2013 Annual Aquifer Monitoring Report
Evergreen Spring
Fryeburg, Maine

Prepared for:

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GROUND WATER HYDROLOGISTS

STATE OF MAINE
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March, 2014

2013 ANNUAL AQUIFER MONITORING REPORT
EVERGREEN SPRING
FRYEBURG, MAINE

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1.0 INTRODUCTION

Nestle Waters North America Inc. (Poland Spring) has contracted with Luetje Geological Services (LGS) of Portland, Maine and McDonald Morrissey Associates, Inc. (MMA) of Concord, New Hampshire, independent hydrogeologic consulting firms, to collect and compile data from the Wards Brook Aquifer. Poland Spring is not required to submit these data to the Town of Fryeburg but started to do so voluntarily with the December 2008 monthly report. Annual reports are compiled after the end of each calendar year summarizing final data and drawing conclusions about hydrologic conditions in the Wards Brook Aquifer. Poland Spring purchases spring water in Fryeburg from the Fryeburg Water Company (FWC). The FWC also services other residential, commercial, industrial and public water users in Fryeburg.

Hydrogeologic data collection from locations in and around the Wards Brook Aquifer began in 2003 by Woodard & Curran for Pure Mountain Springs Company. LGS assumed responsibility for the monthly monitoring program in July, 2008 and continues to conduct monitoring of the Wards Brook Aquifer on behalf of Poland Spring. The primary role for LGS is monthly data collection and preparation of monthly and annual reports. MMA was contracted to perform data analysis, program review, and general oversight of site monitoring and reporting.

In August 2005, Emery & Garrett Groundwater, Inc. submitted a report (*Groundwater Flow Model, Wards Brook Aquifer, Fryeburg, Maine, 2005)* to the Town of Fryeburg Planning Board. This report was funded by the Fryeburg Aquifer Resource Committee (FARC). To date, this appears to be the most comprehensive investigation and report pertaining to the Wards Brook Aquifer. Emery & Garrett used groundwater and geologic data collected by several entities including:

- Pure Mountain Springs (PMS) and Woodard & Curran (W&C);
- Poland Spring;
- Fryeburg Water Company (FWC);
- WE Corporation (WE);
- SF Corporation, LLC (SF); and
- U.S. Geological Survey (USGS).

As part of its effort, Emery & Garrett created a groundwater model of the Wards Brook Aquifer. To simplify the report and present findings to the public, Emery and Garrett likened the Wards Brook Aquifer to a bank account, with income (groundwater recharge), fixed expenses (FWC needs for its customers other than Pure Mountain Springs and appropriate minimum flow through Wards Brook Drainage), and discretionary expenses (water used for other FWC customers, other water users of the aquifer, and excess flow through Wards Brook drainage). Emery & Garrett concluded that discretionary expenses (withdrawals) from the Wellhead Protection Area as delineated, after all other 'fixed expenses' were met, totaled approximately 293 million gallons per year (equivalent to 804,000 gallons per day over the course of a calendar year) during an average precipitation year. Emery & Garrett then imposed an arbitrary safety factor of 25%, arriving at a conservative 'discretionary expense' value of 220 million gallons per year (equivalent to 603,000 gallons per day over the course of a calendar year). Poland Spring purchases well below the 'discretionary expense' value. In 2013, water pumped from Borehole-1 (PBH-1) totaled approximately 103 million gallons.

2.0 AQUIFER MONITORING PROGRAM

This annual report is a compilation of data for the period from January 2013 through December 2013. The entire record of water elevations measured at MW-108 is also included showing typical seasonal groundwater fluctuations in the Wards Brook Aquifer and is discussed further in Section 3.0

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the PBH-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from PBH-1. Locations of all data collection stations are shown in Figure 1. Table 1 summarizes data collection stations and monitoring frequency.

3.0 GROUNDWATER LEVELS

Groundwater levels are measured in eleven monitoring wells at locations shown in Figure 1. These wells provide groundwater level data across and adjacent to the Wards Brook watershed. Photographs A and AA show a typical monitoring well in Fryeburg and the device used to measure the depth to water (water level indicator). Photographs appear in Appendix A.

Figure 2 shows groundwater elevations measured from the monitoring well network for the 2013 calendar year. Groundwater elevations range from approximately 380 to 430 feet NAVD88 (North American Vertical Datum 1988). Figure 3 shows the entire record of groundwater elevations for MW-108 (November 2003 – present) and demonstrates the typical general seasonal groundwater fluctuations observed across the aquifer.

Groundwater level fluctuations are primarily driven by the timing and amount of precipitation in a given region. In general, the highest groundwater levels occur in the spring in response to recharge from spring rain and snow melt after the ground thaws. Groundwater levels tend to decline through the summer months, when evapotranspiration is greatest, and lowest groundwater levels occur near the end of the summer or early fall. After the trees drop their leaves and evapotranspiration decreases, groundwater levels generally rise until the ground freezes. Another period of low groundwater levels then occurs in late winter after the ground has been frozen for several months. Data tables showing all groundwater and surface water elevation data appear in Appendix B.

Groundwater levels for 2013 show typical seasonal trends for the first half of the year. A rise in groundwater elevations was observed in the spring caused by snowpack melt and precipitation. Groundwater elevations began to decline in May and continued to decline through October and into November. This was primarily caused by below average precipitation through the fall months of 2013, particularly in October. A slight rise in groundwater elevations was then observed at some locations in December, representing late fall recharge.

Highest groundwater elevations for 2013 were observed primarily in April and the lowest groundwater elevations were primarily recorded in November and December.

4.0 SURFACE WATER LEVELS

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. The surface water measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Brook; and
- Wards Pond Staff Gauge (WPSG-2A): surface water elevation is measured near the center of the watershed in a bog located to the south of Wards Pond.

