18/1991	1,3-DICHLOROPROPANE	--	
01	1/18/1995	1,3-DICHLOROPROPANE	--	
01	11/6/1996	1,3-DICHLOROPROPANE	--	
01	7/3/1997	1,3-DICHLOROPROPANE	--	
01	7/15/1998	1,3-DICHLOROPROPANE	--	
01	12/1/1999	1,3-DICHLOROPROPANE	--	
01	11/15/1990	1,3-DICHLOROPROPENE	--	
01	2/18/1991	1,3-DICHLOROPROPENE	--	
01	1/18/1995	1,3-DICHLOROPROPENE	--	
01	11/6/1996	1,3-DICHLOROPROPENE	--	
01	7/3/1997	1,3-DICHLOROPROPENE	--	
01	7/15/1998	1,3-DICHLOROPROPENE	--	
01	12/1/1999	1,3-DICHLOROPROPENE	--	
01	11/15/1990	2,2-DICHLOROPROPANE	--	
01	2/18/1991	2,2-DICHLOROPROPANE	--	
01	1/18/1995	2,2-DICHLOROPROPANE	--	
01	11/6/1996	2,2-DICHLOROPROPANE	--	
01	7/3/1997	2,2-DICHLOROPROPANE	--	
01	7/15/1998	2,2-DICHLOROPROPANE	--	
01	12/1/1999	2,2-DICHLOROPROPANE	--	
01	1/12/1990	BENZENE	--	
01	5/22/1990	BENZENE	--	
01	11/15/1990	BENZENE	--	
01	2/18/1991	BENZENE	--	
01	1/18/1995	BENZENE	--	
01	11/6/1996	BENZENE	--	
01	7/3/1997	BENZENE	--	
01	7/15/1998	BENZENE	--	
01	12/1/1999	BENZENE	--	
01	11/15/1990	BROMOBENZENE	--	
01	2/18/1991	BROMOBENZENE	--	
01	1/18/1995	BROMOBENZENE	--	
01	11/6/1996	BROMOBENZENE	--	
01	7/3/1997	BROMOBENZENE	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	7/15/1998	BROMOBENZENE	--	
01	12/1/1999	BROMOBENZENE	--	
01	11/15/1990	BROMOCHLOROMETHANE	--	
01	2/18/1991	BROMOCHLOROMETHANE	--	
01	1/18/1995	BROMOCHLOROMETHANE	--	
01	11/6/1996	BROMOCHLOROMETHANE	--	
01	7/3/1997	BROMOCHLOROMETHANE	--	
01	7/15/1998	BROMOCHLOROMETHANE	--	
01	12/1/1999	BROMOCHLOROMETHANE	--	
01	11/15/1990	BROMODICHLOROMETHANE	--	
01	2/18/1991	BROMODICHLOROMETHANE	0.9	100 #
01	11/6/1996	BROMODICHLOROMETHANE	--	
01	7/3/1997	BROMODICHLOROMETHANE	--	
01	7/15/1998	BROMODICHLOROMETHANE	--	
01	12/1/1999	BROMODICHLOROMETHANE	--	
01	11/15/1990	BROMOFORM	--	
01	2/18/1991	BROMOFORM	--	
01	11/6/1996	BROMOFORM	--	
01	7/3/1997	BROMOFORM	--	
01	7/15/1998	BROMOFORM	--	
01	12/1/1999	BROMOFORM	--	
01	11/15/1990	BROMOMETHANE	--	
01	2/18/1991	BROMOMETHANE	--	
01	1/18/1995	BROMOMETHANE	--	
01	11/6/1996	BROMOMETHANE	--	
01	7/3/1997	BROMOMETHANE	--	
01	7/15/1998	BROMOMETHANE	--	
01	12/1/1999	BROMOMETHANE	--	
01	1/12/1990	CARBON TETRACHLORIDE	--	
01	5/22/1990	CARBON TETRACHLORIDE	--	
01	11/15/1990	CARBON TETRACHLORIDE	--	
01	2/18/1991	CARBON TETRACHLORIDE	--	
01	1/18/1995	CARBON TETRACHLORIDE	--	
01	11/6/1996	CARBON TETRACHLORIDE	--	
01	7/3/1997	CARBON TETRACHLORIDE	--	
01	7/15/1998	CARBON TETRACHLORIDE	--	
01	12/1/1999	CARBON TETRACHLORIDE	--	
01	11/15/1990	CHLOROETHANE	--	
01	2/18/1991	CHLOROETHANE	--	
01	1/18/1995	CHLOROETHANE	--	
01	11/6/1996	CHLOROETHANE	--	
01	7/3/1997	CHLOROETHANE	--	
01	7/15/1998	CHLOROETHANE	--	
01	12/1/1999	CHLOROETHANE	--	
01	11/15/1990	CHLOROFORM	--	
01	2/18/1991	CHLOROFORM	0.6	100 #
01	11/6/1996	CHLOROFORM	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	7/3/1997	CHLOROFORM	--	
01	7/15/1998	CHLOROFORM	--	
01	12/1/1999	CHLOROFORM	--	
01	11/15/1990	CHLOROMETHANE	--	
01	2/18/1991	CHLOROMETHANE	--	
01	1/18/1995	CHLOROMETHANE	--	
01	11/6/1996	CHLOROMETHANE	--	
01	7/3/1997	CHLOROMETHANE	--	
01	7/15/1998	CHLOROMETHANE	--	
01	12/1/1999	CHLOROMETHANE	--	
01	1/12/1990	cis-1,2-DICHLOROETHYLENE	--	
01	5/22/1990	cis-1,2-DICHLOROETHYLENE	--	
01	11/15/1990	cis-1,2-DICHLOROETHYLENE	--	
01	2/18/1991	cis-1,2-DICHLOROETHYLENE	--	
01	1/18/1995	cis-1,2-DICHLOROETHYLENE	--	
01	11/6/1996	cis-1,2-DICHLOROETHYLENE	--	
01	7/3/1997	cis-1,2-DICHLOROETHYLENE	--	
01	7/15/1998	cis-1,2-DICHLOROETHYLENE	--	
01	12/1/1999	cis-1,2-DICHLOROETHYLENE	--	
01	11/15/1990	DIBROMOCHLOROMETHANE	--	
01	2/18/1991	DIBROMOCHLOROMETHANE	1	100 #
01	11/6/1996	DIBROMOCHLOROMETHANE	--	
01	7/3/1997	DIBROMOCHLOROMETHANE	--	
01	7/15/1998	DIBROMOCHLOROMETHANE	--	
01	12/1/1999	DIBROMOCHLOROMETHANE	--	
01	11/15/1990	DIBROMOMETHANE	--	
01	2/18/1991	DIBROMOMETHANE	--	
01	1/18/1995	DIBROMOMETHANE	--	
01	11/6/1996	DIBROMOMETHANE	--	
01	7/3/1997	DIBROMOMETHANE	--	
01	7/15/1998	DIBROMOMETHANE	--	
01	12/1/1999	DIBROMOMETHANE	--	
01	11/15/1990	DICHLORODIFLUOROMETHANE	--	
01	2/18/1991	DICHLORODIFLUOROMETHANE	--	
01	1/18/1995	DICHLORODIFLUOROMETHANE	--	
01	11/6/1996	DICHLORODIFLUOROMETHANE	--	
01	7/3/1997	DICHLORODIFLUOROMETHANE	--	
01	7/15/1998	DICHLORODIFLUOROMETHANE	--	
01	12/1/1999	DICHLORODIFLUOROMETHANE	--	
01	1/12/1990	ETHYLBENZENE	--	
01	5/22/1990	ETHYLBENZENE	--	
01	11/15/1990	ETHYLBENZENE	--	
01	2/18/1991	ETHYLBENZENE	--	
01	1/18/1995	ETHYLBENZENE	--	
01	11/6/1996	ETHYLBENZENE	--	
01	7/3/1997	ETHYLBENZENE	--	
01	7/15/1998	ETHYLBENZENE	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	12/1/1999	ETHYLBENZENE	--	
01	11/15/1990	HEXACHLOROBUTADIENE	--	
01	2/18/1991	HEXACHLOROBUTADIENE	--	
01	1/18/1995	HEXACHLOROBUTADIENE	--	
01	11/6/1996	HEXACHLOROBUTADIENE	--	
01	7/3/1997	HEXACHLOROBUTADIENE	--	
01	7/15/1998	HEXACHLOROBUTADIENE	--	
01	12/1/1999	HEXACHLOROBUTADIENE	--	
01	11/15/1990	ISOPROPYLBENZENE	--	
01	2/18/1991	ISOPROPYLBENZENE	--	
01	1/18/1995	ISOPROPYLBENZENE	--	
01	11/6/1996	ISOPROPYLBENZENE	--	
01	7/3/1997	ISOPROPYLBENZENE	--	
01	7/15/1998	ISOPROPYLBENZENE	--	
01	12/1/1999	ISOPROPYLBENZENE	--	
01	11/15/1990	m-DICHLOROBENZENE	--	
01	2/18/1991	m-DICHLOROBENZENE	--	
01	1/18/1995	m-DICHLOROBENZENE	--	
01	11/6/1996	m-DICHLOROBENZENE	--	
01	7/3/1997	m-DICHLOROBENZENE	--	
01	7/15/1998	m-DICHLOROBENZENE	--	
01	12/1/1999	m-DICHLOROBENZENE	--	
01	11/15/1990	METHYLENE CHLORIDE	0.7	5
01	2/18/1991	METHYLENE CHLORIDE	1	5
01	1/18/1995	METHYLENE CHLORIDE	--	
01	11/6/1996	METHYLENE CHLORIDE	--	
01	7/3/1997	METHYLENE CHLORIDE	--	
01	7/15/1998	METHYLENE CHLORIDE	--	
01	12/1/1999	METHYLENE CHLORIDE	--	
01	1/18/1995	METHYL-TERT-BUTYL-ETHER	--	
01	1/18/1995	METHYL-TERT-BUTYL-ETHER	--	
01	11/6/1996	METHYL-TERT-BUTYL-ETHER	--	
01	11/6/1996	METHYL-TERT-BUTYL-ETHER	--	
01	7/3/1997	METHYL-TERT-BUTYL-ETHER	--	
01	7/3/1997	METHYL-TERT-BUTYL-ETHER	--	
01	7/15/1998	METHYL-TERT-BUTYL-ETHER	--	
01	7/15/1998	METHYL-TERT-BUTYL-ETHER	--	
01	12/1/1999	METHYL-TERT-BUTYL-ETHER	--	
01	12/1/1999	METHYL-TERT-BUTYL-ETHER	--	
01	1/12/1990	MONOCHLOROBENZENE	--	
01	5/22/1990	MONOCHLOROBENZENE	--	
01	11/15/1990	MONOCHLOROBENZENE	--	
01	2/18/1991	MONOCHLOROBENZENE	--	
01	1/18/1995	MONOCHLOROBENZENE	--	
01	11/6/1996	MONOCHLOROBENZENE	--	
01	7/3/1997	MONOCHLOROBENZENE	--	
01	7/15/1998	MONOCHLOROBENZENE	--	

