

**YIELD AND QUALITY TESTING OF
PROPOSED BACK-UP PUBLIC SUPPLY WELL BEA-B-1**

**FAUQUIER COUNTY WATER AND SANITATION AUTHORITY
BEALETON SERVICE DISTRICT**



June 2008

Presented to:

**Mr. Barney Durrett, General Manager
Fauquier County Water
and Sanitation Authority**



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June 16, 2008

Mr. Barney Durrett, General Manager
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7172 Kennedy Road
Warrenton, VA 20187-3907

Re: Yield and Quality Testing of Proposed Back-Up Public Supply Well BEA-B-1

Dear Barney,

Emery & Garrett Groundwater, Inc. (EGGI) is pleased to present to you our hydrogeologic report regarding the yield and quality testing of proposed Back-Up Public Supply Well BEA-B-1 for the Fauquier County Water & Sanitation Authority's (FCWSA's) Bealeton Service Area.

Based upon the results of this yield and quality testing program, EGGI believes that proposed Back-Up Supply Well BEA-B-1 has met all the County and State regulations to serve as a public water supply well. Therefore, this well can be utilized as a back-up supply well in the event there is a mechanical failure or other problem with one of the Bealeton Service District's Production Wells.

I hope you find the information contained herein responsive to your needs. If you have any questions concerning this material, please do not hesitate to contact us.

Best regards,



Peter J. Foster
Hydrogeologist



Daniel J. Tinkham
Senior Hydrogeologist

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Fauquier County, Virginia
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**FAUQUIER COUNTY WATER AND SANITATION AUTHORITY
BEALETON SERVICE DISTRICT**

Fauquier County, Virginia

June 2008

I. INTRODUCTION AND BACKGROUND

Emery & Garrett Groundwater, Inc. (EGGI) has prepared the following hydrogeologic report regarding the yield and quality testing of proposed Back-Up Public Supply Well BEA-B-1 for the Fauquier County Water and Sanitation Authority's (FCWSA's) Bealeton Service District located in Bealeton, Virginia. This well site is located northwest of the intersection of Route 17 and Route 28 approximately 550 feet northwest of the FCWSA's existing BEA-B-3 (Mintbrook) Production Well (Figure 1).

In 1992 and 1994, EGGI conducted multi-phased investigations of the Bealeton Service District that resulted in the drilling of Wells BEA-B-3 (known as Mintbrook) and Well MS-5 (currently named Meadowbrooke No. 2). The FCWSA's Bealeton Service District water supply needs are currently fulfilled by pumping three bedrock Production Wells, which include Wells BEA-B-3, MS-5, and the Miller School Well (Figure 1).

As part of EGGI's 1994 investigation, Back-Up Supply Well BEA-B-1 was drilled and constructed as a permanent eight-inch-diameter Production Well. However, yield and quality testing was not conducted for Well BEA-B-1 during the 1994 investigation. The FCWSA has recently requested that EGGI evaluate the yield and quality of Well BEA-B-1 to serve as a "back-up" supply water source for the Bealeton Service District. The remainder of this document discusses the yield and quality testing of Well BEA-B-1.

Based upon this 2008 groundwater testing program, it has been determined that Well BEA-B-1 is capable of yielding 250 gallons per minute (gpm) (360,000 gallons per day [gpd]). Although this well is hydraulically interconnected with Production Well BEA-B-3 (as observed in both EGGI's 1994 and 2008 investigations), this well is available to serve as a redundant (back-up) source of water, should a pump or well failure occur at one of the Bealeton Service District's Wells. Well BEA-B-1 is intended to operate at the 250-gpm rate only when Well BEA-B-3 is not in operation. If Well MS-5 (Meadowbrooke No. 2) or the Miller School Well had an emergency failure, Well BEA-B-1 could be operated at a reduced pumping rate (up to 150 gpm) on a temporary basis to meet the Bealeton Service District's water needs while the out of service well/pump was restored/repared. This reduced pumping rate should minimize the

interference drawdown between these two wells and allow Well BEA-B-3 and BEA-B-1 to be pumped simultaneously on a short-term basis.

II. PUMPING TEST PROGRAM – BACKGROUND CONDITIONS AND DESIGN

A. Introduction

The specific objectives of the pumping test conducted on Well BEA-B-1 included the following:

- To determine the pumping capacity of Well BEA-B-1.
- To assess the availability and nature of recharge to the bedrock aquifer (by observing the rate of recovery of the groundwater levels in Well BEA-B-1 and surrounding monitoring wells).
- To assess the quality of groundwater produced under extended pumping conditions by Well BEA-B-1.
- To provide basic hydrologic data needed to utilize Well BEA-B-1 as a “back-up” supply well.
- To gain additional insight into the daily operation of the Bealeton Service District’s Production Wells through the groundwater monitoring program associated with this pumping test program.

B. Summary of the Construction of Well BEA-B-1

The test well drilling program, well permit, well log, and well construction information for Well BEA-B-1 is presented in EGGI’s 1994 report.¹ The Water Well Completion Report (GW-2 Form) is presented in Appendix A. Well BEA-B-1 was drilled on July 26-27, 1993, as a six-inch-diameter exploratory test well extending to 380 feet below ground surface. The test boring intercepted several water-bearing fractures at depths of 142, 185, 260, and 379 feet below ground surface. Test Well BEA-B-1 was subsequently converted to an 8-inch-diameter Production Well with 57 feet of 8-inch-diameter steel casing and reamed to 260 feet below ground. The final airlift² yield of Well BEA-B-1 was greater than 300 gpm.

C. Pumping Test Schedule and Temporary Shutdown of Existing Production Well BEA-B-3 (Mintbrook)

A temporary shutdown of Well BEA-B-3 (Mintbrook) was necessary to allow aquifer water levels to recover before the start of the pumping test. The daily water demand for the Bealeton Service District ranges from 350,000 to 450,000 gpd (Figure 2). To meet this daily

¹ Emery & Garrett Groundwater, Inc., 1994, Groundwater Resource Investigation, Bealeton Service District, Bealeton, Virginia. Results of Pumping Tests on Wells B-3, B-4, and MS-5.

² Airlift tests involve using the drill rig to remove water from a well using an air compressor in order that a preliminary measurement of the rate of water produced from a well can be made. An accurate determination of sustainable yield must be based upon long-term pumping tests.

demand, EGGI worked out a plan with the FCWSA to fill the 500,000-gallon storage tank in Bealeton to full capacity during the days preceding the pumping of Well BEA-B-1. Well BEA-B-3 was shutdown from 1:30 AM on March 4, 2008, until the pumping test started at noon that day. This allowed aquifer water levels to recover partially prior to the start of the pumping test on Well BEA-B-1.

FCWSA Production Wells MS-5 (Meadowbrooke No. 2) and the Miller School Well were pumped simultaneously throughout the testing period to meet the Bealeton Service District's water supply demand. Well MS-5 (Meadowbrooke No. 2) yields approximately 100,000 gpd (80 gpm) and the Miller School Well yields approximately 160,000 gpd (110 gpm). The combined yield of these two wells (260,000 gpd) plus approximately 140,000 gpd taken from storage in the Bealeton water tank was sufficient to meet the Bealeton Service District's water demand throughout a 48-hour testing period.

It was the preference of EGGI to conduct a 72-hour pumping test on Well BEA-B-1; however, it was not possible given the water demands of the Bealeton Service District. Although there would have been sufficient water in the storage tank to meet water supply needs during the 72-hour testing period (one day longer than the pumping test that was conducted), the water level in the tank would have been too low to meet any emergency supply demand (e.g., fire suppression). EGGI and the FCWSA agreed that a 48-hour test plan would put an adequate stress on the bedrock aquifer and would most closely mimic an emergency situation when a back-up supply well would actually be needed.

D. Pumping Test Set-up

Well BEA-B-1 was tested using a submersible pump powered by a portable diesel generator. The discharge rate was controlled using a gate valve on the discharge line (Figure 3). The discharge rate was monitored using an orifice weir and calibrated with volumetric measurements taken using a stopwatch and graduated container.

A spigot was provided on the discharge line to allow for the convenient collection of water samples and to minimize the risk of introducing contamination into the samples while they were being collected. Furthermore, a one-inch-diameter access tube was installed in the well for collecting water level measurements (Figure 3). Prior to the installation of the pumping equipment, chlorine was added to Well BEA-B-1 to disinfect it prior to the start of pumping test.

Water levels measured during the test were recorded to within 0.01 feet, using both manual and automated equipment (Plate 1). Discharge water was piped directly to a nearby flowing creek.

E. Climatic Data

There were three limited precipitation events reported at a local weather station³ approximately one week prior to the start of the pumping test (Figure 4). During the pumping test program, there was one significant precipitation event that occurred the first night of pumping (0.64 inches). Because this rainfall event occurred overnight, it is actually displayed as two separate precipitation periods on Figure 4. There were several precipitation events following the shutdown of Well BEA-B-1 recorded by the local weather station ranging from 0.01 to 0.53 inches (Figure 4). Water levels in all of the monitoring locations rose following this period of precipitation.

F. Selection of Monitoring Well Locations

In addition to Well BEA-B-1, five other wells were monitored to observe water level responses that occurred in the bedrock aquifer as a result of pumping Well BEA-B-1 (Figure 1, Tables I and III, and Plate 1). The plotted water level data, collected during the pumping test, are presented in Figures 5 through 11. Groundwater monitoring locations, and their associated descriptions, are as follows:

- Three FCWSA Production Wells. These are identified as Wells BEA-B-3 (Mintbrook), MS-5 (Meadowbrooke No. 2), and the Miller School Well.
- Two Exploratory Test Wells. These are identified as Well BEA-B-4 (an exploratory test well drilled and tested as part of EGGI's 1994 investigation), and Well MS-3 (an exploratory test well site).

Automated water level recorders were used to collect water level data at half-hour intervals in all of the wells. Water level data were collected for a minimum of 12 days before pumping began, during the pumping period, and a minimum of six days after pumping had ceased.

III. PUMPING TEST PERFORMED ON BACK-UP SUPPLY WELL BEA-B-1

A. Well BEA-B-1: Response to Pumping

1) 48-Hour Pumping Test on Well BEA-B-1

Well BEA-B-1 began pumping on March 4, 2008, and continued pumping without interruption for 48 hours (Figures 5 and 6, Table II, and Plate 1).

The water level response plots indicate that the cone of depression created by Pumping Well BEA-B-1 was expanding throughout the pumping interval (Figures 5 and 6). Both data plots show continued drawdown at a modest rate indicating that a source of recharge capable of

³ Precipitation data obtained from www.wunderground.com, Station KVABEAL1.

sustaining the pumping rate had not been intercepted during the pumping period. However, the very gradual rate of water table lowering and the high productivity of the pumping well are indicative of an extensive and transmissive bedrock aquifer with large volumes of groundwater in storage. The data collected suggest that the bedrock aquifer is capable of sustaining this pumping rate for extended periods of time.

Total drawdown in Back-Up Supply Well BEA-B-1 was only 33.95 feet, resulting in a specific capacity of 7.36 gallons per minute per foot of induced drawdown (gpm/ft) at the conclusion of the pumping test (Table II). The water-bearing zone producing the most water in Well BEA-B-1 was intercepted at 185 feet below ground. Therefore, at the conclusion of the 48-hour pumping test, only about 22% of the available drawdown in the Production Well had been utilized.

2) Recovery Test on Well BEA-B-1

In general, groundwater recharge to a bedrock aquifer is considered favorable when a well recovers fully during a post-pumping time interval equal to the length of the pumping period. A full assessment of the water level recovery rate in Well BEA-B-1 is not possible because the FCWSA needed to begin pumping Well BEA-B-3 five hours after the shutdown of Well BEA-B-1 to meet the water supply needs of the Bealeton Service District. Due to the hydraulic connection between Wells BEA-B-1 and BEA-B-3, the water level in Well BEA-B-1 began declining shortly after Well BEA-B-3 began pumping again.

Water levels in Well BEA-B-1 recovered 89% during the five hours of shutdown prior to Well BEA-B-3 initiating pumping. This is a *very* favorable rate of recovery.

Given the daily water level fluctuations in the Bealeton Region from the daily pumping of the three Production Wells, it is not possible to quantify the water level recovery deficit associated with this pumping test. EGGI has worked extensively in this area and it is our professional opinion that up to several feet of water level recovery deficit might occur in Well BEA-B-1 under a normal operating schedule. It is common in this extensive bedrock aquifer to have a portion of the water pumped removed from storage and then replenished during extended recharge events (precipitation).

B. Response of Monitoring Wells to the Pumping of Well BEA-B-1

Of the five well locations monitored during the pumping test, only one well responded to the pumping of Well BEA-B-1. The observed water level response in Well BEA-B-3 (Mintbrook) was 7.31 feet during the pumping test (Figure 7). There was no distinguishable water level responses documented in Wells BEA-B-4, MS-3, and MS-5, and the Miller School Well during this investigation (Figures 8-11).

IV. WATER QUALITY MONITORING PROGRAM

Water quality samples were collected from Well BEA-B-1 shortly before the termination of the pumping test. The samples were submitted to the Virginia State Laboratory (Division of Consolidated Laboratory Services), National Testing Laboratories of Ypsilanti, Michigan, and AccuStar Labs of Medway, Massachusetts (Table IV and Appendix B). Twenty samples were collected from Well BEA-B-1 (taken at a minimum of one-hour intervals starting 24 hours after the start of the pumping test) were submitted to Joiner Micro Laboratories, Inc. of Warrenton, Virginia, for bacteriological analyses.

The water quality analyses show that the quality of water produced by Well BEA-B-1 is generally very good. However, arsenic was detected above the Primary Drinking Water Standard. The arsenic level in Well BEA-B-1 was 0.011 mg/l (as measured by the Virginia State Laboratory) and 0.014 (as reported by National Testing Laboratories), which is just slightly above the drinking water limit of 0.01 mg/l. It is possible, with extended pumping, that the arsenic level could fall below the MCL. No Secondary Drinking Water Standards were exceeded.

The bacteriological samples collected from Well BEA-B-1 showed the presence of total coliform bacteria in all 20 samples, with a geometric mean of 19.9 colonies per 100 milliliters. There were no fecal coliform detected in any of the 20 samples collected (Table IV, Appendix B). When Well BEA-B-1 is utilized as a back-up supply well, chlorination may be necessary to adequately disinfect the water withdrawn.

Temperature, pH, oxidation/reduction potential, specific conductance, sulfate, and dissolved oxygen were measured in the field throughout the pumping test (Table V). The analyses of these water quality parameters show that the water produced from Well BEA-B-1 is generally of consistent quality.

A water quality treatment specialist should review all of the water quality data collected from this well to determine if treatment will be necessary for either the arsenic or coliform bacteria levels. It is likely that the slightly elevated arsenic level will be diluted in the distribution system and storage tank to within acceptable limits. However, FCWSA should consider some point-of-use sampling for arsenic if Well BEA-B-1 is used for extended periods. Because of the direct hydraulic connection between Wells BEA-B-1 and BEA-B-3, raw water sampling for arsenic from Production Well BEA-B-3 is also recommended.

V. DISCUSSION OF FCWSA BEALETON SERVICE DISTRICT'S CURRENT AND FUTURE WATER SUPPLY MANAGEMENT

A. Current Water Use in the Bealeton Service District

Currently, the FCWSA Bealeton Service District's water supply demand is met with three Production Wells known as Well BEA-B-3 (Mintbrook), Well MS-5 (Meadowbrooke No. 2), and the Miller School Well. Average withdrawal rates from these wells are 245 gpm, 80

gpm, and 110 gpm, respectively (Table I). Combined, these wells *yield* approximately 500,000 gpd (435 gpm) (Table I). EGGI has reviewed the pumping records from these wells provided by the FCWSA for the period of January 2007 through March 2008. During that time, the daily water *demand* in the Bealeton Service District ranged from 350,000 to 450,000 gpd (Figure 2).