Appendix A includes a photograph (Photograph B) showing a typical staff gage used to measure surface water stage and a view of Lovewell Pond (Photograph BB) facing north from the boat ramp located off Route 113. The Lovewell Pond photograph is taken every month during regular monitoring if access is available. 2013 surface water elevations from surface water stations appear in Figure 4. A data table summarizing surface water elevation data appears in Appendix B.

Examination of Figure 4 shows normal seasonal surface water fluctuations near the site. In general, there is typically a rise in surface water levels during spring melt, a decline through the summer months, another rise in the fall and early winter followed by frozen conditions during winter months. Frozen conditions were observed at WPMP-1and SRMP-1 in January, February, and December and at WPSG-2A in January, February, March, and December. LPSG-1 remained unfrozen due to moving water at this station.

5.0 PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG). The location of the on-site rain gauge is shown in Figure 1. A photograph showing the on-site rain gauge (Photograph C) appears in Appendix A. The on-site rain gauge has a self-tipping bucket that is activated with every 0.01 inches of precipitation. The gauge is also wrapped with heat tape that melts snowfall and allows measurement of precipitation through the winter months.

Precipitation data are also recorded at the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center) and compared to precipitation measurements taken by the on-site rain gauge. The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 2 summarizes 2013 precipitation of data available and used in the monthly reports.

Examination of Table 2 shows that there is an appropriately close correlation between precipitation data collected at both locations. For the 2013 calendar year, the on-site rain gauge recorded a total of 37.10 inches of precipitation, 8.23 inches less than was recorded in 2012. The Fryeburg Eastern Slopes Airport gauging station recorded 40.23 inches of precipitation, 7.30 inches less than was recorded in 2012.

The Fryeburg area receives an average of approximately 49 inches of precipitation per year. This average was calculated from data collected at two long term National Weather Service Cooperative stations:

- East Hiram NWS Coop Station 173794 (1967 – 2008) (the East Hiram Station was discontinued in July 2009)
- North Conway NWS Coop Station 275995 (1975 – 2010)

6.0 WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, spring water volume withdrawn from PBH-1 is presented as total gallons recorded as offloaded at bottling facilities. Table 3 summarizes the 2013 monthly withdrawal volumes. Spring water withdrawals from PBH-1 totaled 103,499,251 gallons for the 2013 calendar year.

7.0 BIOLOGICAL MONITORING

To complement the biological investigations conducted by Normandeau Associates in the 2006 and 2008 field seasons, Poland Spring initiated a long-term biological monitoring program of Wards Brook beginning in 2009. Bio-monitoring, conducted every other year, was conducted by Stantec in 2013 and appears in Appendix C.

8.0 FINDINGS

This report represents the fifth annual report for Fryeburg, Maine prepared on behalf of Poland Spring and is a summary of hydrologic data collected from the Wards Brook Aquifer through the 2013 calendar year. Poland Spring also provides these data voluntarily to the Town of Fryeburg, Fryeburg Water District and the Fryeburg Water Company on a monthly basis in the form of a monthly report that began with the December 2008 report. These data provide an on-going comprehensive summary of hydrologic conditions in the Wards Brook Aquifer. Findings for 2013 include the following:

- Spring water withdrawal from PBH-1 for 2013 totaled 103,499,251 gallons;
- 103,499,251 gallons represents approximately 47% of the discretionary water available as determined by Emery & Garrett Groundwater, Inc.;
- Normal seasonal variations of groundwater levels were observed through the first half of 2013 at all monitoring well locations;
- Declining groundwater levels were observed through the second half of 2013 due to below average precipitation through the fall months.
- Highest groundwater elevations for 2013 were observed primarily in April and the lowest groundwater elevations were recorded in November and December;
- Surface water levels showed normal seasonal variation in 2013;
- Total precipitation for the 2013 calendar year was 37.10 inches as recorded by the on-site rain gauge, 8.23 inches less than 2012.

9.0 CONCLUSIONS

Based on our analysis of groundwater and surface water data collected in Fryeburg, Luetje Geological Services and McDonald Morrissey Associates have not observed any adverse impact to waters of the State, water-related natural resources and existing uses as a result of the sale of water by the Fryeburg Water Company to Poland Spring.

If you have any questions regarding the data, explanations, or interpretations included in this report, please do not hesitate to contact Ed Luetje (207) 415-9898.

Sincerely,

Luetje Geological Services, LLC

Ed Luetje C.G.

McDonald Morrissey Associates, Inc.

Daniel J. Morrissey

cc: Fryeburg Water District (Mr. Richard Krasker)
Fryeburg Water Company (Mr. Hugh Hastings)
Emery & Garrett Groundwater, Inc. (Mr. Peter Garrett)
Poland Spring (Mr. Mark Dubois)

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Table 3	PBH-1 2013 Withdrawal Summary

TABLE 1
FRYEBURG MONITORING PROGRAM PLAN

Monitoring Station	Frequency
Monitoring Wells	
TW-2 [1]	Monthly
TW-9	Monthly
MW-101 [2]	Monthly
MW-103	Monthly
MW-105	Monthly
MW-107	Monthly
MW-108	Monthly
MW-109	Monthly
MW-110	Monthly
MW-113	Monthly
MW-114	Monthly
Surface Water Stations	
WPMP-1 [3]	Monthly
WPSG-2A [4]	Monthly
SRMP-1 [5]	Monthly
LPSG-1 [6]	Monthly
Precipitation	
RG – On-site Rain Gauge	Continuous
ICAO Station KIZG (Fryeburg Airport)	Continuous
Withdrawal Data	
PBH-1	Continuous

Notes:
1. TW refers to 'test well'.
2. MW refers to 'monitoring well'.
3. WPMP refers to 'Wards Pond Monitoring Point'.
4. WPSG refers to 'Wards Pond Staff Gauge'.
5. SRMP refers to 'Saco River Monitoring Point'.
6. LPSG refers to 'Lovewell Pond Staff Gauge'.