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#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	12/1/1999	MONOCHLOROBENZENE	--	
01	11/15/1990	m-XYLENE	--	
01	2/18/1991	m-XYLENE	--	
01	1/18/1995	m-XYLENE	--	
01	11/6/1996	m-XYLENE	--	
01	7/3/1997	m-XYLENE	--	
01	7/15/1998	m-XYLENE	--	
01	12/1/1999	m-XYLENE	--	
01	11/15/1990	NAPHTHALENE	--	
01	2/18/1991	NAPHTHALENE	--	
01	1/18/1995	NAPHTHALENE	--	
01	11/6/1996	NAPHTHALENE	--	
01	7/3/1997	NAPHTHALENE	--	
01	7/15/1998	NAPHTHALENE	--	
01	12/1/1999	NAPHTHALENE	--	
01	11/15/1990	N-BUTYLBENZENE	--	
01	2/18/1991	N-BUTYLBENZENE	--	
01	1/18/1995	N-BUTYLBENZENE	--	
01	11/6/1996	N-BUTYLBENZENE	--	
01	7/3/1997	N-BUTYLBENZENE	--	
01	7/15/1998	N-BUTYLBENZENE	--	
01	12/1/1999	N-BUTYLBENZENE	--	
01	11/15/1990	n-PROPYLBENZENE	--	
01	2/18/1991	n-PROPYLBENZENE	--	
01	1/18/1995	n-PROPYLBENZENE	--	
01	11/6/1996	n-PROPYLBENZENE	--	
01	7/3/1997	n-PROPYLBENZENE	--	
01	7/15/1998	n-PROPYLBENZENE	--	
01	12/1/1999	n-PROPYLBENZENE	--	
01	11/15/1990	o-CHLOROTOLUENE	--	
01	2/18/1991	o-CHLOROTOLUENE	--	
01	1/18/1995	o-CHLOROTOLUENE	--	
01	11/6/1996	o-CHLOROTOLUENE	--	
01	7/3/1997	o-CHLOROTOLUENE	--	
01	7/15/1998	o-CHLOROTOLUENE	--	
01	12/1/1999	o-CHLOROTOLUENE	--	
01	1/12/1990	o-DICHLOROBENZENE	--	
01	5/22/1990	o-DICHLOROBENZENE	--	
01	11/15/1990	o-DICHLOROBENZENE	--	
01	2/18/1991	o-DICHLOROBENZENE	--	
01	1/18/1995	o-DICHLOROBENZENE	--	
01	11/6/1996	o-DICHLOROBENZENE	--	
01	7/3/1997	o-DICHLOROBENZENE	--	
01	7/15/1998	o-DICHLOROBENZENE	--	
01	12/1/1999	o-DICHLOROBENZENE	--	
01	11/15/1990	o-XYLENE	--	
01	2/18/1991	o-XYLENE	--	