1. Current use of Well BEA-B-3 Compared to Original Pumping Test Conducted by EGGI in 1994

The original pumping test of Well BEA-B-3 was performed in 1994 by EGGI. The well was pumped at a withdrawal rate of 320 gpm and had a maximum observed water level drawdown of 97.95 feet (107.10 feet below top of casing [TOC]).⁴ During this investigation (2008), the lowest water level observed in Well BEA-B-3 was approximately 95 feet below TOC. The pumping water level data observed during this investigation, as compared to the 1994 investigation, is very favorable and indicates that Well BEA-B-3 has performed as intended and does not appear to have caused any mining (dewatering) of groundwater.

2. Current Use of Well MS-5 (Meadowbrooke No. 2) Compared to the Original Pumping Test Conducted by EGGI in 1994

Well MS-5 (Meadowbrooke No. 2) was pumped for 72 continuous hours as part of EGGI's 1994 investigation at a withdrawal rate of 135 gpm. The maximum water level drawdown observed in Well MS-5 was 180.75 feet (214.60 feet below TOC) (EGGI, 1994). Currently the FCWSA pumps Well MS-5 at an average pumping rate of 80 gpm. During this investigation, the water level drawdown in Well MS-5 was observed between 230 to 250 feet below TOC. The FCWSA has reported to EGGI that they have observed sand/grit in the water produced by Well MS-5. Occasional build-up of this grit has led to the gate valve at the Production Well to become partially clogged thereby reducing the overall available flow rate from Well MS-5 to approximately 50 gpm. FCWSA staff has reported that they open the gate valve slightly to allow the material clogging the valve to pass through. EGGI believes that this occurred during the pumping test (Figure 8). There was a significant lessening in the daily water level drawdown observed in Well MS-5 on day 7.2 (Figure 8).

There appears to have been a change in Well MS-5 (e.g. possibly a sediment build-up in the local fracture system) since the initial development of this Well in 1994.⁵ Currently, the FCWSA is pumping this Well at 60% of its original pumping capacity with up to 15% more drawdown than observed in 1994. *EGGI recommends that a rehabilitation program be considered for Well MS-5 to determine if the source for sand and grit can be eliminated.* There are several rehabilitation processes available that EGGI believes are worth pursuing. These would include physical swabbing of the well, the use of liquid CO₂ (Aqua Freed) to open the well up and remove loose debris, and/or the use of a combination jetting tool and air compressor

⁴ Emery & Garrett Groundwater, Inc., 1994, Groundwater Resource Investigation, Bealeton Service District, Bealeton, Virginia. Results of Pumping Tests on Wells B-3, B-4, and MS-5.

⁵ EGGI did not document any sediment/grit concerns during the original drilling of Well MS-5 during the 1994 investigation.

to remove loose silt and sand from the fracture system. It has been EGGI's experience that redevelopment procedures such as these have been very effective in rehabilitating a well.

3. Current Use of the Miller School Well

The Miller School Well is currently pumped at 110 gpm and the pump is set at 275 feet below ground surface. Based upon the water level data collected during this investigation, the Miller School Well appears to be relatively high yielding and in good working order (Figure 9). During the extended pumping of the Miller School Well (while Well BEA-B-3 was shutdown), the maximum water level drawdown was 140 feet below TOC. It may be possible to increase the pumping capacity of this well; however, a full review of the well construction details (including depth of water-bearing fractures) would be necessary. This work would also require approval from the Virginia Department of Health and Fauquier County.

B. Emergency Back-Up Supply Well BEA-B-1 Should Be Put On-Line As Soon As Possible

According to the monthly water usage reports provided to EGGI by the FCWSA, the average daily water usage in the Bealeton Service District for the period of January 2007 to March 2008 was between 350,000 to 450,000 gpd (Figure 2). At this time the water supply needs in the Bealeton Service District are fully met by pumping the three FCWSA Production Wells. Well BEA-B-3 is the largest producing well in this Service District, pumping 245 gpm. If there were to be a mechanical failure at this well (or a significant reduction in flow rate) it would not be possible for Wells MS-5 (Meadowbrooke No. 2) and the Miller School Well to sustain the water supply needs of the Bealeton Service District for more than 48 hours.

This scenario was demonstrated during this testing period when Well BEA-B-3 was shutdown and Well BEA-B-1 was pumping to waste. As planned in advance of this pumping test program, the 500,000 gallon Bealeton storage tank was filled to full capacity and was used to supplement the water produced from Wells MS-5 (Meadowbrooke No. 2) and Miller School during this 48 hour pumping test period. It is unlikely that the Bealeton Service District could function much longer than 48 hours without Well BEA-B-3 being online. In a true emergency situation, it is likely that the Bealeton storage tank would be at some level below 500,000 gallons, therefore decreasing the amount of time available before the Bealeton area might be in a water supply emergency. Therefore, it is very important that Well BEA-B-1 be fitted with a pump and plumbed into the Bealeton Water Supply System to function as a back-up supply well as soon as possible.

C. Water Quality Comparisons

In an effort to determine if the water quality from Well BEA-B-1 is similar to the existing Bealeton Production Wells, EGGI reviewed water quality results from 2006 and 2007 that were obtained from the Bealeton Service District (provided by Mr. Moses Pelham [FCWSA staff]). With the exception of one sample collected annually from each Well for bacteriological analysis, all of the water samples were collected after chlorination. Routine water samples collected from

Wells BEA-B-3 (Mintbrook) and MS-5 (Meadowbrooke No. 2) were actually composite samples from the water tank (personal communication with Mr. Moses Pelham [FCWSA staff]).

The water quality results from all three existing Production Wells suggest that the water is similar to the groundwater produced by Well BEA-B-1. A key few parameters are discussed below:

- The composite nitrate level detected from Wells BEA-B-3 (Mintbrook) and MS-5 (Meadowbrooke No. 2) was 1.38 mg/l (January 2007) and the Miller School Well nitrate level was 0.22 mg/l (January 2007). In comparison, the nitrate level in Well BEA-B-1 was 1.45 mg/l.
- Sulfate is a common nuisance mineral in bedrock wells located in the Culpeper Basin; fortunately, the levels detected in the Bealeton Service District Wells are below the EPA Secondary Drinking Water Standard of 250 mg/l. The composite sulfate level reported for Wells BEA-B-3 (Mintbrook) and MS-5 (Meadowbrooke No. 2) was 172 mg/l (March 2006). In comparison, the sulfate level detected in Well BEA-B-1 ranged from 113 to 130 mg/l. The sulfate level for the Miller School Well was not reported to EGGI.
- Volatile organic compounds (VOC's) were detected at very low levels in the composite samples collected from Wells BEA-B-3 (Mintbrook) and MS-5 (Meadowbrooke No. 2) in March 2006. These compounds included Chloroform, Bromodichloromethane, Dibromochloromethane, and Bromoform; the presence of these compounds is likely a by-product of the chlorination process. There were no VOC's reported in the Miller School Well samples. In addition, no VOC's were detected in the samples collected and analyzed from Well BEA-B-1.
- The arsenic levels reported from the three Production Wells ranged between 0.004 and 0.005 mg/l (March 2006), which are below the MCL of 0.01 mg/l. Mr. Pelham reported to EGGI that the FCWSA's Meadowbooke No. 1 well was taken off line due to elevated arsenic levels. The arsenic level in Well BEA-B-1 was measured at 0.011 mg/l by the Virginia State Laboratory and 0.014 mg/l by National Testing Laboratories.
- Raw water samples collected in 2007 from Bealeton's three existing Production Wells were absent for both total and fecal coliform. One sample collected in 2006 from Well BEA-B-3 (Mintbrook) was absent for fecal coliform but had total coliform reported at 4.1 colonies per 100 ml. Samples collected in 2006 from the Miller School Well and Well MS-5 (Meadowbrooke No. 2) were absent for both total and fecal coliform. Twenty bacteriological samples collected from Well BEA-B-1 were absent for fecal

coliform bacteria. However, all 20 samples were positive for total coliform bacteria, ranging from 16.1 to >23 colonies per 100 ml.

D. Potential Additional Water Supply Capacity in the FCWSA Bealeton Service District

There are three potential sources where additional water supply capacity in the Bealeton Service District could be gained. These would include the following:

1. Well MS-5 (Meadowbrooke No. 2) could be re-evaluated to determine if the original yield of this well can be restored.
2. Well BEA-B-4 could supply up to 180 gpm (259,200 gpd) to the Service District, as described in EGGI's 1994 Report (EGGI, 1994). Well BEA-B-4 could operate simultaneously while pumping Well BEA-B-3. Although it may void the use of Well MS-5 (Meadowbrooke No. 2) because of the interference between the two wells, it still would result in a net gain in sustainable capacity for the District.
3. EGGI noted in its 1994 report that there are several well sites in Groundwater Supply Development Zones A, C, and D that yield substantial volumes of water and are available for future needs. However, these locations would need to be evaluated to determine if the groundwater in these locations meets current EPA Drinking Water Standards.

VI. CONCLUSIONS/RECOMMENDATIONS FOR THE LONG-TERM MANAGEMENT OF BACK-UP SUPPLY WELL BEA-B-1 and the BEALETON SERVICE DISTRICT

A. Summary

The performance and analysis of the pumping test on Well BEA-B-1 has served to document the following:

- Well BEA-B-1 was pumped for a period of 48 hours at 250 gpm. The total volume of groundwater withdrawn from the underlying bedrock aquifer during this groundwater testing program was 720,000 gallons.
- Water levels were monitored throughout the pumping test program at five locations. These included three FCWSA Productions Wells (Well BEA-B-3, Well MS-5, and the High School Well) and two exploratory test well sites (Well BEA-B-4 and Well MS-3). Water level monitoring data collected and evaluated are presented on Plate 1. Only the water level in Well BEA-B-3 responded to the continuous pumping of Well BEA-B-1.

- The water produced from Well BEA-B-1 is of good quality, but the arsenic concentration slightly exceeds the current EPA standard for drinking water at 0.011 mg/l. All 20 bacteriological samples were positive for total coliform, but absent for fecal coliform. Well BEA-B-1 may require chlorination treatment. A water treatment specialist should review these water quality results to determine the appropriate treatment necessary for the water produced from these wells.
- The original pumping test of Well BEA-B-3 was performed in 1994 by EGGI. The well was pumped at a withdrawal rate of 320 gpm and had a maximum observed water level drawdown of 97.95 feet (107.10 feet below top of casing [TOC]).⁶ During this investigation (2008), the lowest water level observed in Well BEA-B-3 was approximately 95 feet below TOC. The pumping water level data observed during this investigation, as compared to the 1994 investigation, is very favorable and indicates that Well BEA-B-3 has performed in the manner it was intended and does not appear to have caused any mining (dewatering) of groundwater.

B. Recommendations -- Proposed Groundwater Operation Plan

Based upon the results of this yield and quality testing program, EGGI believes that proposed Back-Up Supply Well BEA-B-1 has met all the County and State regulations to serve as a public water supply well. Therefore, this well should be utilized as a “Back-Up” supply well in the event there is a mechanical failure or other problem at one of the Bealeton Service District’s Production Wells. The following table provides EGGI’s recommendations for pump setting and pumping rate.

Back-Up Supply Well Identification	Major Water-Bearing Zone(s) (feet)	Recommended Pump Setting (feet)	Maximum Pumping Rate (gpm)
BEA-B-1	145, 185, 260, 379	180	250

EGGI also offers the following recommendations:

- If Well BEA-B-3 cannot be used and is out of service, Well BEA-B-1 can be pumped at a rate of 250 gpm or 360,000 gpd to meet emergency water supply needs.
- If another well in the Bealeton system fails and Well BEA-B-3 and Well BEA-B-1 must operate simultaneously, then the rate of pumping Well BEA-B-1 should be limited to 150 gpm. Well BEA-B-1 could be simultaneously pumped with Well BEA-B-3 (at the reduced rate of 150 gpm) for 72

⁶ Emery & Garrett Groundwater, Inc., 1994, Groundwater Resource Investigation, Bealeton Service District, Bealeton, Virginia. Results of Pumping Tests on Wells B-3, B-4, and MS-5.

- consecutive hours to meet emergency water supply needs. Following 72 hours of continuous operation, the pumping schedule should be limited to 12 hours of pumping followed by 12 hours of recovery to allow the water levels in Well BEA-B-1 time to replenish.
- The water levels in Well BEA-B-1 should be maintained above the primary water-bearing zone (i.e., above 185 feet). The recommended pump setting of 180 feet will ensure that water level is maintained above 185 feet. This will limit the degree of cascading water entering the borehole. Minimizing such cascading is critical for the long-term maintenance of the pumping well because it prevents the introduction of oxygen into the groundwater, which can lead to problems associated with iron bacteria growth and oxidation of minerals.
 - Automated water level recording devices should be installed in all of the FCWSA Production Wells in the Bealeton Service District. Collection of such long-term monitoring data is the best means to establish an effective Groundwater Use Management/Operation Plan.
 - The final wellhead and well lot for Well BEA-B-1 will need to be maintained in accordance with Virginia Office of Drinking Water well permits and the Commonwealth of Virginia Waterworks Regulations, 12 VAC 5-590-280 and 12 VAC 5-590-840. An all weather access road to the well must also be provided. In addition, it is EGGI's recommendation that Well BEA-B-1 remains outside any designed pump house. In this way, a drill rig may access the well for the purpose of redevelopment, if needed, without the interference associated with accessing a well through a pump house.
 - It appears that there has been a change (e.g. possibly a sediment build-up in the local fracture system) in Well MS-5 since the initial development of this well in 1994.⁷ Currently, the FCWSA is pumping this well at 60% of its original pumping capacity. *EGGI recommends that a rehabilitation program be considered for Well MS-5 to determine if the source for sand and grit can be eliminated.* There are several rehabilitation processes available that EGGI believes are worth pursuing. These would include physical swabbing of the well, the use of liquid CO₂ (Aqua Freed) to open the well up and remove loose debris, and/or the use of a combination jetting tool and air compressor to remove loose silt and sand from the fracture system. It has been EGGI's experience that redevelopment procedures such as these have been very effective in rehabilitating a well.

⁷ EGGI did not document any sediment/grit concerns during the original drilling of Well MS-5 during the 1994 investigation.

- EGGI recommends that Monitoring Well MS-3 be secured with a locking cap if it is to be retained for possible use in the future. Presently, it is fitted within a friction fit cap that can be easily removed, allowing access to the well. If there are no plans to develop this well into a Production Well, and it is not needed as a monitoring well, EGGI recommends abandoning it in accordance with Virginia Water Works regulations.

VI. LIMITATIONS

EGGI has collected the technical data in accordance with the Virginia Department of Health requirements. It should be recognized that the groundwater testing program was limited to that which is presented in this report, and that the program was carried out during a period that may not be representative of the full range of conditions that could be encountered at this site. The recommendations provided herein regarding the long-term yield and quality of this well represent EGGI's professional opinion and do not constitute a warranty written or implied.

VII. REFERENCES

Emery & Garrett Groundwater, Inc., 1994, Groundwater Resource Investigation, Bealeton Service District, Bealeton, Virginia. Results of Pumping Tests on Wells B-3, B-4, and MS-5.

Emery & Garrett Groundwater, Inc., 1992, Groundwater Resource Investigation, Bealeton Service District, Bealeton, Virginia.

FIGURES

FIGURE 1

Location of Back-Up Supply Well
BEA-B-1 and Wells Monitored During
the 48-Hour Pumping Test

Bealeton Service District,
Fauquier County, Virginia

Well Legend

- Existing FCWSA Production Well
- Proposed Back-Up
Supply Well BEA-B-1
- Drilled Exploration Well



1 inch equals 600 feet



FIGURE 1

Emery & Garrett Groundwater, Inc.