TABLE 2
2013 PRECIPITATION SUMMARY

MONTH	***ON-SITE RAIN GAUGE DATA***	***FRYEBURG EASTERN SLOPES AIRPORT (ICAO STATION KIZG)***
Jan 2013	1.22	1.35
Feb 2013	2.15	2.67
Mar 2013	1.86	2.06
Apr 2013	1.78	1.88
May 2013	4.01	4.35
Jun 2013	5.74	5.37
Jul 2013	4.35	4.98
Aug 2013	3.48	4.47
Sep 2013	3.65	3.59[1]
Oct 2013	1.73	1.97
Nov 2013	4.28	4.49
Dec 2013	2.85	3.05
2013 TOTAL	**37.10**	**40.23**

Notes: 1. KIZG station missing data for September 11th. On-Site gauge recorded 0.51" of precipitation on September 11th.

TABLE 3
PBH-1 2013 WITHDRAWAL SUMMARY

Month	Monthly Total (gal)
Jan-13	5,327,400
Feb-13	5,121,265
Mar-13	10,305,701
Apr-13	9,629,300
May-13	14,463,687
Jun-13	13,114,028
Jul-13	14,801,820
Aug-13	8,603,875
Sep-13	8,067,319
Oct-13	4,572,021
Nov-13	3,304,200
Dec-13	6,188,635
2013 Total	**103,499,251**

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Figure 1	Fryeburg Site Map
Figure 2	Hydrograph for 2013 Groundwater Elevations
Figure 3	Hydrograph for MW-108 – Complete Record
Figure 4	Hydrograph for 2013 Surface Water