--=Not Detected
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+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	1/18/1995	o-XYLENE	--	
01	11/6/1996	o-XYLENE	--	
01	7/3/1997	o-XYLENE	--	
01	7/15/1998	o-XYLENE	--	
01	12/1/1999	o-XYLENE	--	
01	11/15/1990	p-CHLOROTOLUENE	--	
01	2/18/1991	p-CHLOROTOLUENE	--	
01	1/18/1995	p-CHLOROTOLUENE	--	
01	11/6/1996	p-CHLOROTOLUENE	--	
01	7/3/1997	p-CHLOROTOLUENE	--	
01	7/15/1998	p-CHLOROTOLUENE	--	
01	12/1/1999	p-CHLOROTOLUENE	--	
01	1/12/1990	p-DICHLOROBENZENE	--	
01	5/22/1990	p-DICHLOROBENZENE	--	
01	11/15/1990	p-DICHLOROBENZENE	--	
01	2/18/1991	p-DICHLOROBENZENE	--	
01	1/18/1995	p-DICHLOROBENZENE	--	
01	11/6/1996	p-DICHLOROBENZENE	--	
01	7/3/1997	p-DICHLOROBENZENE	--	
01	7/15/1998	p-DICHLOROBENZENE	--	
01	12/1/1999	p-DICHLOROBENZENE	--	
01	11/15/1990	P-ISOPROPYLTOLUENE	--	
01	2/18/1991	P-ISOPROPYLTOLUENE	--	
01	1/18/1995	P-ISOPROPYLTOLUENE	--	
01	11/6/1996	P-ISOPROPYLTOLUENE	--	
01	7/3/1997	P-ISOPROPYLTOLUENE	--	
01	7/15/1998	P-ISOPROPYLTOLUENE	--	
01	12/1/1999	P-ISOPROPYLTOLUENE	--	
01	11/15/1990	p-XYLENE	--	
01	2/18/1991	p-XYLENE	--	
01	1/18/1995	p-XYLENE	--	
01	11/6/1996	p-XYLENE	--	
01	7/3/1997	p-XYLENE	--	
01	7/15/1998	p-XYLENE	--	
01	12/1/1999	p-XYLENE	--	
01	11/15/1990	SEC-BUTYLBENZENE	--	
01	2/18/1991	SEC-BUTYLBENZENE	--	
01	1/18/1995	SEC-BUTYLBENZENE	--	
01	11/6/1996	SEC-BUTYLBENZENE	--	
01	7/3/1997	SEC-BUTYLBENZENE	--	
01	7/15/1998	SEC-BUTYLBENZENE	--	
01	12/1/1999	SEC-BUTYLBENZENE	--	
01	1/12/1990	STYRENE	--	
01	5/22/1990	STYRENE	--	
01	11/15/1990	STYRENE	--	
01	2/18/1991	STYRENE	--	
01	1/18/1995	STYRENE	--	