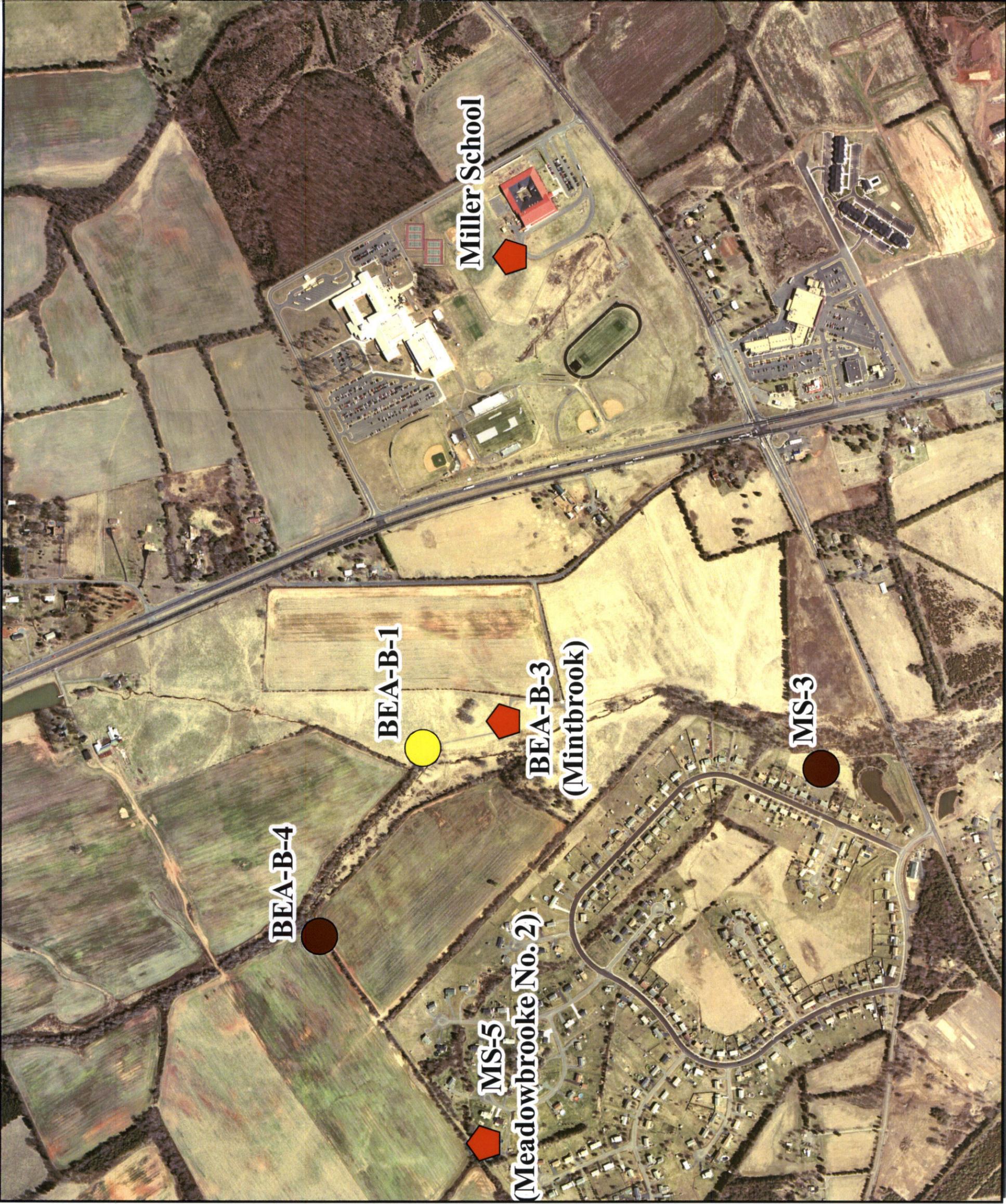
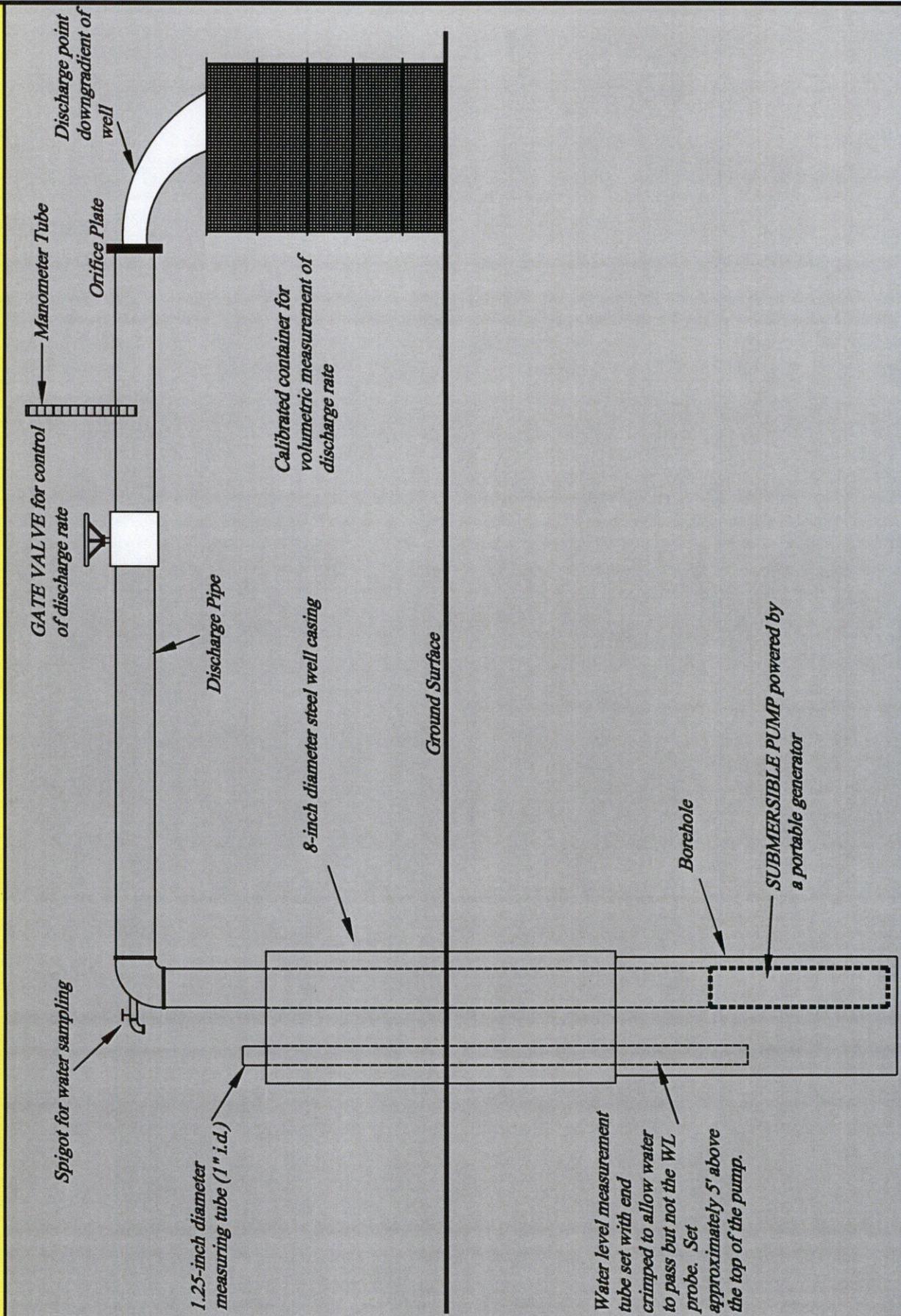