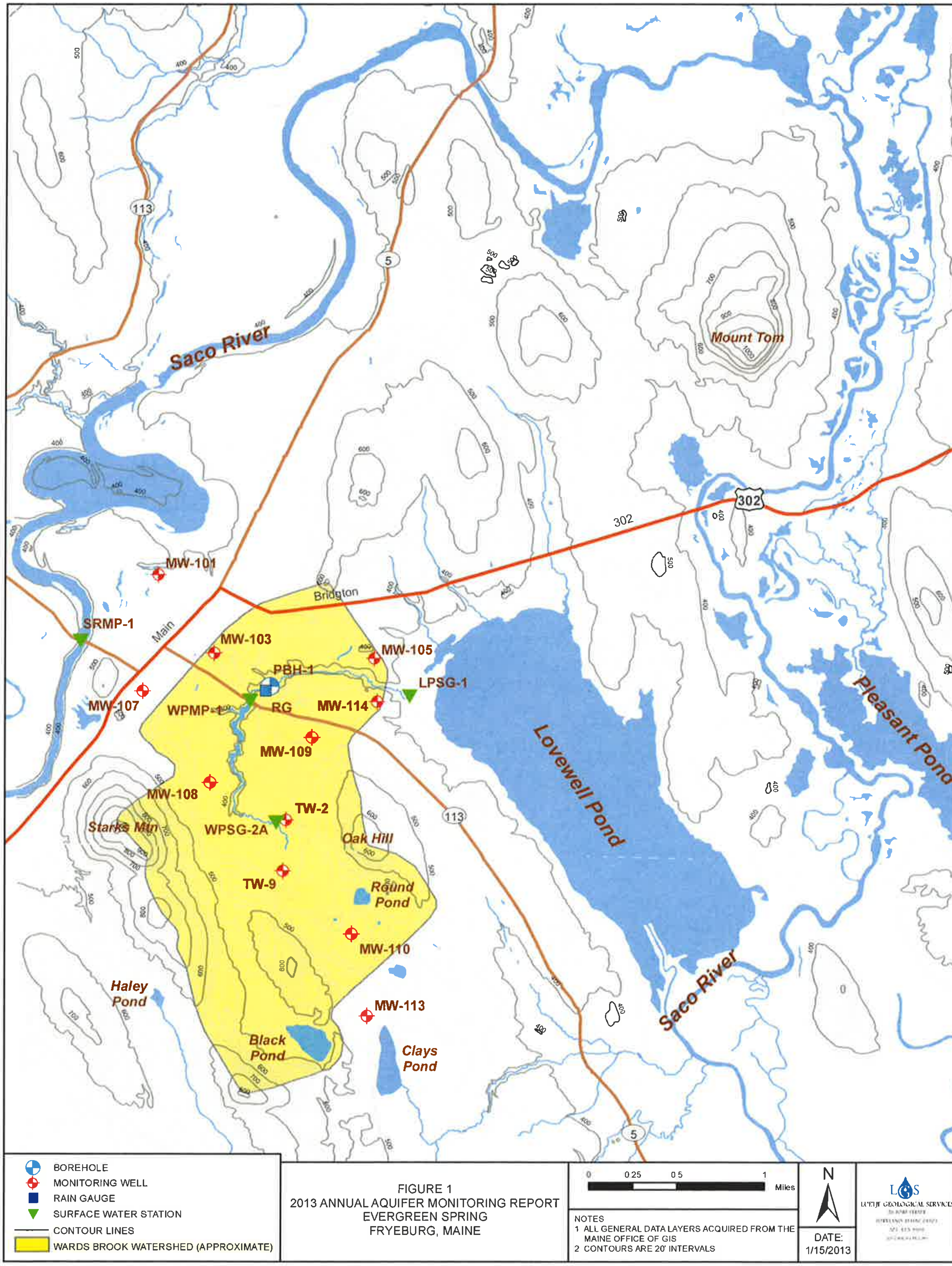


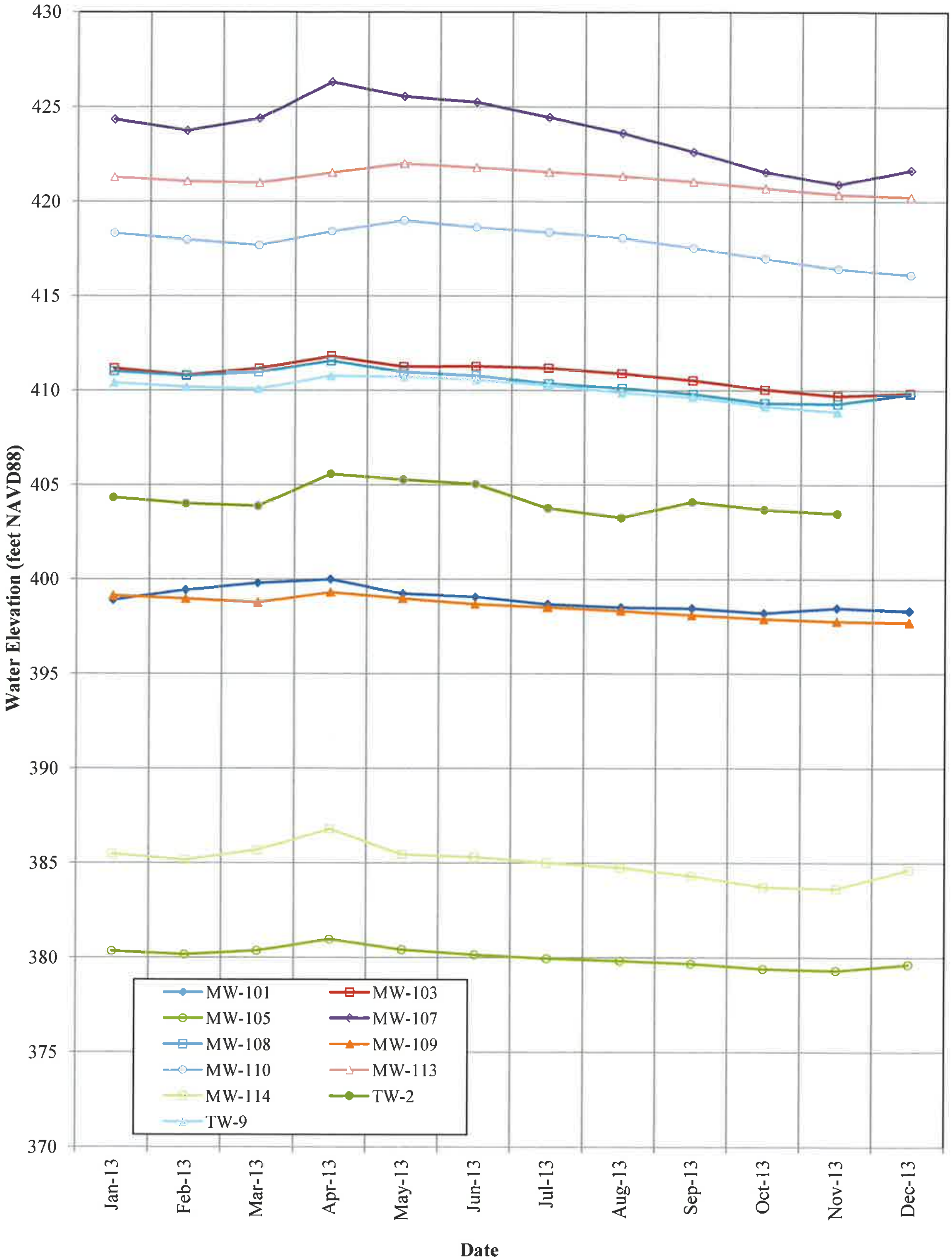
FIGURE 1
2013 ANNUAL AQUIFER MONITORING REPORT
EVERGREEN SPRING
FRYEBURG, MAINE

NOTES
1 ALL GENERAL DATA LAYERS ACQUIRED FROM THE MAINE OFFICE OF GIS
2 CONTOURS ARE 20' INTERVALS

DATE: 1/15/2013

LGS
LUETJE GEOLOGICAL SERVICES

FIGURE 2
HYDROGRAPH FOR 2013 GROUNDWATER ELEVATIONS



APPENDIX B

2013 Groundwater and Surface Water Elevation Data Table
Fryeburg, Maine

APPENDIX B
2013 GROUNDWATER AND SURFACE WATER ELEVATION DATA TABLE
FRYEBURG, MAINE

Monitoring Wells	MW-101 [2]	MW-103	MW-105	MW-107	MW-108	MW-109	MW-110	MW-113	MW-114	TW-2	TW-9
Reference Elevation (feet NAVD88) [1]	408.35	421.58	404.98	431.95	419.89	420.11	461.86	441.13	405.20	404.18	409.24
1/21/2013	398.90	411.17	380.34	424.34	411.01	399.13	418.32	421.28	385.47	404.32	410.40
2/20/2013	399.44	410.79	380.16	423.74	410.77	398.96	417.97	421.06	385.16	404.00	410.17
3/22/2013	399.80	411.15	380.36	424.39	410.96	398.77	417.67	420.98	385.69	403.87	410.07
4/19/2013	400.00	411.79	380.97	426.29	411.55	399.30	418.41	421.52	386.79	405.56	410.75
5/20/2013	399.24	411.24	380.41	425.54	410.96	398.97	418.99	422.00	385.45	405.26	410.71
6/19/2013	399.07	411.26	380.15	425.24	410.77	398.68	418.62	421.78	385.32	405.03	410.54
7/22/2013	398.68	411.17	379.95	424.44	410.34	398.51	418.36	421.55	385.00	403.75	410.26
8/19/2013	398.52	410.88	379.83	423.61	410.12	398.33	418.06	421.33	384.75	403.25	409.87
9/19/2013	398.47	410.52	379.68	422.62	409.80	398.10	417.53	421.04	384.32	404.09	409.61
10/21/2013	398.22	410.05	379.40	421.57	409.31	397.90	416.97	420.70	383.74	403.68	409.15
11/20/2013	398.48	409.69	379.31	420.90	409.27	397.77	416.42	420.36	383.63	403.47	408.84
12/20/2013	398.32	409.84	379.63	421.66	409.79	397.72	416.10	420.22	384.64	frozen	frozen