--=Not Detected
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SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	11/6/1996	STYRENE	--	
01	7/3/1997	STYRENE	--	
01	7/15/1998	STYRENE	--	
01	12/1/1999	STYRENE	--	
01	11/15/1990	TERT-BUTYLBENZENE	--	
01	2/18/1991	TERT-BUTYLBENZENE	--	
01	1/18/1995	TERT-BUTYLBENZENE	--	
01	11/6/1996	TERT-BUTYLBENZENE	--	
01	7/3/1997	TERT-BUTYLBENZENE	--	
01	7/15/1998	TERT-BUTYLBENZENE	--	
01	12/1/1999	TERT-BUTYLBENZENE	--	
01	1/12/1990	TETRACHLOROETHYLENE	--	
01	5/22/1990	TETRACHLOROETHYLENE	--	
01	11/15/1990	TETRACHLOROETHYLENE	--	
01	2/18/1991	TETRACHLOROETHYLENE	--	
01	1/18/1995	TETRACHLOROETHYLENE	--	
01	11/6/1996	TETRACHLOROETHYLENE	--	
01	7/3/1997	TETRACHLOROETHYLENE	--	
01	7/15/1998	TETRACHLOROETHYLENE	--	
01	12/1/1999	TETRACHLOROETHYLENE	--	
01	1/12/1990	TOLUENE	--	
01	5/22/1990	TOLUENE	--	
01	11/15/1990	TOLUENE	--	
01	2/18/1991	TOLUENE	--	
01	1/18/1995	TOLUENE	--	
01	11/6/1996	TOLUENE	--	
01	7/3/1997	TOLUENE	--	
01	7/15/1998	TOLUENE	--	
01	12/1/1999	TOLUENE	--	
01	1/12/1990	trans-1,2-DICHLOROETHYLENE	--	
01	5/22/1990	trans-1,2-DICHLOROETHYLENE	--	
01	11/15/1990	trans-1,2-DICHLOROETHYLENE	--	
01	2/18/1991	trans-1,2-DICHLOROETHYLENE	--	
01	1/18/1995	trans-1,2-DICHLOROETHYLENE	--	
01	11/6/1996	trans-1,2-DICHLOROETHYLENE	--	
01	7/3/1997	trans-1,2-DICHLOROETHYLENE	--	
01	7/15/1998	trans-1,2-DICHLOROETHYLENE	--	
01	12/1/1999	trans-1,2-DICHLOROETHYLENE	--	
01	1/12/1990	TRICHLOROETHYLENE	--	
01	5/22/1990	TRICHLOROETHYLENE	--	
01	11/15/1990	TRICHLOROETHYLENE	--	
01	2/18/1991	TRICHLOROETHYLENE	--	
01	1/18/1995	TRICHLOROETHYLENE	--	
01	11/6/1996	TRICHLOROETHYLENE	--	
01	7/3/1997	TRICHLOROETHYLENE	--	
01	7/15/1998	TRICHLOROETHYLENE	--	
01	12/1/1999	TRICHLOROETHYLENE	--	

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SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Volatile Organic Compounds			µg/L	µg/L
01	11/15/1990	TRICHLOROFLUOROMETHANE	--	
01	2/18/1991	TRICHLOROFLUOROMETHANE	--	
01	1/18/1995	TRICHLOROFLUOROMETHANE	--	
01	11/6/1996	TRICHLOROFLUOROMETHANE	--	
01	7/3/1997	TRICHLOROFLUOROMETHANE	--	
01	7/15/1998	TRICHLOROFLUOROMETHANE	--	
01	12/1/1999	TRICHLOROFLUOROMETHANE	--	
01	1/12/1990	VINYL CHLORIDE	--	
01	5/22/1990	VINYL CHLORIDE	--	
01	11/15/1990	VINYL CHLORIDE	--	
01	2/18/1991	VINYL CHLORIDE	--	
01	1/18/1995	VINYL CHLORIDE	--	
01	11/6/1996	VINYL CHLORIDE	--	
01	7/3/1997	VINYL CHLORIDE	--	
01	7/15/1998	VINYL CHLORIDE	--	
01	12/1/1999	VINYL CHLORIDE	--	
01	1/12/1990	XYLENES, TOTAL	--	
01	5/22/1990	XYLENES, TOTAL	--	
01	11/15/1990	XYLENES, TOTAL	--	
01	2/18/1991	XYLENES, TOTAL	--	
01	1/18/1995	XYLENES, TOTAL	--	
01	11/6/1996	XYLENES, TOTAL	--	
01	7/3/1997	XYLENES, TOTAL	--	
01	7/15/1998	XYLENES, TOTAL	--	
01	12/1/1999	XYLENES, TOTAL	--	
Synthetic Organic Compounds			µg/L	µg/L
01	11/15/1990	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	2/18/1991	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	1/18/1995	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	11/6/1996	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	11/6/1996	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	7/3/1997	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	7/15/1998	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	12/1/1999	1,2-DIBROMO-3-CHLOROPROPANE	--	
01	11/6/1996	2,4,5-T	--	
01	12/1/1999	2,4,5-T	--	
01	4/27/1994	2,4,5-TP (SILVEX)	--	
01	11/6/1996	2,4,5-TP (SILVEX)	--	
01	12/1/1999	2,4,5-TP (SILVEX)	--	
01	4/27/1994	2,4-D	--	
01	11/6/1996	2,4-D	--	
01	12/1/1999	2,4-D	--	
01	4/27/1994	3-HYDROXYCARBOFURAN	--	
01	12/1/1999	3-HYDROXYCARBOFURAN	--	
01	4/27/1994	ALACHLOR (LASSO)	--	
01	11/6/1996	ALACHLOR (LASSO)	--	
01	12/1/1999	ALACHLOR (LASSO)	--	

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SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Synthetic Organic Compounds			µg/L	µg/L
01	4/27/1994	ALDICARB	--	
01	12/1/1999	ALDICARB	--	
01	4/27/1994	ALDICARB SULFONE	--	
01	12/1/1999	ALDICARB SULFONE	--	
01	4/27/1994	ALDICARB SULFOXIDE	--	
01	12/1/1999	ALDICARB SULFOXIDE	--	
01	4/27/1994	ALDRIN	--	
01	11/6/1996	ALDRIN	--	
01	12/1/1999	ALDRIN	--	
01	4/27/1994	ATRAZINE	--	
01	11/6/1996	ATRAZINE	--	
01	12/1/1999	ATRAZINE	--	
01	4/27/1994	BENZO(a)PYRENE	--	
01	11/6/1996	BENZO(a)PYRENE	--	
01	12/1/1999	BENZO(a)PYRENE	--	
01	4/27/1994	BHC-GAMMA(LINDANE)	--	
01	11/6/1996	BHC-GAMMA(LINDANE)	--	
01	12/1/1999	BHC-GAMMA(LINDANE)	--	
01	4/27/1994	BUTACHLOR (MACHETE)	--	
01	11/6/1996	BUTACHLOR (MACHETE)	--	
01	12/1/1999	BUTACHLOR (MACHETE)	--	
01	4/27/1994	CARBARYL	--	
01	12/1/1999	CARBARYL	--	
01	4/27/1994	CARBOFURAN	--	
01	12/1/1999	CARBOFURAN	--	
01	4/27/1994	CHLORDANE	--	
01	11/6/1996	CHLORDANE	--	
01	12/1/1999	CHLORDANE	--	
01	4/27/1994	DALAPON	--	
01	11/6/1996	DALAPON	--	
01	12/1/1999	DALAPON	--	
01	4/27/1994	DECACHLOROBIPHENYL	--	
01	11/6/1996	DECACHLOROBIPHENYL	--	
01	4/27/1994	DI(2-ETHYLHEXYL) ADIPATE	--	
01	11/6/1996	DI(2-ETHYLHEXYL) ADIPATE	--	
01	12/1/1999	DI(2-ETHYLHEXYL) ADIPATE	--	
01	4/27/1994	DI(2-ETHYLHEXYL) PHTHALATE	--	
01	11/6/1996	DI(2-ETHYLHEXYL) PHTHALATE	--	
01	12/1/1999	DI(2-ETHYLHEXYL) PHTHALATE	--	
01	11/6/1996	DIAZINON (SPECTRACIDE)	--	
01	4/27/1994	DICAMBA	--	
01	11/6/1996	DICAMBA	--	
01	12/1/1999	DICAMBA	--	
01	4/27/1994	DIELDRIN	--	
01	11/6/1996	DIELDRIN	--	
01	12/1/1999	DIELDRIN	--	
01	4/27/1994	DINOSEB	--	