Figure 2 -- Average Daily Water Usage in the FCWSA Bealeton Service District



Figure 3 -- Schematic of the Wellhead Design for Bealeton BEA-B-1 Pumping Test



Rainfall as Reported in Bealeton, Virginia

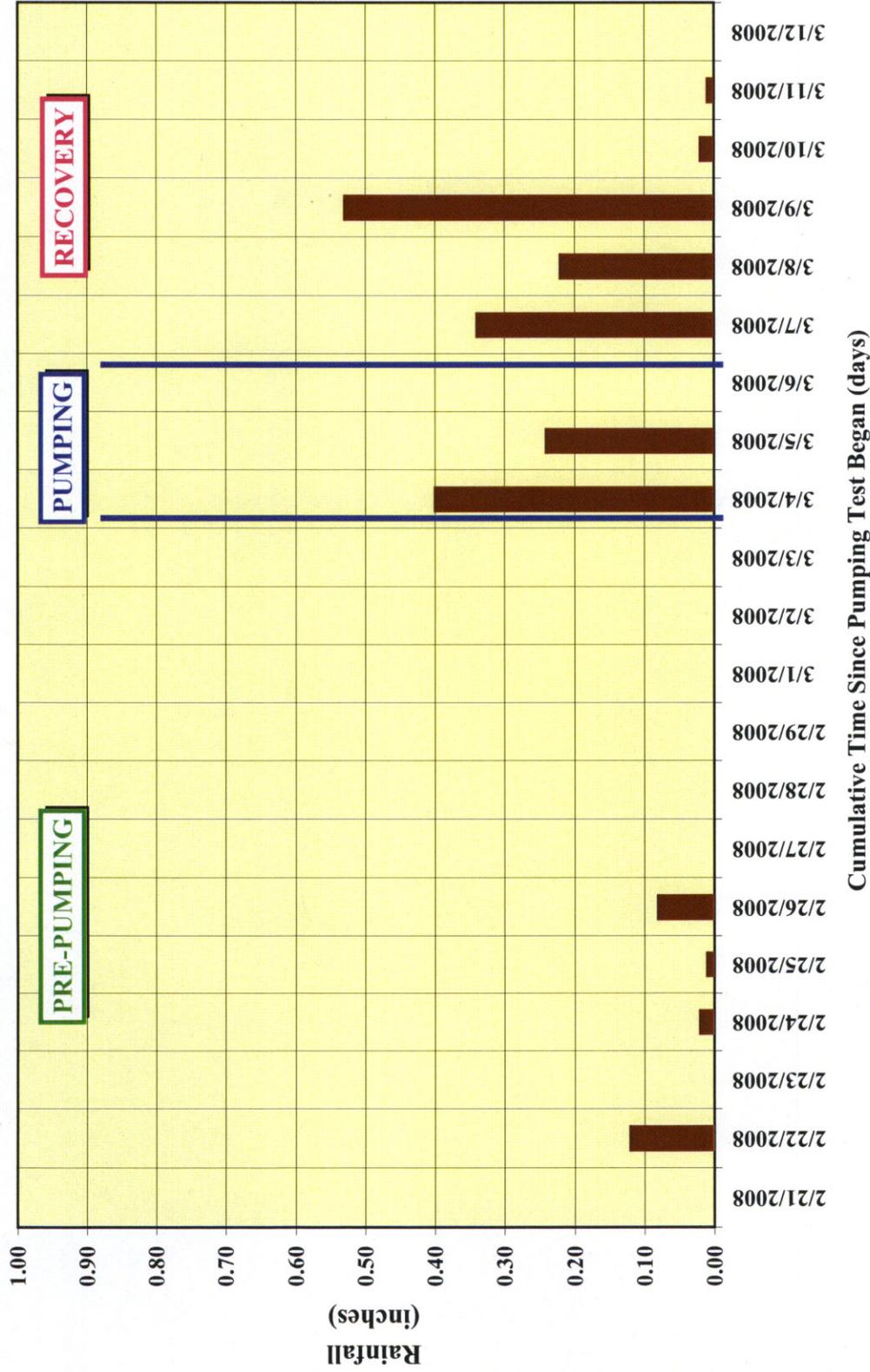


Figure 4 -- Plot of Rainfall versus Time for February 21 to March 12, 2008

FCWSA - Bealeton
 Fauquier County, Virginia

Data obtained from
www.weatherunderground.com
 Station Number KVABEAL01

Proposed Back-Up Production Well BEA-B-1

Maximum Drawdown Observed During Pumping Test = 33.95 feet

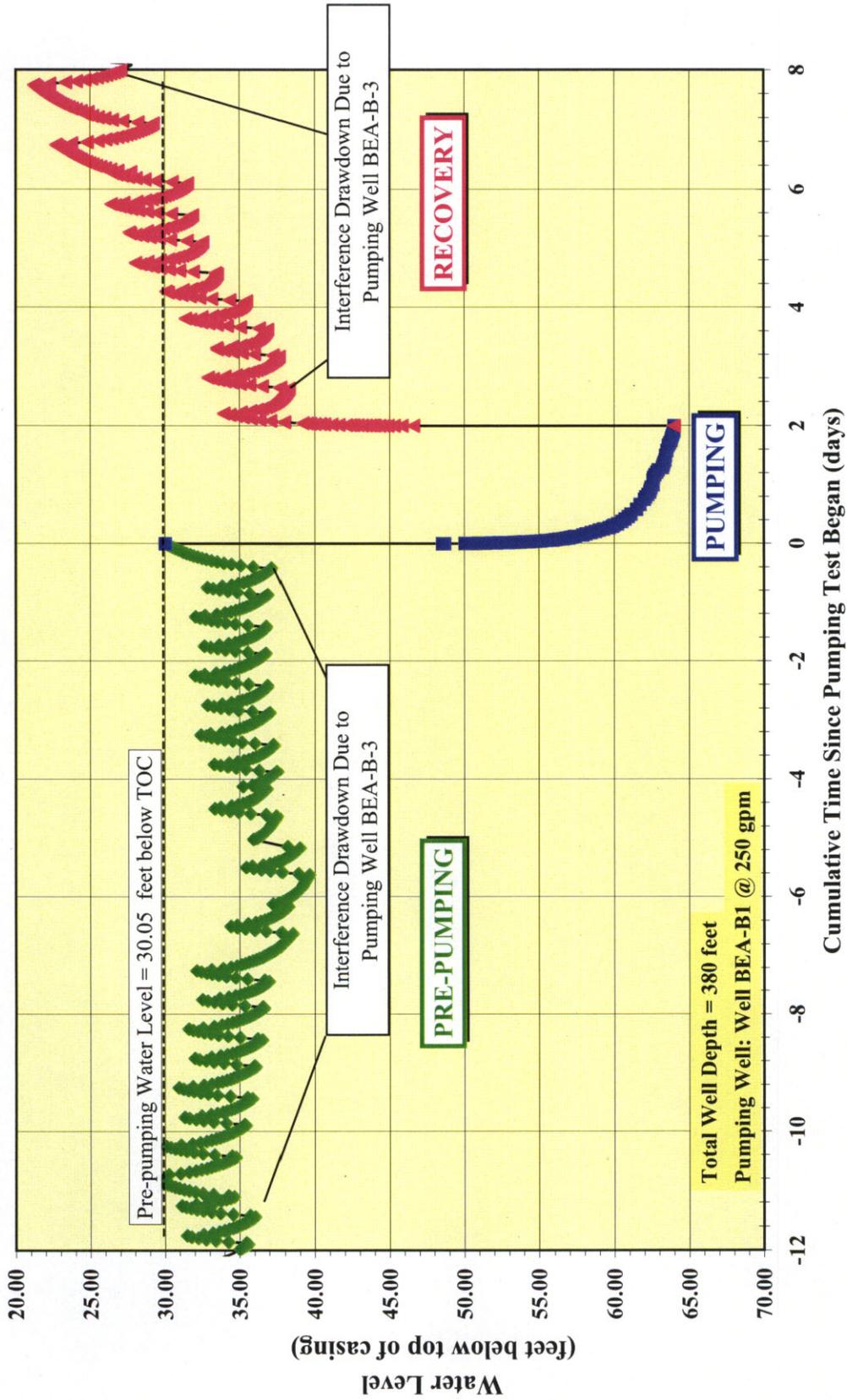


Figure 5 -- Plot of Water Level versus Time for February 21 to March 12, 2008

FCWSA - Bealeton Service District
Fauquier County, Virginia

Proposed Back-Up Production Well BEA-B-1

Maximum Drawdown Observed During Pumping Test = 33.95 feet

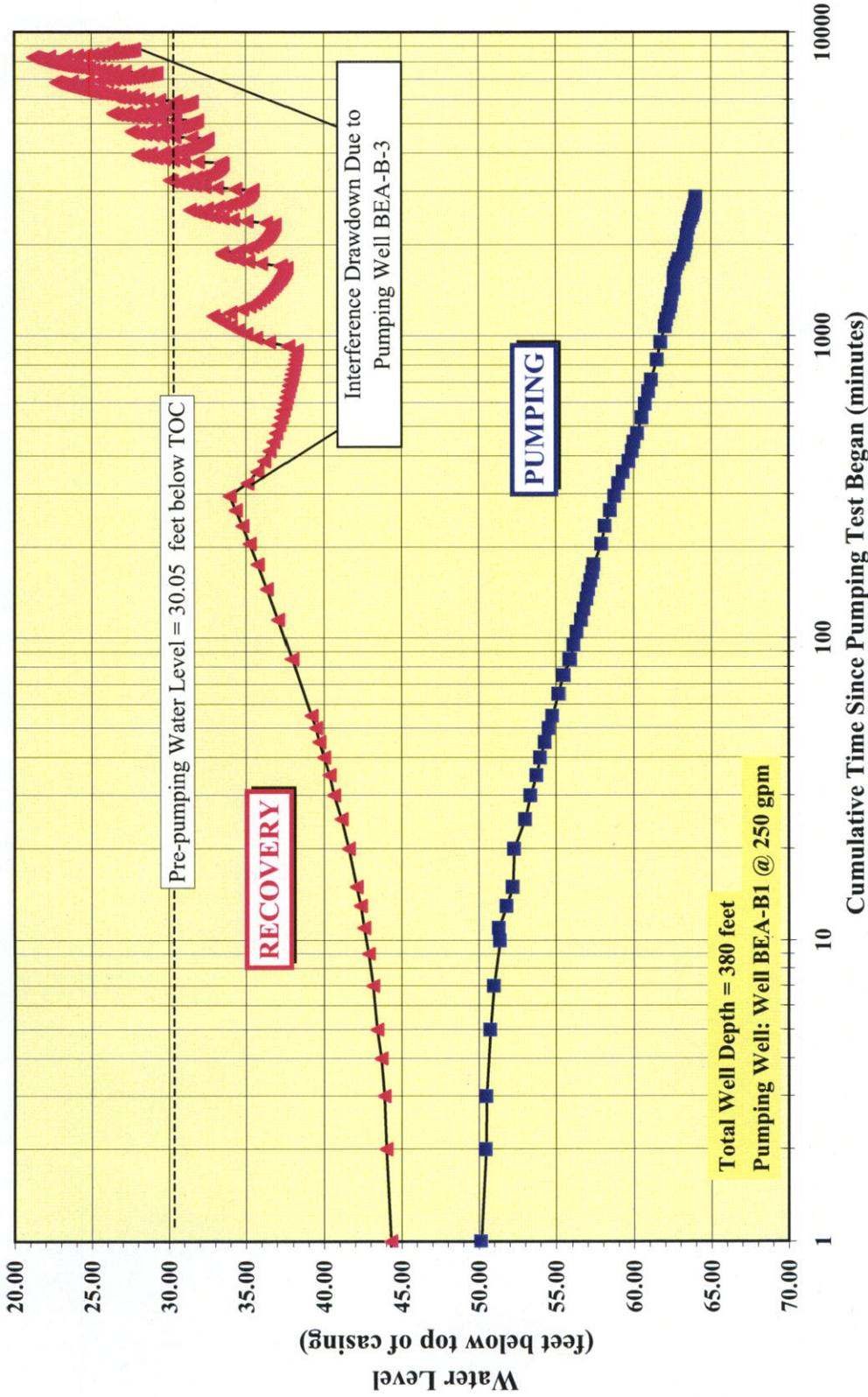


Figure 6 -- Plot of Water Level versus Logarithmic Time for Pumping and Recovery

FCWSA - Bealeton Service District

Fauquier County, Virginia

Production Well BEA-B-3 (Mintbrook)

Maximum Drawdown Observed During Pumping Test = 7.31 feet

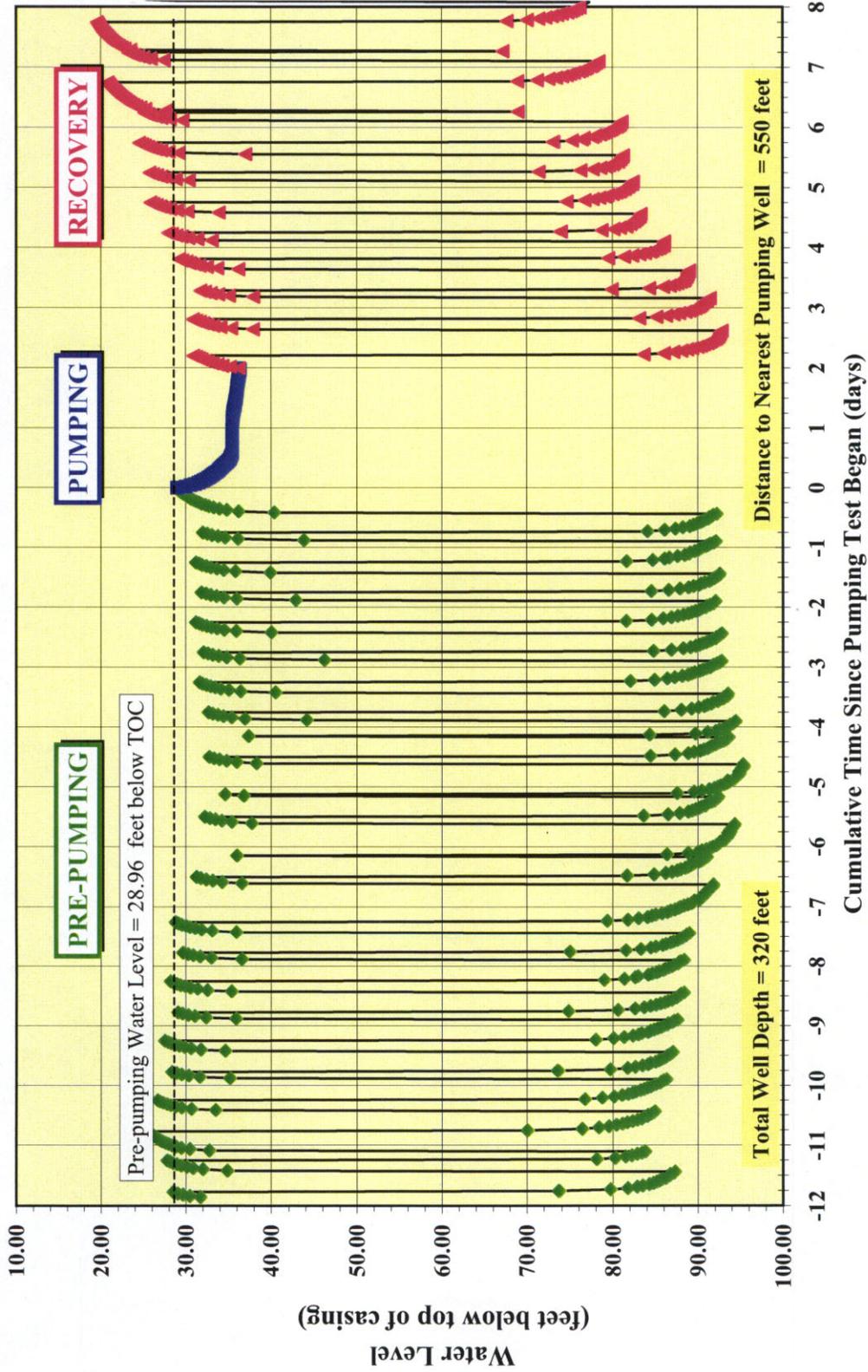


Figure 7 -- Plot of Water Level versus Time for February 21 to March 12, 2008

FCWSA - Bealeton Service District
Fauquier County, Virginia

Production Well MS-5 (Meadowbrooke 2)