Surface Water Stations	LPSG-1 [3]	WPMP-1 [4]	SRMP-1 [5]	WPSG-2A [6]
Reference Elevation (feet NAVD88) [1]	364.84 364.82[3]	401.27	418.79	403.72 403.64[6]
1/21/2013	362.75	frozen	frozen	frozen
2/20/2013	362.66	frozen	frozen	frozen
3/22/2013	362.73	397.12	396.84	frozen
4/19/2013	363.76	397.22	398.04	401.15
5/20/2013	362.62	397.12	396.99	401.07
6/19/2013	362.55	397.09	396.81	401.00
7/22/2013	362.51	396.99	396.45	400.84
8/19/2013	362.64	397.02	396.14	400.96
9/19/2013	362.63	397.04	396.41	400.95
10/21/2013	362.67	397.08	396.59	400.86
11/20/2013	362.69	397.11	396.74	400.98
12/20/2013	362.63	frozen	frozen	frozen

Notes:

1. NAVD88 is the North American Vertical Datum 1988. Elevations are in feet NAVD. Measuring points were re-surveyed in the summer 2009 by Bliss Associates and new reference elevations are are reflected in this chart.
2. MW refers to monitoring well
3. LPSG refers to Lovewell Pond Staff Gauge; new reference elevation (April 2013)
4. WPMP refers to Wards Pond Monitoring Point
5. SRMP refers to Saco River Monitoring Point
6. WPSG refers to Wards Pond Staff Gauge; New reference elevation (April 2013)

APPENDIX C

Evergreen Spring 2013 Biomonitoring Report

Nestle Waters North America Inc., Evergreen Spring, Fryeburg, Maine: 2013 Stream Biological Monitoring Report

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March 2014

NESTLE WATERS NORTH AMERICA INC., EVERGREEN SPRING, FRYEBURG, MAINE: 2013 STREAM BIOLOGICAL MONITORING REPORT

March 2014

1.0 Introduction

Nestle Waters North America Inc. (Poland Spring), through its subsidiary Pure Mountain Springs, purchases water from Evergreen Spring, a spring site owned by the Fryeburg Water Company along Wards Brook and Route 113 in Fryeburg, Maine (Figure 1). Poland Spring continues to conduct voluntary monthly monitoring of groundwater levels of the underlying aquifer and the surface water levels of Wards Brook in order to assess potential impacts of the groundwater withdrawal operations on the overall hydrology of the spring site. In 2007, Normandeau Associates, Inc. (Normandeau) conducted a biological characterization of aquatic and wetland resources within Wards Brook and Lovewell Pond to provide a preliminary assessment of potential impacts to wetland and aquatic resources as a result of groundwater withdrawal operations.[1]

To further supplement the ongoing hydrological monitoring of the spring site and to augment the previous biological sampling completed by Normandeau, Stantec Consulting Services Inc. (Stantec) was asked by Poland Spring to initiate an on-site biological monitoring (biomonitoring) program in 2009 to monitor and assess potential impacts to stream habitats as a result of continued groundwater withdrawal operations through benthic macroinvertebrate monitoring on an every-other-year schedule. This biomonitoring program was voluntarily initiated as part of Poland Spring's commitment to maintaining sustainable yields of groundwater withdrawal and avoiding adverse impacts to the associated natural resources. This biomonitoring program is not part of any required conditional compliance associated with permits issued by the Maine Department of Environmental Protection (MDEP) or any other state or federal regulatory agency. This report presents the results of the 2013 biomonitoring.

2.0 2013 Stream Biomonitoring Methodology

To monitor the aquatic habitats within Wards Brook relative to the potential impacts of groundwater withdrawals at Evergreen Spring, Stantec deployed one set of rock bags (i.e., three bags) in suitable sampling habitat (e.g., run-riffle habitat) upstream of a snowmobile bridge at the Grist Mill site (RB-1; Figure 2) to sample the macroinvertebrate community within Wards Brook. Macroinvertebrate species vary in their tolerance to organic pollutants and stream habitat alterations. Through sampling and analyses of the macroinvertebrate communities, determinations of overall water quality can be made. Long-term biological sampling of the macroinvertebrate communities can be conducted to document potential changes in the water quality over time. The RB-1 sampling site was similar in stream habitat to the Downstream Station as sampled by Normandeau in 2007 and by Stantec in 2009 and 2011. Deployment and retrieval of the rock bags was conducted in accordance with *Methods for Biological*

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[1] Normandeau Associates, Inc. December 2007. *Baseline Characterization of Natural Resources of Wards Brook and Lovewell Pond in Support of Assessment of Potential Groundwater Withdrawal Impacts.* Prepared for Town of Fryeburg.

Sampling and Analysis of Maine's Rivers and Streams.[2] Rock bags were deployed during the low flow season (i.e., July through September). This biomonitoring methodology is consistent with the approach implemented by Normandeau in 2007 and continued by Stantec in 2009 and 2011. Each rock bag was located using a Trimble® Pro-XR Global Positioning System receiver. Samples were preserved in the field and submitted to Lotic, Inc. (Lotic) for taxonomic identification and habitat quality analysis using their macroinvertebrate water quality estimation model. MDEP Biological Monitoring Unit Stream Macroinvertebrate Field Data Sheets were completed at the time of rock bag collection and included recording habitat and water quality parameters such as temperature, dissolved oxygen, specific conductivity, and pH.

Lotic's water quality model uses several parameters from the stream macroinvertebrate community, including species diversity and abundance of certain species, to determine the water quality of the stream. Under 38 M.R.S. Section 465, four categories of water classification have been established. These standards describe the standards of aquatic life (e.g., macroinvertebrates) that shall be attained within Maine streams.

The aquatic life standards are as follows:

Class	Biological Standard
AA	Aquatic life as naturally occurs
A	Aquatic life as naturally occurs
B	Water quality sufficient to support all indigenous aquatic species. Only non-detrimental changes to the resident biological community are allowed.
C	Water quality sufficient to support all indigenous fish species. Changes to aquatic life may occur but structure and function of the resident biological community must be maintained.