--=Not Detected
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SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Synthetic Organic Compounds			µg/L	µg/L
01	11/6/1996	DINOSEB	--	
01	12/1/1999	DINOSEB	--	
01	11/6/1996	DURSBAN	--	
01	4/27/1994	ENDRIN	--	
01	11/6/1996	ENDRIN	--	
01	12/1/1999	ENDRIN	--	
01	1/18/1995	ETHYLENE DIBROMIDE (EDB)	--	
01	11/6/1996	ETHYLENE DIBROMIDE (EDB)	--	
01	11/6/1996	ETHYLENE DIBROMIDE (EDB)	--	
01	7/3/1997	ETHYLENE DIBROMIDE (EDB)	--	
01	7/15/1998	ETHYLENE DIBROMIDE (EDB)	--	
01	12/1/1999	ETHYLENE DIBROMIDE (EDB)	--	
01	4/27/1994	HEPTACHLOR	--	
01	11/6/1996	HEPTACHLOR	--	
01	12/1/1999	HEPTACHLOR	--	
01	4/27/1994	HEPTACHLOR EPOXIDE	--	
01	11/6/1996	HEPTACHLOR EPOXIDE	--	
01	12/1/1999	HEPTACHLOR EPOXIDE	--	
01	4/27/1994	HEXACHLOROBENZENE (HCB)	--	
01	11/6/1996	HEXACHLOROBENZENE (HCB)	--	
01	12/1/1999	HEXACHLOROBENZENE (HCB)	--	
01	4/27/1994	HEXACHLOROCYCLOPENTADIENE	--	
01	11/6/1996	HEXACHLOROCYCLOPENTADIENE	--	
01	12/1/1999	HEXACHLOROCYCLOPENTADIENE	--	
01	4/27/1994	METHOMYL	--	
01	12/1/1999	METHOMYL	--	
01	4/27/1994	METHOXYCHLOR	--	
01	11/6/1996	METHOXYCHLOR	--	
01	12/1/1999	METHOXYCHLOR	--	
01	4/27/1994	METOLACHLOR	--	
01	11/6/1996	METOLACHLOR	--	
01	12/1/1999	METOLACHLOR	--	
01	4/27/1994	METRIBUZIN (SENCOR)	--	
01	11/6/1996	METRIBUZIN (SENCOR)	--	
01	12/1/1999	METRIBUZIN (SENCOR)	--	
01	4/27/1994	OXAMYL (VYDATE)	--	
01	12/1/1999	OXAMYL (VYDATE)	--	
01	4/27/1994	PENTACHLOROPHENOL	--	
01	11/6/1996	PENTACHLOROPHENOL	--	
01	12/1/1999	PENTACHLOROPHENOL	--	
01	4/27/1994	PICLORAM	--	
01	11/6/1996	PICLORAM	--	
01	12/1/1999	PICLORAM	--	
01	4/27/1994	PROPACHLOR (RAMROD)	--	
01	11/6/1996	PROPACHLOR (RAMROD)	--	
01	12/1/1999	PROPACHLOR (RAMROD)	--	
01	4/27/1994	SIMAZINE	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Synthetic Organic Compounds			**µg/L**	**µg/L**
01	11/6/1996	SIMAZINE	--	
01	12/1/1999	SIMAZINE	--	
01	4/27/1994	TOXAPHENE	--	
01	11/6/1996	TOXAPHENE	--	
Radionuclides			**pCi/L**	**pCi/L**
00	2/11/1992	GROSS ALPHA	2	15
00	9/1/1993	GROSS ALPHA	--	15
00	10/26/1995	GROSS ALPHA	1.3	15
01	12/1/1999	GROSS ALPHA	--	
01	12/1/1999	GROSS ALPHA (SHORT TERM)		
00	9/1/1993	GROSS BETA	2.2	50
00	10/26/1995	GROSS BETA	8.5	50
01	12/1/1999	GROSS BETA	1	50
01	12/1/1999	GROSS BETA (SHORT TERM)		
01	12/1/1999	RADON-222	870	300
Inorganic Compounds			**mg/L**	**mg/L**
01	4/27/1994	ANTIMONY	--	
01	11/6/1996	ANTIMONY	--	
01	12/1/1999	ANTIMONY	--	
01	12/8/1993	ARSENIC	--	
01	4/27/1994	ARSENIC	0.001	0.05
01	11/6/1996	ARSENIC	--	
01	12/1/1999	ARSENIC	--	
01	12/19/1995	ASBESTOS	--	
01	4/27/1994	BARIUM	--	
01	11/6/1996	BARIUM	--	
01	12/1/1999	BARIUM	--	
01	4/27/1994	BERYLLIUM	--	
01	11/6/1996	BERYLLIUM	--	
01	12/1/1999	BERYLLIUM	--	
01	4/27/1994	CADMIUM	0.00011	0.005
01	11/6/1996	CADMIUM	--	
01	12/1/1999	CADMIUM	--	
01	4/27/1994	CHROMIUM	0	0.1
01	11/6/1996	CHROMIUM	--	
01	12/1/1999	CHROMIUM	--	
01	4/27/1994	FLUORIDE	--	
01	11/6/1996	FLUORIDE	--	
01	12/1/1999	FLUORIDE	--	
01	10/25/2000	FLUORIDE	0.68	4
01	4/27/1994	MERCURY	--	
01	11/6/1996	MERCURY	--	
01	12/1/1999	MERCURY	--	
01	4/27/1994	NICKEL	0.001	0.7 ^
01	11/6/1996	NICKEL	--	
01	12/1/1999	NICKEL	--	
01	2/8/1993	NITRATE	--	