Maximum Drawdown Observed During Pumping Test = not impacted

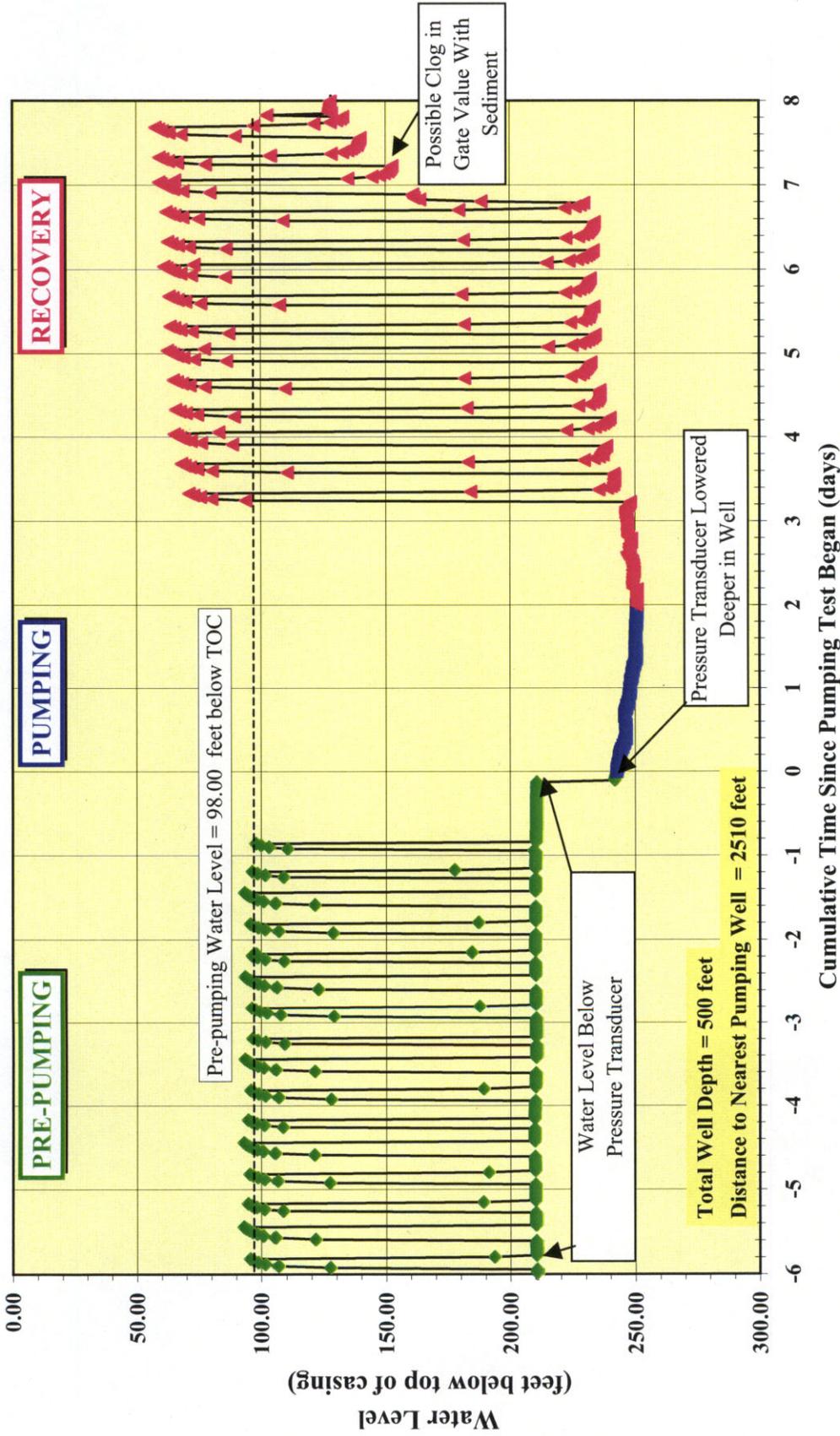


Figure 8 -- Plot of Water Level versus Time for February 21 to March 12, 2008

FCWSA - Bealeton Service District

Fauquier County, Virginia

Miller School Production Well

Maximum Drawdown Observed During Pumping Test = not impacted

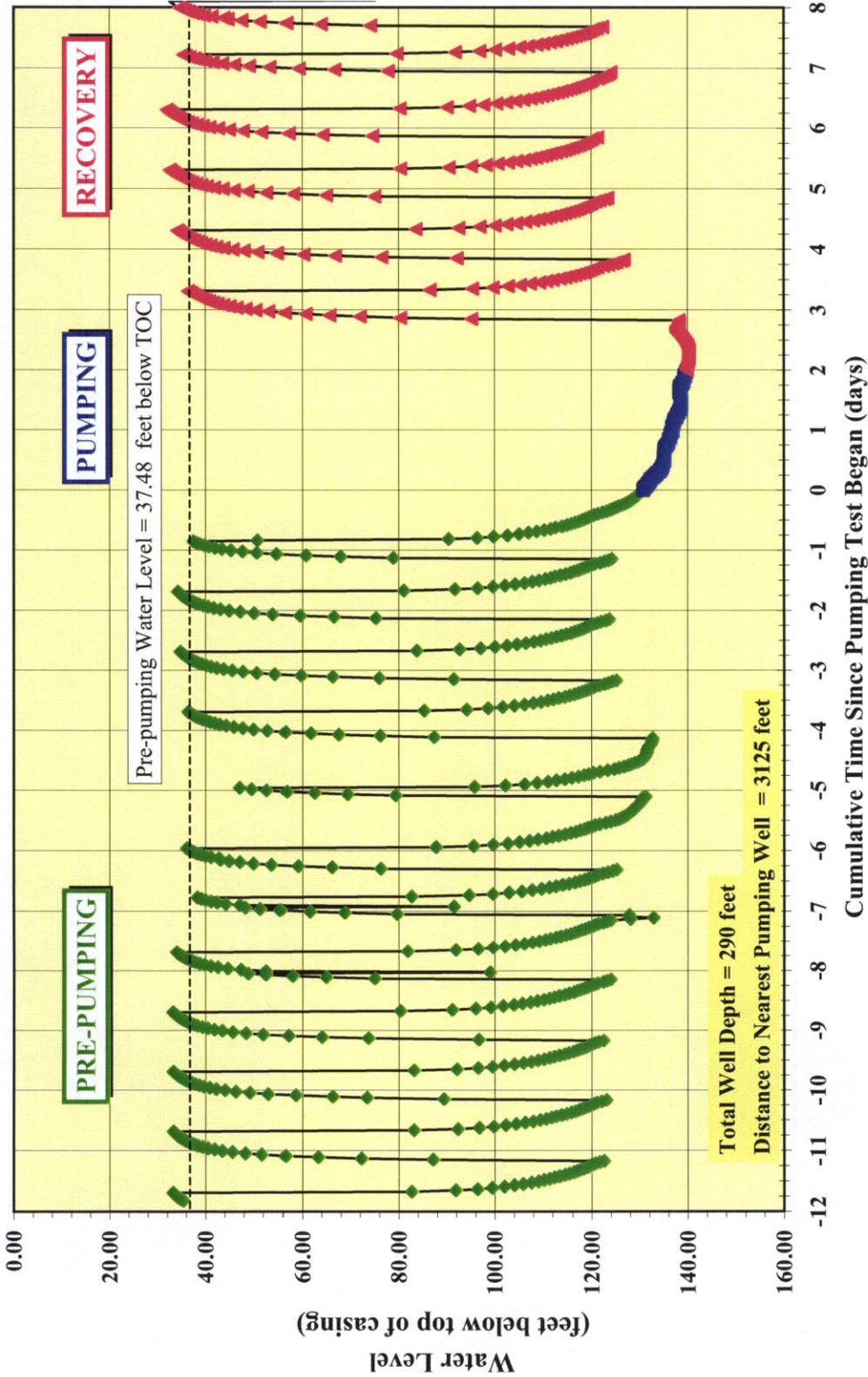


Figure 9 -- Plot of Water Level versus Time for February 21 to March 12, 2008

FCWSA - Bealeton Service District

Fauquier County, Virginia

Monitoring Well BEA-B-4

Maximum Drawdown Observed During Pumping Test = not impacted

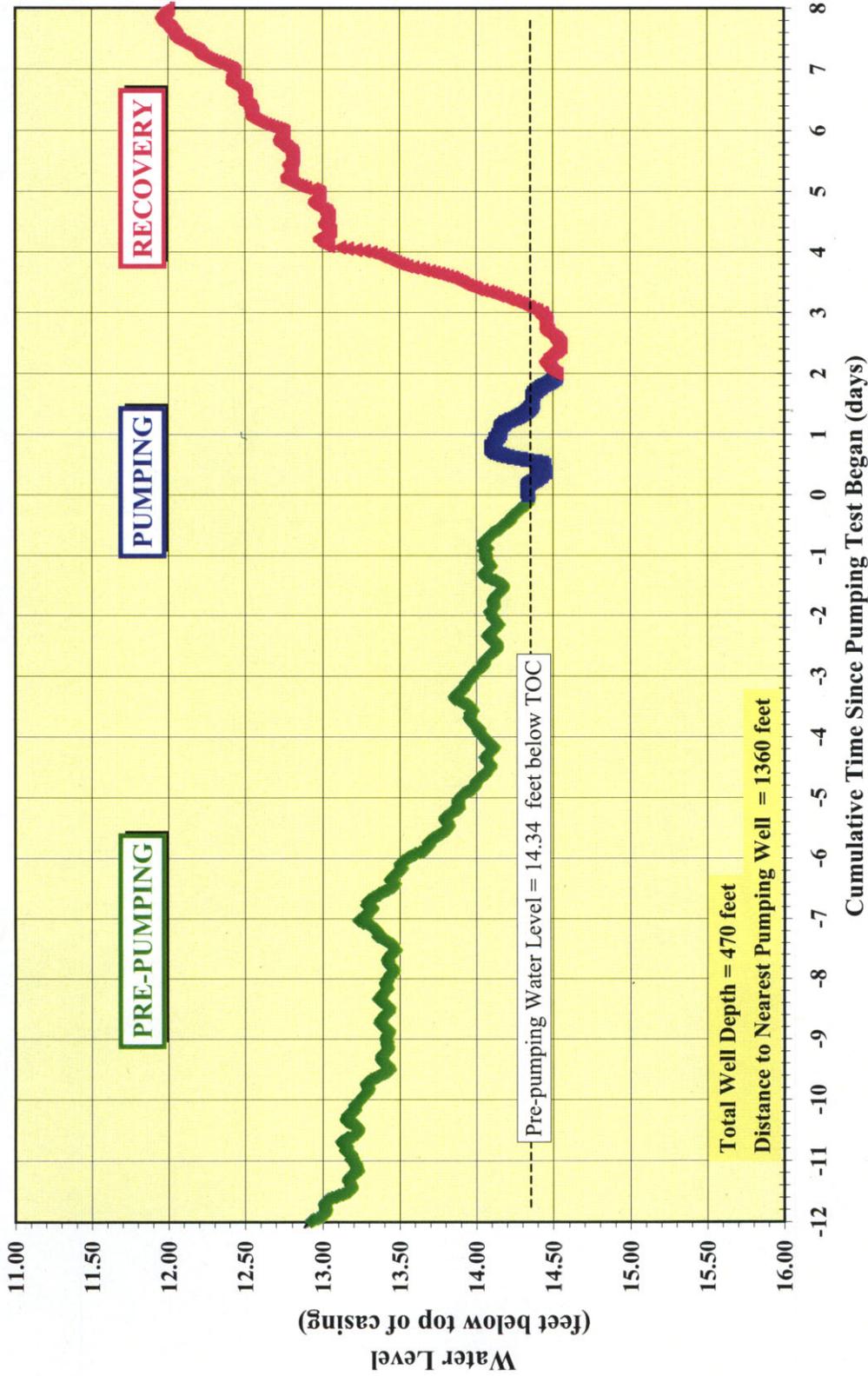


Figure 10 -- Plot of Water Level versus Time for February 21 to March 12, 2008

FCWSA - Bealeton Service District
Fauquier County, Virginia

Monitoring Well MS-3

Maximum Drawdown Observed During Pumping Test = not impacted

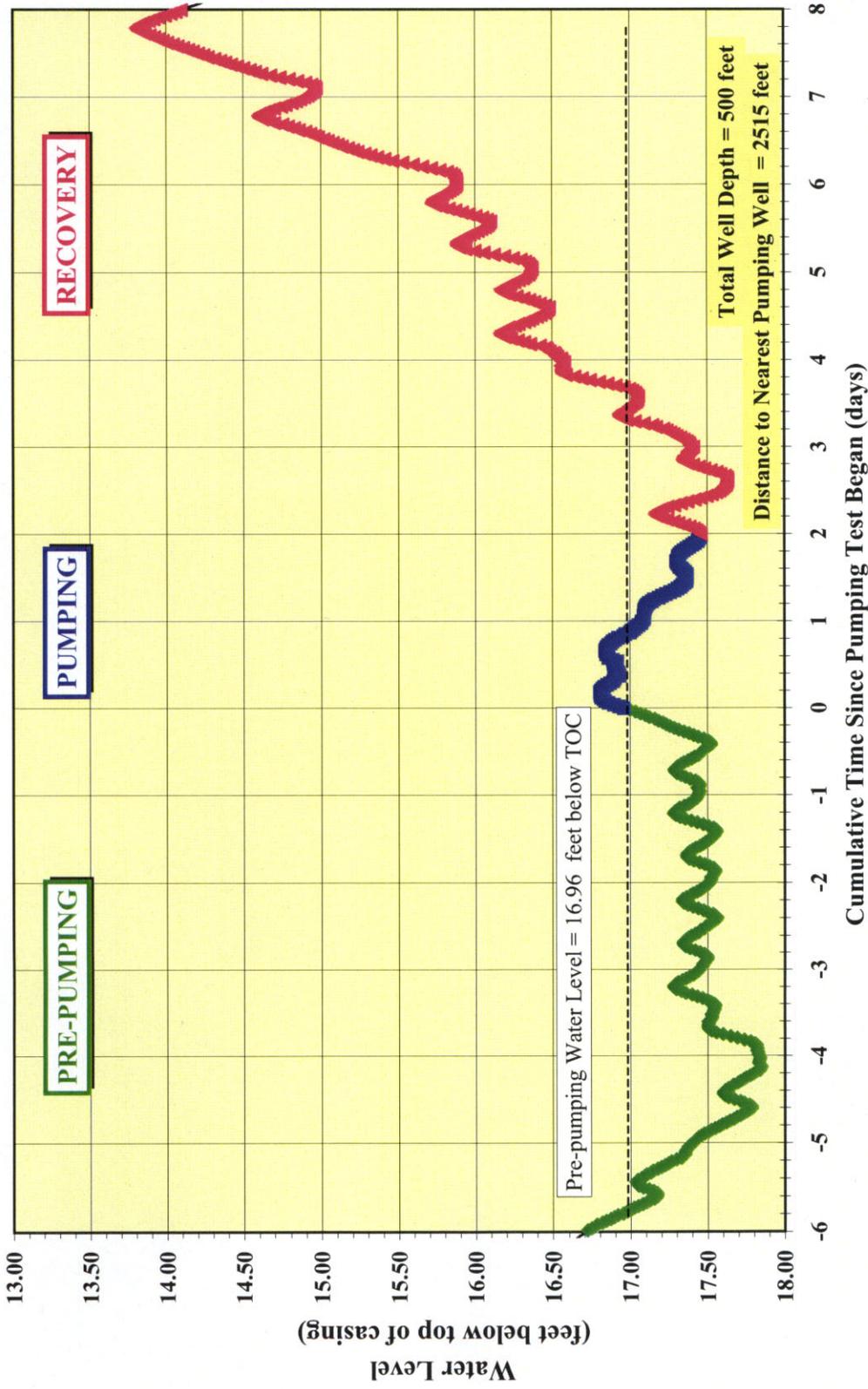


Figure 11 -- Plot of Water Level versus Time for February 21 to March 12, 2008

FCWSA - Bealeton Service District
Fauquier County, Virginia

TABLES

TABLE I
Basic Information for Monitoring Well Locations Used During the BEA-B-1 Pumping Test
Fauquier County Water and Sanitation Authority - Bealeton Service District
Fauquier County, Virginia

Monitoring Locations	Well Depth (Diameter) (feet / inches)	Pump Depth Setting (feet)	Airlift Yield (gpm)	FCWSA Average Pumping Rate	Well Type	Distance to Pumping Well BEA-B1 (feet)
Back-Up Supply Production Well						
BEA-B-1	260 (8); 380 (6)	180*	>300	not in service	Proposed Back-Up Supply Well	0
Existing FCWSA Production Wells						
BEA-B-3 (Mimbrook Production Well)	320 (8)	252	>300	245	FCWSA Production Well	550
MS-5 (Meadowbrooke No. 2 Production Well)	300 (8)	298	214	110	FCWSA Production Well	2,510
Miller School Production Well	290 (8)	290	202	80	FCWSA Production Well	3,125
Test Wells						
BEA-B-4	470 (8)	no pump	308	not in service	Exploratory Test Well	1,360
MS-3	500 (8)	no pump	160	not in service	Exploratory Test Well	2,515

Well yields are based on airlift yield measurements during drilling.

n/a = not applicable

* = Temporary pump depth setting used during BEA-B-1 pumping test (2008).

TABLE II
Summary of Pumping Test Results for Back-Up Supply Well BEA-B-1
Fauquier County Water and Sanitation Authority - Bealeton Service District
Fauquier County, Virginia

Well Name	Pre-Pumping Water Level (feet)	Start and Stop Time of Pumping Test (date, 24-hr. time)	Test Duration (hours)	Pumping Rate (gpm)	Maximum Drawdown (feet)	Total Volume Pumped (gallons)	Percent of Available Drawdown Used*	Final Specific Capacity** (gpm/ft)
BEA-B-1	30.05	3/4/08; 12:00	48	250	33.95	720,000	22%	7.36
		3/6/08; 12:00						

*The available drawdown for the pumping well was calculated by subtracting the pre-pumping water level from the depth of the first major water-bearing fracture.

**The final specific capacity is calculated by dividing the final pumping rate by the maximum pumping drawdown.

TABLE III
Water Level Information and Water Level Responses Observed
During Pumping Test of Back-Up Supply Well BEA-B-1
Fauquier County Water and Sanitation Authority - Bealeton Service District
Fauquier County, Virginia

Monitoring Locations	Casing Elevation (feet)*	Pre-Pumping Water Level (feet)	Pre-Pumping Water Level Elevation (feet)	Maximum Drawdown (feet)
Production Well				
BEA-B-1	309	30.05	279	33.95
Existing On-Site Wells				
BEA-B-3 (Mimbrook Production Well)	310	22.96	281	7.31
MS-5 (Meadowbrooke No. 2 Production Well)	328	95.00	230	not impacted**
Miller School Production Well	308	37.48	271	not impacted**
Test Wells				
BEA-B-4	311	14.34	297	not impacted**
MS-3	295	16.96	278	not impacted**

n/a = not applicable

Pre-Pumping water level recorded prior to the start of BEA-B-1 pumping test.

* Casing elevations estimated from 10' contours on USGS topographic map.

** There was no clear water level impact observed during this testing program.

TABLE IV
Results of Laboratory Analyses of Water Quality Samples Collected
During Constant Rate Pumping Test of Proposed Back-Up Supply Well BEA-B-1
Fauquier County Water and Sanitation Authority - Bealeton Service District
Fauquier County, Virginia

Well	Lab	Iron (mg/l)	Manganese (mg/l)	pH	Arsenic (mg/l)	Alkalinity (mg/l)	Chloride (mg/l)	Turbidity (ntu)	Hardness (mg/l)	Total Dissolved Solids (mg/l)	Sulfate (mg/l)	Nitrate (mg/l)	SOCs (mg/l)	VOCs (mg/l)
	<i>MCL</i>	<i>0.30</i>	<i>0.05</i>	<i>6.5-8.5</i>	<i>0.01</i>		<i>250</i>	<i>1</i>		<i>500</i>	<i>250</i>	<i>10</i>		
BEA-B-1	VA ST	bdl	0.010	nt	0.011	152	15	nt	214	350	113	1.45	bdl	bdl
	NTL	bdl	0.008	7.1	0.014	140	15	0.10	210	340	130	1.50	bdl	bdl

Well	Lab	Gross Alpha (lab VA ST)	Gross Beta (lab VA ST)	Radon (lab AS)
	<i>MCL</i>	<i>15 pCi</i>	<i>50 pCi</i>	<i>pCi</i>
BEA-B-1	VA ST	7.0	2.2	890

JOINER MICRO LABS
BACTERIOLOGICAL RESULTS: 20 samples were taken, at regular intervals, and subjected to MPN analysis. Results are as follows:
BEA-B-1 - Bacteriological Analysis-- 20 samples were absent for fecal coliform. All 20 samples had positive detections for total coliform bacteria ranging from 16.1 to >23 colonies / 100 ml. The geometric mean of these 20 samples is 19.94 colonies / 100 ml.

bdl - Below detection limit.
nt - Parameter not tested for by laboratory.
Parameters in **bold** are equal to, or exceed, primary or secondary drinking water standards.
LAB CODES:
AS = AccuStar Labs (Radon analysis only)
VA ST = Virginia State Laboratory
NTL = National Testing Laboratories

TABLE V
Results of Field Chemistry Analysis
Proposed Back-Up Supply Well BEA-B-1
Fauquier County Water and Sanitation Authority, Bealeton Service District
Fauquier County, Virginia

WELL ID	Date and Time of Sampling	Temperature (degrees C)	pH	Redox (millivolts)	Specific Conductance (microsiemens)	Sulfate (mg/l)	Dissolved Oxygen (mg/l)
BEA-B-1	3/4/08; 14:00	15.8	7.59	-50.1	496	80	0.66
	3/5/08; 9:00	13.7	7.57	-49	547	175	0.70
	3/5/08; 17:00	15.3	7.54	-48.1	544	200	0.72
	3/6/08; 7:00	14.7	7.55	-47.6	595	200	0.72

APPENDIX A

WATER WELL COMPLETION REPORT (GW-2)

COMMONWEALTH OF VIRGINIA
WATER WELL COMPLETION REPORT

BWCM No. _____

(Certification of Completion/County Permit)

State Water Control Board
P. O. Box 11143
1111 North Hamilton St.
Richmond, Va. 23230

County/City Fauquier

County/City Stamp

SWCB Permit	_____
County Permit	<u>SD-93-225</u>
Certification of inspecting official: This well does _____ does not _____ meet code/low requirements. S. _____ Date _____	
For Office Use	

Virginia Plane Coordinates

N _____
E _____

Latitude & Longitude

N _____
W _____

Topo. Map No. _____
Elevation _____ ft.