Through systematic sampling of various stream habitats throughout Maine, the MDEP compiled a baseline database of representative macroinvertebrate communities from pristine, unimpaired streams to highly altered streams. A water classification was subsequently adopted for the streams by the Maine Legislature. This baseline database provides a reference point to which successive samples can be compared in order to determine stream classification and water quality. Lotic's report, found in Appendix A, further elaborates on the baseline data compilation and the relevant macroinvertebrate community parameters used in evaluating the water quality.

3.0 2013 Stream Biomonitoring Results

Stantec deployed rock bags on August 12, 2013, and retrieved the rock bags on September 11, 2013. Rock bags were deployed in a shallow run-riffle habitat with a sand-gravel substrate. Stantec collected the macroinvertebrate species from each rock bag and provided the samples to Lotic. Lotic identified and

[2] Davies, S. and L. Tsomides. 2002 . *Methods for Biological Sampling and Analysis of Maine's Rivers and Streams.* Maine Department of Environmental Protection. Bureau of Land and Water Quality. Augusta, ME.

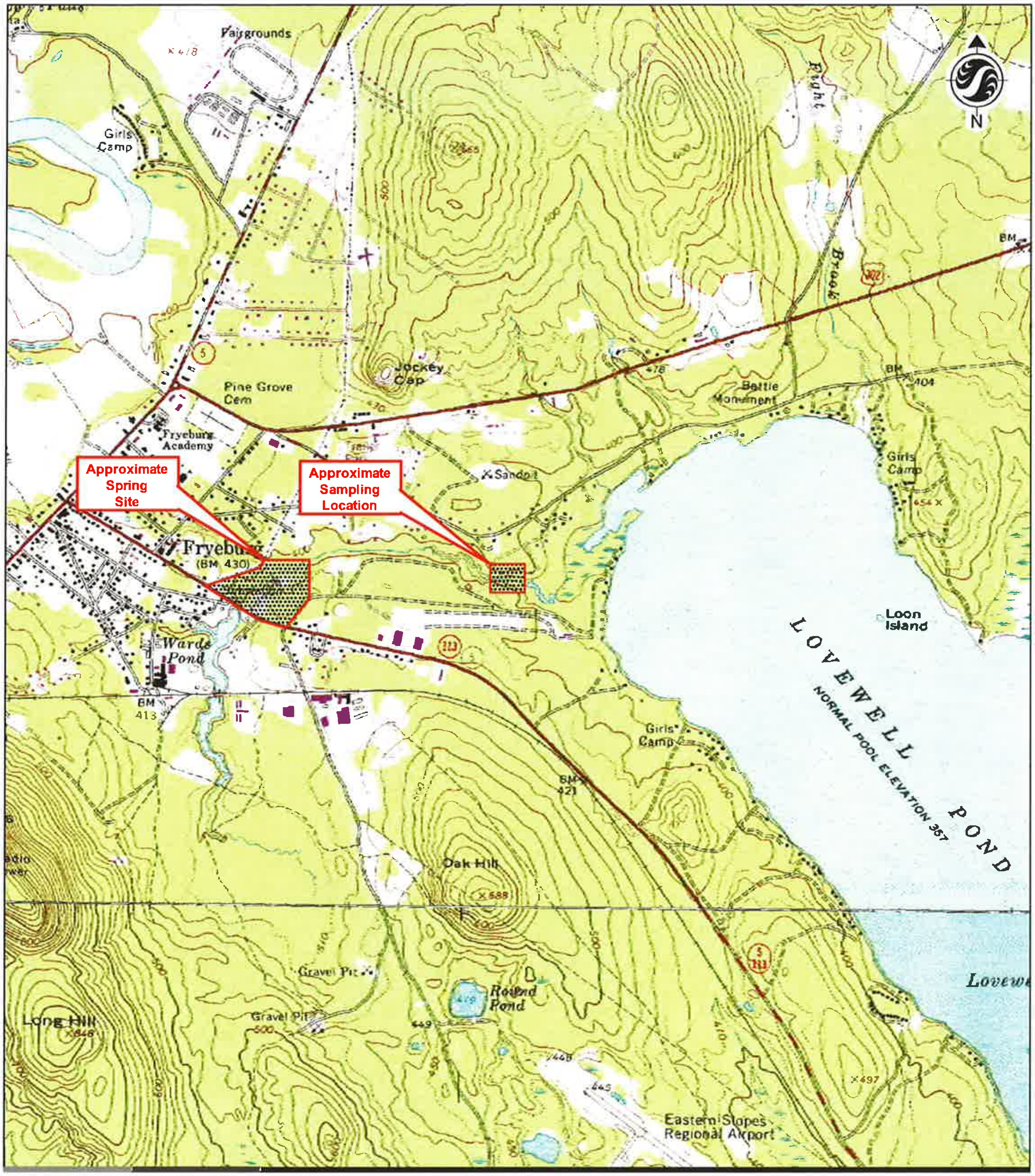
enumerated each macroinvertebrate species from the rock bag samples. The data were analyzed by Lotic using their water quality model to determine the water quality of the stream. Based on the macroinvertebrate water quality estimation model, Lotic determined that the benthic community at the RB-1 station in Wards Brook best represents a Class A stream. Lotic noted the high richness of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera; i.e., EPT species) supported the Class A determination. The Class A water quality attainment of Wards Brook is better than the statutory Class C classification.[3] Appendix A contains the results of Lotic's analyses. Appendix B contains representative stream habitat photographs.

4.0 Discussion

The macroinvertebrate community sampled in 2013 continues to indicate Class A water quality. Class A results were similarly attained in 2011 due to a high proportion of EPT species (i.e., species with generally low biological tolerances and found) and a low proportion of bloodworm midges (Chironomid) species (i.e., species with higher biological tolerance values) present in the stream samples. Both mayflies and stoneflies are species that are characteristic of higher quality waters with minimal disturbances. Lotic notes that the high proportion of black fly larvae (*Simulium* sp.) is most likely due to stream habitat and not water quality impairment. Black fly larvae are filter feeding organisms and their abundance is known to fluctuate widely on a yearly basis.