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MOUNTAIN LAKE PARK WATER SAMPLE ANALYSIS

Plant ID	Sample Date	Contaminant Name	Result	MCL
Inorganic Compounds			**mg/L**	**mg/L**
01	8/3/1993	NITRATE	--	
01	11/8/1995	NITRATE	0.31	10
01	4/24/1996	NITRATE	0.7	10
01	11/6/1996	NITRATE	0.4	10
01	11/19/1997	NITRATE	--	
01	3/3/1998	NITRATE	--	
01	10/27/1998	NITRATE	1.5	10
01	5/26/1999	NITRATE	--	
01	12/1/1999	NITRATE	0.5	10
01	1/18/2000	NITRATE	0.4	10
01	3/20/2001	NITRATE	1.1	10
01	1/8/2002	NITRATE	0.2	10
01	8/3/1993	NITRITE	--	
01	11/6/1996	NITRITE	0.002	1
01	3/3/1998	NITRITE	--	
01	4/27/1994	SELENIUM	--	
01	11/6/1996	SELENIUM	--	
01	12/1/1999	SELENIUM	--	
01	11/6/1996	SODIUM	1.4	60 +
01	12/1/1999	SODIUM	2.19	60 +
01	4/27/1994	SULFATE	6.1	250 *
01	11/6/1996	SULFATE	5.2	250 *
01	4/27/1994	THALLIUM	--	
01	11/6/1996	THALLIUM	--	
01	12/1/1999	THALLIUM	--	
General Water Quality Parameters				
01	11/6/1996	pH	6.7	6.5-8.5 *

--=Not Detected
*=Secondary Drinking Water Regulation
^=Drinking Water Equivalence Level
+=Drinking Water Advisory Level
#=Total Trihalomethane

SUMMARY OF MICROBIOLOGICAL CONTAMINANT ANALYSIS FOR MOUNTAIN LAKE PARK WATER SAMPLES

Sample Date	Samples Taken	Total Coliform	Total Fecal	Total Indeterminate	Sample Repeats	Repeat Coliforms	Repeat Fecal	Repeat Indeterminate
1/1/1997	2	0	0	0	--	--	--	--
2/1/1997	4	0	0	0	--	--	--	--
3/1/1997	4	0	0	0	--	--	--	--
4/1/1997	4	0	0	0	--	--	--	--
5/1/1997	4	0	0	0	--	--	--	--
6/1/1997	4	0	0	0	--	--	--	--
7/1/1997	4	0	0	0	--	--	--	--
8/1/1997	1	0	0	0	--	--	--	--
9/1/1997	1	0	0	0	--	--	--	--
10/1/1997	1	0	0	0	--	--	--	--
11/1/1997	1	0	0	0	--	--	--	--
12/1/1997	1	0	0	0	--	--	--	--
1/1/1998	1	0	0	0	--	--	--	--
2/1/1998	1	0	0	0	--	--	--	--
3/1/1998	1	0	0	0	--	--	--	--
4/1/1998	1	0	0	0	--	--	--	--
5/1/1998	2	0	0	0	--	--	--	--
6/1/1998	4	0	0	0	--	--	--	--
7/1/1998	4	0	0	0	--	--	--	--
8/1/1998	4	0	0	0	--	--	--	--
9/1/1998	4	0	0	0	--	--	--	--
10/1/1998	4	0	0	0	--	--	--	--
11/1/1998	4	0	0	0	--	--	--	--
12/1/1998	4	0	0	0	--	--	--	--
1/1/1999	4	0	0	0	--	--	--	--
2/1/1999	4	0	0	0	--	--	--	--
3/1/1999	4	0	0	0	--	--	--	--
4/1/1999	4	0	0	0	--	--	--	--
5/1/1999	4	0	0	0	--	--	--	--
6/1/1999	4	0	0	0	--	--	--	--
7/1/1999	4	0	0	0	--	--	--	--
8/1/1999	4	0	0	0	--	--	--	--
9/1/1999	4	0	0	0	--	--	--	--
10/1/1999	4	0	0	0	--	--	--	--
11/1/1999	4	0	0	0	--	--	--	--
12/1/1999	4	0	0	0	--	--	--	--

-- Not applicable
0 = Not detected

SUMMARY OF MICROBIOLOGICAL CONTAMINANT ANALYSIS FOR MOUNTAIN LAKE PARK WATER SAMPLES

Sample Date	Samples Taken	Total Coliform	Total Fecal	Total Indeterminate	Sample Repeats	Repeat Coliforms	Repeat Fecal	Repeat Indeterminate
1/1/2000	4	0	0	0	--	--	--	--
2/1/2000	14	1	0	0	10	0	0	0
3/1/2000	4	0	0	0	--	--	--	--
4/1/2000	4	0	0	0	--	--	--	--
5/1/2000	4	0	0	0	--	--	--	--
6/1/2000	4	0	0	0	--	--	--	--
7/1/2000	4	0	0	0	--	--	--	--
8/1/2000	4	0	0	0	--	--	--	--
9/1/2000	4	0	0	0	--	--	--	--
10/1/2000	4	0	0	0	--	--	--	--
11/1/2000	4	0	0	0	--	--	--	--
12/1/2000	4	0	0	0	--	--	--	--
1/1/2001	4	0	0	0	--	--	--	--
2/1/2001	4	0	0	0	--	--	--	--
3/1/2001	4	0	0	0	--	--	--	--
4/1/2001	4	0	0	0	--	--	--	--
5/1/2001	4	0	0	0	--	--	--	--
6/1/2001	4	0	0	0	--	--	--	--
7/1/2001	4	0	0	0	--	--	--	--
8/1/2001	4	0	0	0	--	--	--	--
9/1/2001	4	0	0	0	--	--	--	--
10/1/2001	4	0	0	0	--	--	--	--
11/1/2001	4	0	0	0	--	--	--	--
12/1/2001	4	0	0	0	--	--	--	--
1/1/2002	4	0	0	0	--	--	--	--
2/1/2002	4	0	0	0	--	--	--	--
3/1/2002	4	0	0	0	--	--	--	--
4/1/2002	4	0	0	0	--	--	--	--
5/1/2002	4	0	0	0	--	--	--	--
6/1/2002	4	0	0	0	--	--	--	--
7/1/2002	4	0	0	0	--	--	--	--