Formation _____
Lithology _____
River Basin _____
Province _____
Type Logs _____
Cuttings _____
Water Analysis _____
Aquifer Test _____

Owner Fauquier County (Emery & Garrett job)

Well Designation or Number # B-1 #1 well drilled

Address P.O. Box 3047
Warrenton, VA 22186

Phone 349-2092 (Emery & Garrett-603-279-4425)

Drilling Contractor SINGHAS & MICHAEL CORP.

Address RT. 3, BOX 5062
BERRYVILLE, VA 22611

Phone 703-955-3582

Tax Map I.D. No.	<u>6899-01</u>
Subdivision	_____
Section	_____
Block	_____
Lot	_____
Class Well: I _____, IIA _____	
IIIB _____, IIIA _____, IIIB <u>yes</u>	
IIIC _____, IIIO _____, IIIE _____	

WELL LOCATION: _____ (feet/miles, direction) of _____
and _____ (feet/miles, direction) of site is W. of 17728 Int.

(If possible please include map showing location marked)

6" 7/26/93 7/27/93

Date started 10/22/93 Date completed 10/23/93 8" Type rig air rotary

WELL DATA: New yes Reworked _____ Deepened _____

Total depth 360 original 6" (380) ft.

Depth to bedrock 3 ft.

Hole size (Also include reamed zones)

- 72 inches from 0 to 53 ft.
- 8 inches from 53 to 260 ft.
- 6 inches from 260 to 360' ft.

Casing size (I.D.) and material

- 8 inches from +3 to 54' == 57' ft.
- Material steel
- Wt. per foot 28.55 or wall thickness 322 in.
- _____ inches from _____ to _____ ft.
- Material _____
- Wt. per foot _____ or wall thickness _____ in.
- _____ inches from _____ to _____ ft.
- Material _____
- Wt. per foot _____ or wall thickness _____ in.

Screen size and mesh for each zone (where applicable)

- _____ inches from _____ to _____ ft.
- Mesh size _____ Type _____
- _____ inches from _____ to _____ ft.
- Mesh size _____ Type _____
- _____ inches from _____ to _____ ft.
- Mesh size _____ Type _____
- _____ inches from _____ to _____ ft.
- Mesh size _____ Type _____

Gravel pack

- From _____ to _____ ft.
- From _____ to _____ ft.

Grout

- From 0 to 50 ft., Type pressure cement
- From _____ to _____ ft., Type _____

2. WATER DATA • Water temperature 52 of _____

- Static water level (unpumped level-measured) 321 ft.
- Stabilized measured pumping water level _____ ft.
- Stabilized yield 300± gpm after 3 hours
- Natural Flow: Yes _____ No no, flow rate: _____ gpm
- Comment on quality clear

3. WATER ZONES: From 142' To _____

- From 185' To _____ From 260' To _____
- From 361' To _____ From _____ To _____

4. USE DATA:

Type of use: Drinking yes, Livestock Watering _____

- Irrigation _____, Food processing _____, Household _____
- Manufacturing _____, Fire safety _____, Cleaning _____
- Recreation _____, Aesthetic _____, Cooking or heating _____
- Injection _____, Other _____

Type of facility: Domestic _____, Public water supply yes

- Public institution _____, Farm _____, Industry _____
- Commercial _____, Other _____

5. PUMP DATA: Type _____ Rated H.P. _____

- Intake depth _____ Capacity _____ at _____ head

6. WELLHEAD: Type well seal _____

- Pressure tank _____ gal., Loc. _____
- Sample tap _____, Measurement port _____
- Well vent _____, Pressure relief valve _____
- Gate valve _____, Check valve (when required) _____
- Electrical disconnect switch on power supply _____

7. DISINFECTION: Well disinfected _____ yes _____ no _____

- Date _____, Disinfectant used _____
- Amount _____, Hours used _____

8. ABANDONMENT (where applicable) • yes _____ no _____

- Casing pulled yes _____ no _____ not applicable _____
- Plugging grout From _____ to _____ material _____

Owner Fauquier County W.S.A.

BWCM No. _____

SD-93-225 6899-01

9. State law requires submitting to the Virginia State Water Control Board information about groundwater and wells for every well made in the State intended for water, or any other non-exempt well. This information must be submitted whether the well is completed, on standby, or abandoned. Information required includes: an accurately and completely prepared water well completion report, full data from any aquifer pumping tests, drill cuttings taken at ten foot intervals (unless exemption is secured), the results of any chemical analyses, and copies of any geophysical logs. Quarterly pumpage and use reports are required from owners of public supply and industrial wells. County or State permits to drill may be required in some parts of the state. Some counties require submission of a water well completion report. The Virginia State Health Department requires a water well completion report for public supply wells.

10. DRILLERS LOG (use additional Sheets if necessary)

DEPTH (feet)		TYPE OF ROCK OR SOIL (color, material, fossils, hardness, etc.)	REMARKS (water, caving, cavities, broken, core, shot, etc.)
From	To		
0'	3'	overburden	
3'	260'	redrock	
	142'	waterbearing	
	185'	waterbearing	
	260'	waterbearing	
	361'	waterbearing	

11. Drilling Time (Min.)

12. DIAGRAM OF WELL CONSTRUCTION (with dimensions)

13. Well lot dedicated? _____; Size _____ ft. X _____ ft.; Well house? _____
 Distance to nearest pollutant source _____ ft., Type _____
 Distance to nearest property line _____ ft., Building _____ ft.

14. WATER SERVICE PIPE: Checked under _____ p.s.i. for _____ minutes. Pipe size _____ inches, Material _____
 Installer _____
 Date _____

15. I certify that the information contained herein is true and correct and that this well and/or system has been installed and constructed in accordance with the requirements for well construction as specified in compliance with appropriate county or independent city ordinances and the laws and rules of the Commonwealth of Virginia.

State Water Control Board Regional Offices

- Valley Reg. Off.
116 North Main Street
P. O. Box 268
Bridgewater, Va. 22812
703-628-2595
- Southwest Reg. Off.
408 East Main Street
P. O. Box 476
Abingdon, Va. 24210
703-628-5183
- West Central Reg. Off.
Executive Park
5312 Peters Creek Road
Roanoke, Va. 24019
703-982-7432
- Piedmont Reg. Off.
4010 West Broad Street
P. O. Box 6616
Richmond, Va. 23230
804-257-1006
- Tidewater Reg. Off.
287 Pembroke Office Park
Suite 310 Pembroke No. 2
Va. Beach, Va. 23462
804-499-8742
- Northern Virginia Reg. Off.
5515 Cherokee Avenue
Suite 404
Alexandria, Va. 22312
703-750-9111

Signature Anna Sanchez (Seal), Date 10-29-93
 (Well driller or authorized person) License No. 42

APPENDIX B

WATER QUALITY ANALYSES

APR 11 2008

DATE COLLECTED	DATE RECEIVED	DATE COMPLETED	SAMPLE CODE
03/06/08	03/07/08	04/07/08	688388



**NATIONAL
TESTING
LABORATORIES LTD.**
6571 Wilson Mills Road
Cleveland, OH 44143
(440) 449-2525

CUSTOMER ADDRESS
BEALETON

DEALER ADDRESS
EMERY & GARRETT GROUNDWTR DAN TINKHAM 56 MAIN STREET MEREDITH, NH 03253-

DRINKING WATER ANALYSIS RESULTS

ID: BEA-B1 / WELL WATER
METALS NOT FILTERED, 48-HR PUMPING TEST

NOTE: "*" The MCL (Maximum Contaminant Level) or an established guideline has been exceeded for this contaminant.
 "***" Bacteria results may be invalid due to lack of collection information or because the sample has exceeded the 30-hour holding time.
 "ND" This contaminant was not detected at or above our stated detection level.
 "NBS" No bacteria submitted. "NBR" No Bacteria Required.
 "P" = PRESENCE "A" = ABSENCE
 "EP" = E. COLI PRESENCE "EA" = E. COLI ABSENCE
 "NA" Not Analyzed

Analysis Performed	MCL (mg/l)	Det. Level	Level Detected
--------------------	---------------	---------------	-------------------

Total coliform	P	P	NBS
----------------	---	---	-----

Inorganic chemicals - metals:

Aluminum	0.2	0.1	ND
Arsenic	0.010	0.005	0.014*
Barium	2	0.30	ND
Cadmium	0.005	0.002	ND
Calcium	---	2.0	69
Chromium	0.1	0.010	ND
Copper	1.3	0.004	ND
Iron	0.3	0.020	ND
Lead	0.015	0.002	ND
Magnesium	---	0.10	9.2
Manganese	0.05	0.004	0.008
Mercury	0.002	0.001	ND
Nickel	---	0.02	ND
Selenium	0.05	0.020	ND
Silver	0.1	0.002	ND
Sodium	---	1	35
Zinc	5	0.004	0.015

Inorganic chemicals - other, and physical factors:

Alkalinity (Total as CaCO3)	---	20	140
Chloride	250	5.0	15
Fluoride	4	0.5	ND
Hardness (suggested limit = 100)		10	210*
Nitrate as N	10	0.5	1.5
Nitrite as N	1	0.5	ND
pH (Standard Units)	6.5-8.5	---	7.1
Sulfate	250	5.0	130
Total Dissolved Solids	500	20	340
Turbidity (Turbidity Units)	1.0	0.1	0.1

Organic chemicals - trihalomethanes:

Bromodichloromethane	---	0.002	ND
Bromoform	---	0.004	ND
Chloroform	---	0.002	ND
Dibromochloromethane	---	0.004	ND
Total THMs	0.080	0.002	ND

Analysis performed	MCL (mg/l)	Detection Level	Level Detected
1,1,1,2-Tetrachloroethane	---	0.002	ND
1,1,1-Trichloroethane	0.2	0.001	ND
1,1,2,2-Tetrachloroethane	---	0.002	ND
1,1,2-Trichloroethane	0.005	0.002	ND
1,1-Dichloroethane	---	0.002	ND
1,1-Dichloroethene	0.007	0.001	ND
1,1-Dichloropropene	---	0.002	ND
1,2,3-Trichlorobenzene	---	0.002	ND
1,2,3-Trichloropropane	---	0.002	ND
1,2,4-Trichlorobenzene	0.07	0.002	ND
1,2-Dichlorobenzene	0.6	0.001	ND
1,2-Dichloroethane	0.005	0.001	ND
1,2-Dichloropropane	0.005	0.002	ND
1,3-Dichlorobenzene	---	0.001	ND
1,3-Dichloropropane	---	0.002	ND
1,4-Dichlorobenzene	0.075	0.001	ND
2,2-Dichloropropane	---	0.002	ND
2-Chlorotoluene	---	0.001	ND
4-Chlorotoluene	---	0.001	ND
Benzene	0.005	0.001	ND
Bromobenzene	---	0.002	ND
Bromomethane	---	0.002	ND
Carbon Tetrachloride	0.005	0.001	ND
Chlorobenzene	0.1	0.001	ND
Chloroethane	---	0.002	ND
Chloromethane	---	0.002	ND
cis-1,2-Dichloroethene	0.07	0.002	ND
cis-1,3-Dichloropropene	---	0.002	ND
Dibromochloropropane (DBCP)	---	0.001	ND
Dibromomethane	---	0.002	ND
Dichlorodifluoromethane	---	0.002	ND
Dichloromethane	0.005	0.002	ND
Ethylbenzene	0.7	0.001	ND
Ethylenedibromide (EDB)	---	0.001	ND
Methyl-Tert-Butyl-Ether	---	0.004	ND
Styrene	0.1	0.001	ND
Tetrachloroethene (PCE)	0.005	0.002	ND
Toluene	1	0.001	ND
Trans-1,2-Dichloroethene	0.1	0.002	ND
trans-1,3-Dichloropropene	---	0.002	ND
Trichloroethene (TCE)	0.005	0.001	ND
Trichlorofluoromethane	---	0.002	ND
Vinyl Chloride	0.002	0.001	ND
Xylene	10	0.001	ND

Organic chemicals - pesticides, herbicides and PCBs

2,4-D	0.07	0.010	ND
Alachlor	0.002	0.001	ND
Aldrin	---	0.002	ND
Atrazine	0.003	0.002	ND
Chlordane	0.002	0.001	ND
Dichloran	---	0.002	ND
Dieldrin	---	0.001	ND
Endrin	0.002	0.0001	ND
Heptachlor	0.0004	0.0004	ND
Heptachlor Epoxide	0.0002	0.0001	ND
Hexachlorobenzene	0.001	0.0005	ND
Hexachlorocyclopentadiene	0.05	0.001	ND
Lindane	0.0002	0.0002	ND
Methoxychlor	0.04	0.002	ND
PCBs	0.0005	0.0005	ND
Pentachloronitrobenzene	---	0.002	ND
Silvex(2,4,5-TP)	0.05	0.005	ND
Simazine	0.004	0.002	ND
Toxaphene	0.003	0.001	ND
Trifluralin	---	0.002	ND

We certify that the analyses performed for this report are accurate, and that the laboratory tests were conducted by methods approved by the U.S. Environmental Protection Agency or variations of these EPA methods.

These test results are intended to be used for informational purposes only and may not be used for regulatory compliance.

National Testing Laboratories Ltd.

WATER QUALITY REPORT

COMMONWEALTH OF VIRGINIA

MAR 31 2008

26 March 2008

1571254

Department of General Services

DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAIL TO:

Office of Drinking Water, Culpeper
400 South Main St
Culpeper, VA 22701

REGION:6

PWS OWNER

**BEALETON REGIONAL B-1-EMERY
P O BOX 1578
MEREDITH, NH 03253**

PWSID

7600270

SOURCE

DATE RECEIVED: 06-Mar-2008

SAMPLING DATE: 06-Mar-2008

COLLECTED BY: **PETER FOSTER**

ORDER NUMBER: 3

SOURCE ID: WL001

VDH SAMPLE TYPE: **SP**

FLUORIDE:

CATEGORY: **CH**

PB/CU:

CHEMIST:

COMPLIANCE: **N**

ORIGINAL LIMS NUMBER:

F METHOD:

SAMP LOC: **WELL BEA-BI**

LAST WATER USE:

CONT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
1928	Alkalinity - Bicarbonate			152 mg/l	03/10/2008	DDOUGLAS
1929	Alkalinity - Carbonate			< 1 mg/l	03/10/2008	DDOUGLAS
1927	Alkalinity (Total)			152 mg/l	03/10/2008	DDOUGLAS
1914	Calcium Hardness			178 mg/l	03/17/2008	JOWEN
1017	Chloride			14.9 mg/l	03/11/2008	RMUSTAK
1905	Color - PCU			< 5 PCU	03/06/2008	RLEWIS
1059	Fixed Dissolved Solids (500°C)			350 mg/l	03/14/2008	LMOY
1025	Fluoride			0.25 mg/l	03/19/2008	DDOUGLAS
1915	Hardness - Total			214 mg/l	03/17/2008	JOWEN
1925	pH			7.68 PH	03/10/2008	DDOUGLAS
<i>HOLD TIME EXCEEDED, INVALID FOR SDWA COMPLIANCE REPORTING</i>						
1064	Specific Conductance			564 µmhos/cm	03/11/2008	CMORTON
1055	Sulfate			113 mg/l	03/11/2008	RMUSTAK
1027	Sulfide			< 0.03 mg/l	03/07/2008	CMORTON
1930	RESIDUE, TOTAL FILTERABLE (DRIED AT 180C), MG/L			378 mg/l	03/14/2008	LMOY
1058	Volatile Dissolved Solids (500°C)			28 mg/l	03/14/2008	LMOY

APPROVED BY: **CMORTON**

DATE APPROVED: 26-Mar-2008

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAR 24 2008

March 14, 2008

LIMS ID: 1571255

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6
Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER
44084 RIVERSIDE PKWY STE 100