A comparison of the macroinvertebrate communities sampled between 2007 and 2013 is presented in Appendix C. Table 1 below compares various metrics relative to the macroinvertebrate communities collected between 2007 and 2013 in Wards Brook.

[3] Wards Brook is classified as Class C surface water. Title 38, Section 467-12(B)(2).



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00489–F001–Locus.dwg

0 2,000
Feet

Client/Project 195600489
Nestle Waters North America Inc.
Evergreen Spring
Fryeburg, Maine

Figure No.
1

Title
Site Location Map

February 3, 2010

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Legend

- ROCK BASKET MONITORING LOCATION
- APPROXIMATE BOREHOLE LOCATION

Client/Project 195600717

Nestle Waters North America Inc.
Evergreen Spring
Fryeburg, Maine

Figure No.
2

Title
2013 Biomonitoring Locations

00717_002BioMon.dwg

March 18, 2014

Appendix A Macroinvertebrate Data

Wards Brook, Fryeburg, Maine 2013

Site value	Community Parameter	WATER CLASS A	B	C	NA
	Plecoptera Richness				
	mean	2.5	1.9	0.3	0
5	mode	3	1	0	0
	range	1-4	1-4	0-1	0
		X			
	Taxa Ratio (E/T) · (P)				
	mean	2.7	1.7	0.3	0
3.33	range	0.5-8.0	0.4-3.7	0.0-1.0	0
		X			
	Indicator Taxa				
	mean	3.7	2.0	0.5	0
2,7	range	1-7	0-4	0-1	0
	mean abundance when present	24.0	2.0	0.5	0
		X			
	EPT Richness				
	mean	16.8	19.5	10.3	3.2
20	range	13-24	11-27	7-13	0-11
		X	X		
	Total Richness				
	mean	36.8	47.3	26.8	17.6
42	range	20-48	25-63	20-33	4-27
		X	X		
	Dominance (% of sites)				
	Ephemeroptera, Plecoptera taxa	60%	0%	0%	0%
	Trichoptera taxa	35%	70%	50%	10%
Diptera, 24.0%					
	Diptera taxa	5%	20%	50%	40%
	Non-insect taxa	0%	10%	0%	50%
	Dominant organism greater than 45%	5%	20%	40%	90%
			X	X	

Photo 1. RB-1 Stream Sampling Station looking upstream.
Stantec Consulting. August 12, 2013.

Photo 2. RB-1 Stream Sampling Station looking downstream.
Stantec Consulting. August 12, 2013.

Photo 3. RB-1 Stream Sampling Station looking upstream.
Stantec Consulting. September 11, 2013.

Photo 4. RB-1 Stream Sampling Station looking downstream.
Stantec Consulting. September 11, 2013.