-- Not applicable
0 = Not detected

GROUND WATER UNDER DIRECT INFLUENCE (GWUDI)
OF SURFACE WATER FOR MOUNTAIN LAKE PARK

Plant ID	Source Name	Sample Date	Sample Group	Temp (C)	pH	Turbidity (NTU)	Total Coliform (org/100 mL)	Total Fecal (org/100 mL)
01	Springs 6 and 9	12/9/1998	Wet Set 1	--	7.57	0.37	200.1	4.2
01	Springs 6 and 9	12/10/1998	Wet Set 1	--	7.62	0.26	129.8	--
01	Springs 6 and 9	12/11/1998	Wet Set 1	--	7.28	0.26	69.7	--
01	Springs 6 and 9	12/12/1998	Wet Set 1	--	7.34	1.35	200.1	1
01	Springs 6 and 9	2/2/1999	Wet Set 2	6.7	6.84	0.21	200.5	1
01	Springs 6 and 9	2/3/1999	Wet Set 2	6	6.91	0.21	101.3	1
01	Springs 6 and 9	2/4/1999	Wet Set 2	7	6.9	0.24	94.5	3.1
01	Springs 6 and 9	2/5/1999	Wet Set 2	6.2	6.71	0.25	50.4	--
01	Springs 6 and 9	6/28/1999	Dry	12.5	6.69	1.74	200.5	22.2
01	Springs 6 and 9	12/6/1999	Dry	8.7	6.97	0.32	200.5	--
02	Other Springs	12/9/1998	Wet 1	--	7.11	0.18	69.7	1
02	Other Springs	12/10/1998	Wet 1	--	7.28	0.05	2	--
02	Other Springs	12/11/1998	Wet 1	--	7.29	0.05	2	--
02	Other Springs	12/12/1998	Wet 1	--	7.34	0.04	--	--
02	Other Springs	2/2/1999	Wet 2	8.3	6.67	0.23	144.5	2
02	Other Springs	2/3/1999	Wet 2	6.2	6.68	0.2	69.7	--
02	Other Springs	2/4/1999	Wet 2	7.9	6.63	0.22	94.5	1
02	Other Springs	2/5/1999	Wet 2	5.9	6.76	0.2	27.1	--
02	Other Springs	6/28/1999	Dry	11.8	5.71	0.13	200.5	2
02	Other Springs	12/6/1999	Dry	9.7	6.32	0.25	34.4	--
03	Well 1	12/9/1998	Wet 1	--	7.23	1.85	--	--
03	Well 1	12/10/1998	Wet 1	--	7.29	1.25	--	--
03	Well 1	12/11/1998	Wet 1	--	7.31	7.1	--	--
03	Well 1	12/12/1998	Wet 1	--	7.31	6.5	--	--
03	Well 1	2/2/1999	Wet 2	10.2	6.83	4.7	--	--
03	Well 1	2/3/1999	Wet 2	9.1	6.71	6.9	--	--
03	Well 1	2/4/1999	Wet 2	9	6.83	8.1	--	--
03	Well 1	2/5/1999	Wet 2	8.5	6.82	9.9	--	--
03	Well 1	6/28/1999	Dry	12	6.57	22	1	--
03	Well 1	12/6/1999	Dry	9.8	6.79	14.2	3.1	--
04	Well 2	12/9/1998	Wet	--	7.42	0.2	--	--
05	Well 3	12/9/1998	Wet	--	7.4	0.4	--	--

-- Non Detect

Appendix B

July 2003 Coliform Sample Analysis

July 8, 2003 - Tuesday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined	N/A	N/A	N/A
POE Riser Pipe	1.0	Presence	Presence
Abner Swarzendruber (1st POU)	N/A	N/A	N/A
Mountain Lake Park Tank	N/A	N/A	N/A
Loch Lynn Restaurant	N/A	N/A	N/A
Winners Circle	N/A	N/A	N/A
Mountain Lake Park Well 2	N/A	N/A	N/A
Soda Ash Tank	N/A	N/A	N/A

July 9, 2003 - Wednesday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined	0.0	*	*
POE Riser Pipe	1.0	Presence	Presence
Abner Swarzendruber (1st POU)	1.0	Absence	Absence
Mountain Lake Park Tank	1.0	Presence	Absence
Loch Lynn Restaurant	1.2	Absence	Absence
Winners Circle	1.0	Absence	Absence
Mountain Lake Park Well 2	N/A	N/A	N/A
Soda Ash Tank	N/A	N/A	N/A

* Analysis for raw water MPN was not performed correctly - no result.