PWSID SOURCE
7600270

LEESBURG, VA 22075

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
1005	Arsenic			.011 ppm	03/07/2008	ABOROWSKI
1010	Barium	2		< 0.20 ppm	03/07/2008	ABOROWSKI
1015	Cadmium	.005		< 0.002 ppm	03/07/2008	ABOROWSKI
1020	Chromium	.1		< 0.01 ppm	03/07/2008	ABOROWSKI
1030	Lead	.015		< 0.002 ppm	03/07/2008	ABOROWSKI
1035	Mercury	0.002		< 0.0002 ppm	03/07/2008	ABOROWSKI
1045	Selenium	.05		< 0.01 ppm	03/07/2008	ABOROWSKI
1002	Aluminum			< 0.05 ppm	03/07/2008	ABOROWSKI
1028	Iron		.3	< 0.20 ppm	03/07/2008	ABOROWSKI
1032	Manganese		0.05	.01 ppm	03/07/2008	ABOROWSKI
1095	Zinc		5	< 0.20 ppm	03/07/2008	ABOROWSKI
1022	Copper		1.3	< 0.20 ppm	03/07/2008	ABOROWSKI
1052	Sodium			36.4 ppm	03/07/2008	ABOROWSKI
1036	Nickel	.1		< 0.01 ppm	03/07/2008	ABOROWSKI
1085	Thallium	.002		< 0.002 ppm	03/07/2008	ABOROWSKI
1074	Antimony	.006		< 0.002 ppm	03/07/2008	ABOROWSKI
1075	Beryllium	.004		< 0.002 ppm	03/07/2008	ABOROWSKI

APPROVED BY: MMOUER

DATE APPROVED: 03/14/2008

26 WQR

METALS

WATER QUALITY REPORT
 COMMONWEALTH OF VIRGINIA
 Department Of General Services
 DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAR 24 2008

March 14, 2008

LIMS ID: 1571256

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6
Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER
44084 RIVERSIDE PKWY STE 100

PWSID SOURCE
7600270

LEESBURG,VA 22075

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
1041	Nitrite as N			< 0.05 mg/l	03/06/2008	RMUSTAK
APPROVED BY: BDAVISI		DATE APPROVED: 03/14/2008				WQR

INORGANIC

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICES

APR 07 2008

March 28, 2008

LIMS ID: 1571257

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6

Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER

PWSID SOURCE
7600270

P O BOX 1578
MEREDITH,NH 03253

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
1038	Nitrate+Nitrite as N	10		1.45 mg/l	03/07/2008	RMUSTAK
APPROVED BY: BDAVIS1		DATE APPROVED: 03/28/2008			19	WQR

INORGANIC

WATER QUALITY REPORT

MAR 24 2008

20 March 2008

COMMONWEALTH OF VIRGINIA

1571250

Department of General Services

DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAIL TO:

**Office of Drinking Water, Culpeper
400 South Main St
Culpeper, VA 22701**

REGION:6

PWS OWNER

**BEALETON REGIONAL B-1-EMERY
P O BOX 1578
MEREDITH, NH 03253**

PWSID

7600270

SOURCE

DATE RECEIVED: 06-Mar-2008

SAMPLING DATE: 06-Mar-2008

COLLECTED BY: **PETER FOSTER**

ORDER NUMBER: 1

SOURCE ID: WL001

VDH SAMPLE TYPE: **SP**

FLUORIDE:

CATEGORY: CII

PB/CU:

CHEMIST:

COMPLIANCE: N

ORIGINAL LIMS NUMBER:

F METHOD:

SAMP LOC: WELL BEA-B1

LAST WATER USE:

CONT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
1024	Total Cyanide			< 0.01 mg/l	03/18/2008	RLEWIS

APPROVED BY: BDAVISI

DATE APPROVED: 19-Mar-2008

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAR 19 2008

March 13, 2008

LIMS ID: 1571260

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6
Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER
44084 RIVERSIDE PKWY STE 100

PWSID SOURCE
7600270

LEESBURG, VA 22075

FIELD DATA ITEMS:

Date Received	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
2212	Dichlorodifluoromethane			< 0.5 ppb	03/10/2008	GJACKSON
2210	Methyl Chloride (Chloromethane)			< 0.5 ppb	03/10/2008	GJACKSON
2976	Vinyl Chloride			< 0.5 ppb	03/10/2008	GJACKSON
2214	Methyl Bromide (Bromomethane)			< 0.5 ppb	03/10/2008	GJACKSON
2216	Chloroethane			< 0.5 ppb	03/10/2008	GJACKSON
2218	Trichlorofluoromethane			< 0.5 ppb	03/10/2008	GJACKSON
2977	1,1-Dichloroethene			< 0.5 ppb	03/10/2008	GJACKSON
2964	Dichloromethane (Methylene Chloride)			< 0.5 ppb	03/10/2008	GJACKSON
2979	trans-1,2-Dichloroethene			< 0.5 ppb	03/10/2008	GJACKSON
2978	1,1-Dichloroethane			< 0.5 ppb	03/10/2008	GJACKSON
2380	cis-1,2-Dichloroethene			< 0.5 ppb	03/10/2008	GJACKSON
2941	Chloroform			< 0.5 ppb	03/10/2008	GJACKSON
2981	1,1,1-Trichloroethane			< 0.5 ppb	03/10/2008	GJACKSON
2982	Carbon Tetrachloride			< 0.5 ppb	03/10/2008	GJACKSON
2980	1,2-Dichloroethane			< 0.5 ppb	03/10/2008	GJACKSON
2984	Trichloroethene			< 0.5 ppb	03/10/2008	GJACKSON
2983	1,2-Dichloropropane			< 0.5 ppb	03/10/2008	GJACKSON
2408	Dibromomethane			< 0.5 ppb	03/10/2008	GJACKSON
2943	Bromodichloromethane			< 0.5 ppb	03/10/2008	GJACKSON
2228	cis-1,3-Dichloropropene			< 0.5 ppb	03/10/2008	GJACKSON
2224	trans-1,3-Dichloropropene			< 0.5 ppb	03/10/2008	GJACKSON
2985	1,1,2-Trichloroethane			< 0.5 ppb	03/10/2008	GJACKSON
2987	Tetrachloroethylene (Perchloroethylene)			< 0.5 ppb	03/10/2008	GJACKSON
2944	Dibromochloromethane			< 0.5 ppb	03/10/2008	GJACKSON
2989	Chlorobenzene			< 0.5 ppb	03/10/2008	GJACKSON
2986	1,1,1,2-Tetrachloroethane			< 0.5 ppb	03/10/2008	GJACKSON
2942	Bromoform			< 0.5 ppb	03/10/2008	GJACKSON
2988	1,1,2,2-Tetrachloroethane			< 0.5 ppb	03/10/2008	GJACKSON

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICES

March 13, 2008

LIMS ID: 1571260

03/06/2008		03/06/2008		PETER FOSTER		
CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
2965	o-Chlorotoluene (2-Chlorotoluene)			< 0.5 ppb	03/10/2008	GJACKSON
2966	p-Chlorotoluene (4-Chlorotoluene)			< 0.5 ppb	03/10/2008	GJACKSON
2967	m-Dichlorobenzene (1,3-Dichlorobenzene)			< 0.5 ppb	03/10/2008	GJACKSON
2969	p-Dichlorobenzene			< 0.5 ppb	03/10/2008	GJACKSON
2968	o-Dichlorobenzene			< 0.5 ppb	03/10/2008	GJACKSON
2378	1,2,4-Trichlorobenzene			< 0.5 ppb	03/10/2008	GJACKSON
2420	1,2,3-Trichlorobenzene			< 0.5 ppb	03/10/2008	GJACKSON
2990	Benzene			< 0.5 ppb	03/10/2008	GJACKSON
2991	Toluene			< 0.5 ppb	03/10/2008	GJACKSON
2992	Ethylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2994	Isopropylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2998	n-Propylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2426	t-Butylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2428	s-Butylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2248	Naphthalene			< 0.5 ppb	03/10/2008	GJACKSON
2430	Bromochloromethane			< 0.5 ppb	03/10/2008	GJACKSON
2422	n-Butylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2931	1,2-Dibromo-3-chloropropane			< 0.5 ppb	03/10/2008	GJACKSON
2232	1,2-Ethylenedibromide			< 0.5 ppb	03/10/2008	GJACKSON
2412	1,3-Dichloropropane			< 0.5 ppb	03/10/2008	GJACKSON
2416	2,2-Dichloropropane			< 0.5 ppb	03/10/2008	GJACKSON
2410	1,1-Dichloropropene			< 0.5 ppb	03/10/2008	GJACKSON
2246	Hexachlorobutadiene			< 0.5 ppb	03/10/2008	GJACKSON
2030	4-Isopropyltoluene			< 0.5 ppb	03/10/2008	GJACKSON
2996	Styrene			< 0.5 ppb	03/10/2008	GJACKSON
2414	1,2,3-Trichloropropane			< 0.5 ppb	03/10/2008	GJACKSON
2418	1,2,4-Trimethylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
2424	1,3,5-Trimethylbenzene			< 0.5 ppb	03/10/2008	GJACKSON
1925	pH			1.4 PH	03/10/2008	GJACKSON
2955	Total Xylenes			< 0.5 ppb	03/10/2008	GJACKSON
2251	Methyl t-butyl ether (MTBE)			< 5.0 ppb	03/10/2008	GJACKSON
2993	Bromobenzene			< 0.5 ppb	03/10/2008	GJACKSON

APPROVED BY: LGREEN

DATE APPROVED: 03/13/2008

6 WQR

VOLATILES

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAR 27 2008

March 25, 2008

LIMS ID: 1571259

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6

Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER

PWSID SOURCE
7600270

P O BOX 1578
MEREDITH,NH 03253

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
2051	Alachlor			< 0.1 ppb	03/24/2008	LGREEN
2356	Aldrin			< 0.10 ppb	03/24/2008	LGREEN
2050	Atrazine			< 0.5 ppb	03/24/2008	LGREEN
2076	Butachlor			< 0.1 ppb	03/24/2008	LGREEN
2959	Chlordane			< 0.2 ppb	03/24/2008	LGREEN
2070	Dieldrin			< 0.10 ppb	03/24/2008	LGREEN
2005	Endrin			< 0.10 ppb	03/24/2008	LGREEN
2065	Heptachlor			< 0.05 ppb	03/24/2008	LGREEN
2067	Heptachlor epoxide			< 0.10 ppb	03/24/2008	LGREEN
2274	Hexachlorobenzene			< 0.1 ppb	03/24/2008	LGREEN
2042	Hexachlorocyclopentadiene			< 0.5 ppb	03/24/2008	LGREEN
2010	Lindane			< 0.05 ppb	03/24/2008	LGREEN
2015	Methoxychlor			< 0.1 ppb	03/24/2008	LGREEN
2045	Metolachlor			< 0.5 ppb	03/24/2008	LGREEN
2383	PCB's			< 0.2 ppb	03/24/2008	LGREEN
2595	Metribuzin			< 0.1 ppb	03/24/2008	LGREEN
2077	Propachlor			< 0.10 ppb	03/24/2008	LGREEN
2037	Simazine			< 0.50 ppb	03/24/2008	LGREEN
2039	Di(2-ethylhexyl)phthalate			< 2.0 ppb	03/24/2008	LGREEN
2035	Di(2-ethylhexyl)adipate			< 1.0 ppb	03/24/2008	LGREEN
2306	Benzo[a]pyrene			< 0.10 ppb	03/24/2008	LGREEN
2020	Toxaphene			< 1.000 ppb	03/24/2008	LGREEN

APPROVED BY: PLOGAN

DATE APPROVED: 03/25/2008

1 WQR

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICE

MAR 21 2008

March 18, 2008

LIMS ID: 1571253

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6
Process Lab:
RICHMOND

PWS OWNER BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER P O BOX 1578 MEREDITH,NH 03253	PWSID SOURCE 7600270
--	--------------------------------

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
2110	2,4,5-TP (Silvex)			< 0.5 ppb	03/17/2008	WHENDERS ON
2105	2,4-D			< 0.5 ppb	03/17/2008	WHENDERS ON
2031	Dalapon			< 3 ppb	03/17/2008	WHENDERS ON
2440	Dicamba			< 0.50 ppb	03/17/2008	WHENDERS ON
2041	Dinoseb			< 0.5 ppb	03/17/2008	WHENDERS ON
2326	Pentachlorophenol			< .1 ppb	03/17/2008	WHENDERS ON
2040	Picloram			< 0.5 ppb	03/17/2008	WHENDERS ON

APPROVED BY: TPAYNE

DATE APPROVED: 03/18/2008

2 WQR

WATER QUALITY REPORT
COMMONWEALTH OF VIRGINIA
Department Of General Services
DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAR 21 2008

March 19, 2008

LIMS ID: 1571249

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6

Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER

PWSID SOURCE
7600270

P O BOX 1578
MEREDITH, NH 03253

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
2066	3-Hydroxycarbofuran			< 2.0 ppb	03/19/2008	LGREEN
2047	Aldicarb			< 2.0 ppb	03/19/2008	LGREEN
2044	Aldicarb Sulfone			< 2.0 ppb	03/19/2008	LGREEN
2043	Aldicarb sulfoxide			< 2.0 ppb	03/19/2008	LGREEN
2021	Carbaryl			< 2.0 ppb	03/19/2008	LGREEN
2046	Carbofuran			< 2.0 ppb	03/19/2008	LGREEN
2022	Methomyl			< 2.0 ppb	03/19/2008	LGREEN
2036	Oxamyl			< 2.0 ppb	03/19/2008	LGREEN

APPROVED BY: PLOGAN

DATE APPROVED: 03/19/2008

5 WQR

WATER QUALITY REPORT
 COMMONWEALTH OF VIRGINIA
 Department Of General Services
 DIVISION OF CONSOLIDATED LABORATORY SERVICE

March 17, 2008

LIMS ID: 1571251

Culpeper Regional Office
400 S. Main Street, 2nd Floor,
Culpeper, VA22701

Region: 6
Process Lab:
RICHMOND

PWS OWNER
BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER

PWSID SOURCE
7600270

P O BOX 1578
MEREDITH,NH 03253

FIELD DATA ITEMS:

Date Receive	03/06/2008	Sampling Date	03/06/2008	Collected By	PETER FOSTER
Order Number	90020242	Source ID	WL001	VDH Sample Type	SP
Fluoride		Category	CH	PB CU	
Chemist		Compliance	N	Original Lims Number	
F Method		Sample Location	WELL BEA-B1		

CONTAMINANT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
2032	Diquat			< 5.0 ppb	03/17/2008	TPAYNE

APPROVED BY: **WHENDERSON** DATE APPROVED: **03/17/2008** 4 WQR

WATER QUALITY REPORT

COMMONWEALTH OF VIRGINIA

7 May 2008

1571258

Department of General Services

DIVISION OF CONSOLIDATED LABORATORY SERVICES

MAIL TO: Office of Drinking Water, Culpeper 400 South Main St Culpeper, VA 22701	REGION: 6
--	------------------

PWS OWNER BEALETON REGIONAL B-1-EMERY & GARRETT GROUNDWATER P O BOX 1578 MEREDITH, NH 03253	PWSID 7600270	SOURCE
--	-------------------------	--------

LIMS NO.: 1571258 **SAMPLING DATE: 06 Mar 2008 8:00** **COLLECTED BY: PETER FOSTER**
DATE RECEIVED: 06 Mar 2008 **SAMPLE LOCATION: WELL BEA-B1**
SAMPLE TYPE: SP

FIELD TESTS: Temp: Clr: **PRESERVATIVE: Y**
 pH: CO2:
 Alk: Trd:

CONT ID	PARAMETER	PMCL (ppm)	SMCL (ppm)	RESULT	ANALYSIS DATE	ANALYST
4002	Gross Alpha			7.0 pCi/L +- 1.2 pCi/L	07 Apr 2008	SLACY
4100	Gross Beta			2.2 pCi/L +- 0.7 pCi/L	07 Apr 2008	SLACY
4020	Radium-226			0.4 pCi/L +- 0.2 pCi/L	24 Apr 2008	SLACY
4030	Radium-228			0.3 pCi/L +- 0.5 pCi/L	24 Apr 2008	SLACY

APPROVED BY: PMA

DATE APPROVED: 01 May 2008

1 WORKER

NEHA NRPP 101193 AL
NRSB ARL0017

EPA Method 913.0
Liquid Scintillation

Laboratory Report For

Property Tested

Emery & Garrett Ground Water
P.O. Box 1578
Merrideth NH 03253

Bealeton

Log Number	Device Number	Area Tested	Result (pCi/L)
937673	1179531	Well Head BEA-B1	890.0

Please contact your state Radon office for more information about your Radon in water test result.