July 10, 2003 - Thursday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined	0.0	920.0	47.9
POE Riser Pipe	1.6	Absence	Absence
Abner Swarzendruber (1st POU)	1.4	Absence	Absence
Mountain Lake Park Tank	0.8	Absence	Absence
Loch Lynn Restaurant	0.8	Absence	Absence
Winners Circle	0.6	Absence	Absence
Mountain Lake Park Well 2	N/A	N/A	N/A
Soda Ash Tank	N/A	N/A	N/A

July 11, 2003 - Friday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined	0.0	686.7	33.1
POE Riser Pipe	1.6	Absence	Absence
Abner Swarzendruber (1st POU)	1.4	Absence	Absence
Mountain Lake Park Tank	1.0	Absence	Absence
Loch Lynn Restaurant	1.2	Absence	Absence
Winners Circle	0.6	Absence	Absence
Mountain Lake Park Well 2	0.0	1.0	Absence
Soda Ash Tank	N/A	N/A	N/A

July 12, 2003 - Saturday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined	0.0	334.8	16.1
POE Riser Pipe	1.8	Absence	Absence
Abner Swarzendruber (1st POU)	1.6	Absence	Absence
Mountain Lake Park Tank	1.0	Absence	Absence
Loch Lynn Restaurant	1.4	Absence	Absence
Winners Circle	0.8	Absence	Absence
Mountain Lake Park Well 2	N/A	N/A	N/A
Soda Ash Tank	0.0	Presence	Absence

July 13, 2003 - Sunday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined*	0.4	Absence	Absence
POE Riser Pipe	1.8	Absence	Absence
Abner Swarzendruber (1st POU)	1.6	Absence	Absence
Mountain Lake Park Tank	1.0	Absence	Absence
Loch Lynn Restaurant	2.2	Absence	Absence
Winners Circle	1.2	Absence	Absence
Mountain Lake Park Well 2	N/A	N/A	N/A
Soda Ash Tank	N/A	N/A	N/A

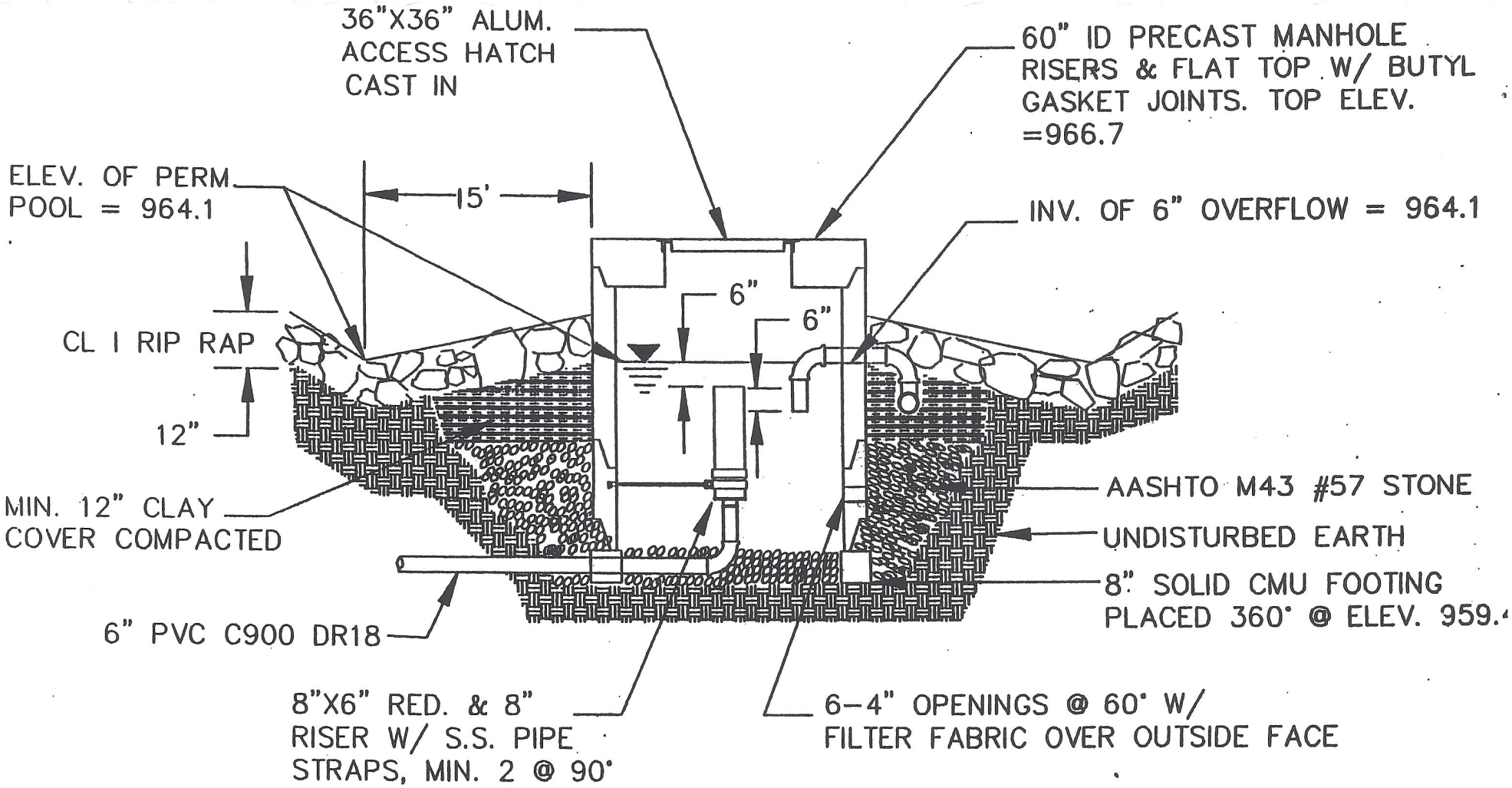
* Springs were disinfected on Saturday.

July 14, 2003 - Monday

LOCATION	Free Chlorine (mg/L)	Total Coliforms (+/- or MPN)	Fecal Coliforms (+/- or MPN)
Raw Water - Combined	0.0	1.0	Absence
POE Riser Pipe	1.6	Absence	Absence
Abner Swarzendruber (1st POU)	1.6	Absence	Absence
Mountain Lake Park Tank	1.4	Absence	Absence
Loch Lynn Restaurant	1.6	Absence	Absence
Winners Circle	1.4	Absence	Absence
Mountain Lake Park Well 2	N/A	N/A	N/A
Soda Ash Tank	N/A	N/A	N/A

Appendix C

Example Springhead Design Diagram



SECTION @ SPRING HEAD

NOT TO SCALE