Emery & Garrett Ground Water was e-mailed a copy of this report.

Distributed By: Emery & Garrett Ground Water

Sample Collected:	3/6/2008	8:00 am	Date Received:	3/10/2008
			Date Analyzed:	3/10/2008
			Date Reported:	3/11/2008

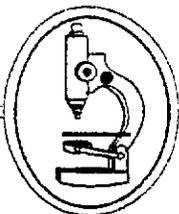
Report Reviewed By: R. Rossi

Report Approved By: Carolyn K. Allen President

Disclaimer: The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include, statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques, and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

MAR 13 2008



Joiner Micro Laboratories, Inc.

77-F West Lee Street • Warrenton, Virginia 20186 • (540) 347-7212

CERTIFICATE OF ANALYSIS

LAB ID: # 85947

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/0600
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Non Detectable (Tested at Lab)

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

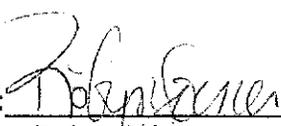
*MPN-Most Probable Number

< - Less than

> - Greater than

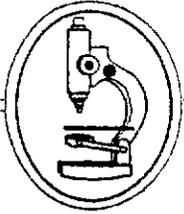
This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by:


Robyn Joiner

Biologist

March 11, 2008



Joiner Micro Laboratories, Inc.

77-F West Lee Street • Warrenton, Virginia 20186 • (540) 347-7212

CERTIFICATE OF ANALYSIS

LAB ID: # 85948

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/0700
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

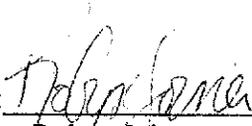
*MPN-Most Probable Number

< - Less than

> - Greater than

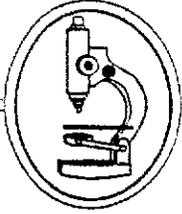
This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by:


Robyn Joiner

Biologist

March 11, 2008



Joiner Micro Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

LAB ID: # 85949

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/0800
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

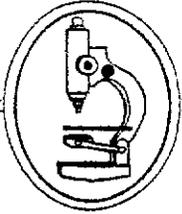
This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: *Robyn Joiner*

Robyn Joiner

Biologist

March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85950

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/0900
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: *Robyn Joiner*
Robyn Joiner
Biologist
March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85951

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1000
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: _____

Robyn Joiner
Robyn Joiner

Biologist

March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85952

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well

SAMPLE LOCATION: BEA-B1

DATE AND TIME SAMPLE COLLECTED: 3-5-08/1100

SAMPLE COLLECTED BY: Peter Foster

SAMPLE RECEIVED FROM: Peter Foster

DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228

SAMPLE CONTAINER: Sterile Plastic Container supplied by JML

CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria

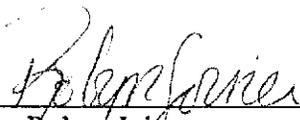
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

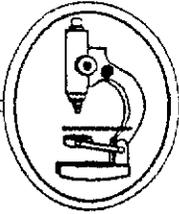
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Certified by: 

Robyn Joiner

Biologist

March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85953

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1200
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-5-08/1228
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

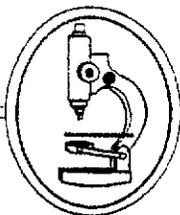
< - Less than

> - Greater than

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Certified by: *Robyn Joiner*
Robyn Joiner
Biologist
March 11, 2008

MAR 13 2008



Joiner Micro Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

LAB ID: # 85974

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1300
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/0852
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Non Detectable (Tested at Lab)

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

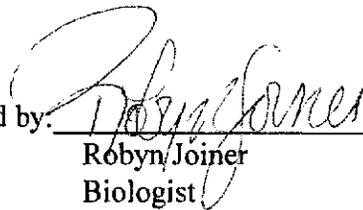
*MPN-Most Probable Number

< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by:


Robyn Joiner

Biologist

March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85975

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1400
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/0852
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: _____

Robyn Joiner

Biologist

March 11, 2008



Joiner Micro Laboratories, Inc.

77-F West Lee Street • Warrenton, Virginia 20186 • (540) 347-7212

CERTIFICATE OF ANALYSIS

LAB ID: # 85976

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1500
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/0852
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

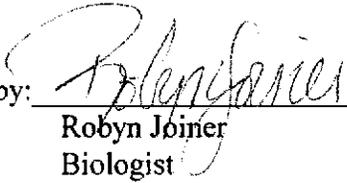
*MPN-Most Probable Number

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> - Greater than

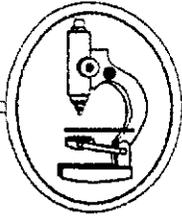
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Certified by:


Robyn Joiner

Biologist

March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85977

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1600
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/0852
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

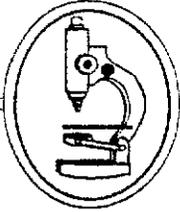
< - Less than

> - Greater than

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Certified by: _____

Robyn Joiner
Robyn Joiner
Biologist
March 11, 2008



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CERTIFICATE OF ANALYSIS

LAB ID: # 85978

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1700
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/0852
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

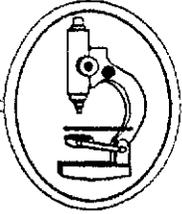
< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: _____

Robyn Joiner
Robyn Joiner
Biologist
March 11, 2008



Joiner Micro Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

LAB ID: # 85979

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-5-08/1800
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/0852
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

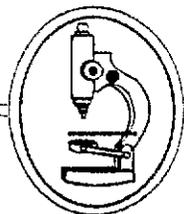
Certified by:

Robyn Joiner

Biologist

March 11, 2008

MAR 13 2008



Joiner Micro Laboratories, Inc.

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CERTIFICATE OF ANALYSIS

LAB ID: # 85987

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/0530
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Non Detectable (Tested at Lab)

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

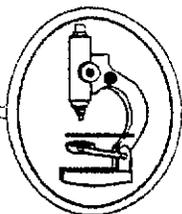
This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: _____

Robyn Joiner
Robyn Joiner

Biologist

March 11, 2008



Joiner Micro Laboratories, Inc.

77-F West Lee Street • Warrenton, Virginia 20186 • (540) 347-7212

CERTIFICATE OF ANALYSIS

LAB ID: # 85988

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/0600
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

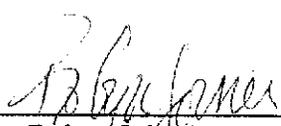
RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by: 

Robyn Joiner

Biologist

March 11, 2008



Joiner Micro Laboratories, Inc.

77-F West Lee Street • Warrenton, Virginia 20186 • (540) 347-7212

CERTIFICATE OF ANALYSIS

LAB ID: # 85989

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/0700
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

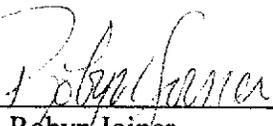
*MPN-Most Probable Number

< - Less than

> - Greater than

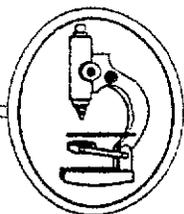
This water sample **DOES NOT PASS** the minimum potable water test requirements established by the Virginia Department of Health.

Certified by:


Robyn Joiner

Biologist

March 11, 2008



Joiner Micro Laboratories, Inc.

77-F West Lee Street • Warrenton, Virginia 20186 • (540) 347-7212

CERTIFICATE OF ANALYSIS

LAB ID: # 85990

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/0800
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

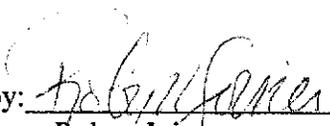
RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

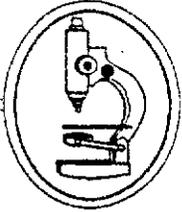
> - Greater than

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CERTIFICATE OF ANALYSIS

LAB ID: # 85991

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/0900
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN 16.1 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

< - Less than

> - Greater than

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CERTIFICATE OF ANALYSIS

LAB ID: # 85992

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/1000
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

RESULTS: MPN > 23.0 / 100 mL for Total Coliform Bacteria
MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

*MPN-Most Probable Number

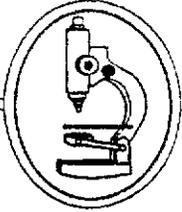
< - Less than

> - Greater than

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CERTIFICATE OF ANALYSIS

LAB ID: # 85993

NAME: Emery & Garrett Groundwater
ADDRESS: 56 Main Street
Meredith, NH 03253

PROPERTY: Bealeton
BEA-B1

SAMPLE SOURCE: Well
SAMPLE LOCATION: BEA-B1
DATE AND TIME SAMPLE COLLECTED: 3-6-08/1100
SAMPLE COLLECTED BY: Peter Foster
SAMPLE RECEIVED FROM: Peter Foster
DATE AND TIME SAMPLE RECEIVED IN LAB: 3-6-08/1104
SAMPLE CONTAINER: Sterile Plastic Container supplied by JML
CHLORINE RESIDUAL: Not Applicable

TESTS REQUESTED: TOTAL COLIFORM BACTERIA

METHOD OF ANALYSIS: Fermentation Technique (MPN Methodology) SM20:9221 B,C,E

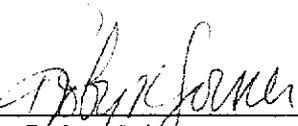
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MPN < 1.1 / 100 mL for Fecal Coliform Bacteria

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March 11, 2008



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CHAIN OF CUSTODY RECORD

VEL marked 3-11-08 ✓

PRIORITY ANALYSIS

- 3 DAY - 100% Surcharge
- 5 DAY - 75% Surcharge

CLIENT: <i>Emery & Garrett Groundwater</i>		PROPERTY REF:		ANALYSIS REQUESTED										PRESERVATION CODE																									
ADDRESS: <i>56 Main St</i>		<i>Beakton</i>																																					
P.O. Box <i>1578, Merrimack, NH 03253</i>														Code: A = NONE B = H ₂ SO ₄ C = NaOH D = HNO ₃ E = _____																									
CONTACT: <i>Peter Foster</i>																																							
PHONE: <i>703-297-7548</i> FAX: <i>603-279-8717</i>																																							
PRINT NAME: <i>Peter Foster</i>		SAMPLED BY																																					
SIGNATURE: <i>[Signature]</i>														COMMENTS:																									
SAMPLE ID (Location)	DATE	TIME	WATER	SOLID	COMP	GRAB	NO OF CONTAINERS																																
<i>BEA-B1</i>	<i>3/5/08</i>	<i>0600</i>	✓			✓	1	<i>Low level MPN</i>				<i>85947</i>																											
↓	↓	<i>0700</i>	✓			✓	1									<i>85948</i>																							
↓	↓	<i>0800</i>	✓			✓	1													<i>85949</i>																			
↓	↓	<i>0900</i>	✓			✓	1																	<i>85950</i>															
↓	↓	<i>1000</i>	✓			✓	1																					<i>85951</i>											
↓	↓	<i>1100</i>	✓			✓	1																									<i>85952</i>							
↓	↓	<i>1200</i>	✓			✓	1																													<i>85953</i>			
↓	↓																																						
RELINQUISHED BY: (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)				DATE/TIME																															
<i>[Signature]</i>		<i>3/5/08, 1228</i>																																					
RELINQUISHED BY: (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)				DATE/TIME																															
LAB RECEIPT BY: (SIGNATURE)		DATE/TIME		COMMENTS:				TEMP UPON RECEIPT																															
<i>Kate Liu</i>		<i>3/5/08/1228</i>						<i>< 1.0%</i>																															



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CHAIN OF CUSTODY RECORD

REL 3-11-08 ✓

PRIORITY ANALYSIS

3 DAY - 100% Surcharge

5 DAY - 75% Surcharge

CLIENT: <u>EGGI</u>		PROPERTY REF:		ANALYSIS REQUESTED										PRESERVATION CODE				
ADDRESS:		<u>Buckton</u>												Code: A = NONE B = H ₂ SO ₄ C = NaOH D = HNO ₃ E = _____				
CONTACT: <u>Peter Foster</u>		SAMPLED BY												COMMENTS:				
PHONE: <u>703-297-7548</u> FAX:		PRINT NAME: <u>Peter Foster</u>																
SIGNATURE: <u>703-297-7548</u>		SIGNATURE: <u>703-297-7548</u>																
SAMPLE ID (Location)	DATE	TIME	WATER	SOLID	COMP	CRAB	NO OF CONTAINERS											
<u>BEA-B1</u>	<u>3/5/08</u>	<u>1300</u>	✓			✓	1	<u>Low level MPN</u>										<u>85974</u>
		<u>1400</u>	✓			✓	1											<u>85975</u>
		<u>1500</u>	✓			✓	1											<u>85976</u>
		<u>1600</u>	✓			✓	1											<u>85977</u>
		<u>1700</u>	✓			✓	1											<u>85978</u>
		<u>1800</u>	✓			✓	1											<u>85979</u>
RELINQUISHED BY: (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)										DATE/TIME				
<u>[Signature]</u>		<u>3/4/08, 6/3</u>		<u>[Signature]</u>														
RELINQUISHED BY: (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)										DATE/TIME				
<u>[Signature]</u>				<u>[Signature]</u>														
LAB RECEIPT BY: (SIGNATURE)		DATE/TIME		COMMENTS:										TEMP UPON RECEIPT				
<u>[Signature]</u>														<u>< 1.0 # °C</u>				



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CHAIN OF CUSTODY RECORD

LRL mailed 3-11-08 ✓

PRIORITY ANALYSIS

- 3 DAY - 100% Surcharge
- 5 DAY - 75% Surcharge

ANALYSIS REQUESTED

PRESERVATION CODE

Code: A = NONE
 B = H₂SO₄
 C = NaOH
 D = HNO₃
 E = _____

CLIENT: EGGI
 ADDRESS: _____
 CONTACT: Peter Foster
 PHONE: 703-297-7548 FAX: 603-299-8717
 SAMPLED BY
 PRINT NAME: Peter Foster
 SIGNATURE: [Signature]

PROPERTY REF:
Beaketon

SAMPLE ID (Location)	DATE	TIME	WATER	SOLID	COMP	CRAB	NO. OF CONTAINERS
BEA-B1	3/6/08	0530	✓			✓	1
		0600	✓			✓	1
		0700	✓			✓	1
		0800	✓			✓	1
		0900	✓			✓	1
		1000	✓			✓	1
		1100	✓			✓	1

Low level MPV

COMMENTS:

85987
 85988
 85989
 85990
 85991
 85992
 85993

RELINQUISHED BY: (SIGNATURE) <u>[Signature]</u>	DATE/TIME 3/6/08 10:04	RECEIVED BY (SIGNATURE)	DATE/TIME
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	DATE/TIME
LAB RECEIPT BY: (SIGNATURE) <u>Kate Liu</u>	DATE/TIME 3/6/08/1004	COMMENTS:	TEMP UPON RECEIPT 4.8°C

PLATE