Appendix C Macroinvertebrate Community Comparison

Wards Brook Macroinvertebrate Comparison*

Order	Taxon	Tolerance Value**	2007			2009			2011			2013		
			Rep 1	Rep 2	Rep 3	Rep 1	Rep 2	Rep 3	Rep 1	Rep 2	Rep 3	Rep 1	Rep 2	Rep 3
Amphipoda	Gammarus sp.		2	0	0	0	0	0	0	0	0	0	0	0
Coleoptera	Elmidae	4	0	0	0	3	0	0	0	0	0	0	0	0
Coleoptera	Dubiraphia		0	0	0	0	0	0	3	0	1	1	0	1
Coleoptera	Promoresia	2	0	4	16	38	12	1	20	1	7	6	11	12
Coleoptera	Promoresia (adult)		0	0	0	0	0	3	0	0	0	2	0	4
Coleoptera	Stenelmis	5	0	4	0	3	0	1	0	0	0	0	0	0
Diptera	Antocha	3	0	4	0	0	0	0	0	0	0	0	0	0
Diptera	Bezzia / Palpomyia	6	0	0	0	2	4	2	0	2	3	0	0	0
Diptera	Culicoides	6	0	0	0	0	0	0	0	1	0	0	0	0
Diptera	Dicranota	3	0	0	0	4	2	0	2	1	5	0	0	0
Diptera	Empididae	6	0	0	0	5	4	0	1	0	0	0	0	0
Diptera	Hemerodromia	6	2	0	4	0	0	0	0	0	0	2	0	1
Diptera	Hexatoma	2	0	0	0	2	4	1	0	3	2	0	1	0
Diptera	Neoplasta		0	0	0	0	0	0	1	1	2	0	0	0
Diptera	Oreogeton		0	4	0	0	0	0	0	0	0	0	0	0
Diptera	Simuliidae	6	0	0	0	68	139	2	0	0	0	0	0	0
Diptera	Simulium	5	14	40	64	212	395	11	96	91	28	56	75	47
Diptera	Tipulidae	6	0	0	0	0	0	0	0	1	1	0	0	0
Diptera	Tipula	6	0	0	0	2	2	0	0	2	2	1	0	3
Diptera (Chironomidae)	Brillia	5	4	0	0	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Cardiocladius	5	0	0	0	3	4	0	0	0	0	0	0	0
Diptera (Chironomidae)	Corynoneura	4	0	0	0	5	2	1	5	1	1	1	3	1
Diptera (Chironomidae)	Eukiefferiella	8	0	20	0	17	14	0	0	0	0	0	0	0
Diptera (Chironomidae)	Eukiefferiella claripennis group	8	0	0	0	0	0	0	22	29	11	21	22	12
Diptera (Chironomidae)	Eukiefferiella brehmi group	8	0	0	0	0	0	0	1	0	0	0	0	0
Diptera (Chironomidae)	Eukiefferiella devonica group	8	0	0	0	0	0	0	5	0	0	3	0	1
Diptera (Chironomidae)	Larsia	7	0	0	0	0	0	0	0	0	3	0	0	0
Diptera (Chironomidae)	Micropsectra	7	0	0	0	2	2	0	0	0	0	0	0	0
Diptera (Chironomidae)	Nanocladius	7	0	0	0	0	1	0	0	0	0	0	0	0
Diptera (Chironomidae)	Parametriocnemus	5	6	8	24	11	20	3	1	1	1	12	10	9
Diptera (Chironomidae)	Polypedilum aviceps	4	0	0	0	2	4	0	0	1	0	12	10	4
Diptera (Chironomidae)	Polypedilum bergi		0	0	0	0	0	0	0	0	0	1	0	0
Diptera (Chironomidae)	Polypedilum fallax	6	0	4	16	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Polypedilum flavum		1	20	0	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Polypedilum illinoense group	6	0	0	0	0	0	1	0	0	0	0	0	0
Diptera (Chironomidae)	Polypedilum sp.	6	0	0	12	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Procladius	9	0	0	0	0	0	1	0	0	0	0	0	0
Diptera (Chironomidae)	Pseudochironomus	6	0	0	0	0	0	0	0	0	3	0	0	0
Diptera (Chironomidae)	Rheocricotopus robacki	5	4	0	0	9	13	0	0	0	0	0	0	0
Diptera (Chironomidae)	Rheotanytarsus	6	0	0	0	1	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Stenochironomus	5	0	0	0	0	0	1	0	0	1	0	0	0
Diptera (Chironomidae)	Tanypodinae	7	0	0	0	0	2	3	0	0	0	0	0	0
Diptera (Chironomidae)	Tanytarsus	6	8	16	28	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Thienemanniella	6	6	0	4	0	9	0	2	1	2	1	0	4
Diptera (Chironomidae)	Trissopelopia		0	4	0	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Tvetenia bavarica	4	4	0	8	0	0	0	0	0	0	0	0	0
Diptera (Chironomidae)	Tvetenia paucunca		0	0	0	44	59	2	13	6	9	14	21	16
Ephemeroptera	Acerpenna macdunnoughi	5	0	0	0	0	0	0	0	1	1	0	0	0
Ephemeroptera	Baetidae	4	0	0	0	3	9	0	6	1	4	0	0	0
Ephemeroptera	Baetis	6	6	0	4	0	0	0	0	0	0	0	0	0
Ephemeroptera	Baetis flavistriga	4	0	0	0	0	0	0	0	0	0	8	2	5
Ephemeroptera	Ephemerella	1	0	0	0	40	27	1	49	19	63	9	4	6
Ephemeroptera	Ephemerella dorothea	1	0	0	0	0	0	0	6	2	1	0	0	0
Ephemeroptera	Eurylophella	2	0	0	0	0	0	0	0	0	0	3	7	6
Ephemeroptera	Habrophlebia	4	0	0	0	0	0	0	0	0	0	0	1	0
Ephemeroptera	Maccaffertium	4	0	0	0	2	1	0	3	0	6	0	0	0
Ephemeroptera	Maccaffertium modestum	4	0	0	0	0	0	0	2	4	6	12	22	18
Ephemeroptera	Paraleptophlebia	1	8	44	24	99	57	2	27	21	63	4	11	16
Ephemeroptera	Serratella	2	6	32	12	0	0	0	0	0	0	0	0	0
Gordiodea	Gordius		0	0	0	1	1	0	0	0	0	0	0	0
Haplotaxida	Limnodrilus	10	0	0	0	0	0	0	0	0	0	2	0	1
Haplotaxida (Oligochaeta)	Lumbricidae	5	0	4	4	0	0	0	0	4	3	0	0	0
Haplotaxida (Oligochaeta)	Naididae		0	0	4	7	1	0	0	0	0	0	0	0
Haplotaxida (Oligochaeta)	Nais sp.	8	2	20	24	0	0	0	1	0	4	2	0	1
Haplotaxida (Oligochaeta)	Tubificidae (Naididae)	10	2	4	16	0	0	0	0	0	0	0	0	0
Hoplonemertea	Prostoma		0	0	0	0	0	0	0	0	0	1	0	0
Megaloptera	Sialis sp.	4	0	4	4	0	0	0	1	0	0	0	0	0
Odonata	Aeshna	5	0	0	0	0	0	0	0	0	0	0	2	1
Odonata	Boyeria vinosa	2	0	0	0	0	2	0	0	0	1	3	0	3
Planorboidea	Helisoma	6	0	0	0	0	0	0	0	0	0	1	0	0
Plecoptera	Agnetina capitata	2	0	0	0	0	0	0	0	0	0	1	0	1
Plecoptera	Capniidae	2	0	0	0	0	0	0	3	1	2	0	0	0
Plecoptera	Isoperla	2	4	28	8	1	0	0	6	1	9	3	4	1
Plecoptera	Leuctra	0	6	4	0	21	15	0	7	3	26	2	6	5
Plecoptera	Peltoperla		0	0	12	0	0	0	0	0	0	0	0	0
Plecoptera	Perlodidae	2	0	0	0	7	16	2	21	4	11	0	0	0
Plecoptera	Plecoptera		0	0	0	0	5	0	0	0	0	0	0	0
Plecoptera	Sweltsa	0	0	0	0	0	0	0	0	0	0	1	0	2
Plecoptera	Tallaperla	0	2	8	0	12	26	6	3	20	2	0	0	0
Plecoptera	Taeniopteryx	2	0	0	0	0	0	0	14	7	6	1	2	2
Trichoptera	Apatania	3	0	0	0	0	0	0	0	0	0	0	0	1
Trichoptera	Brachycentrus	2	0	0	0	0	0	0	0	0	0	1	2	2
Trichoptera	Cheumatopsyche	5	4	0	0	0	0	0	0	0	0	1	1	0
Trichoptera	Chimarra	4	0	0	0	1	1	0	0	0	0	0	0	0
Trichoptera	Diplectrona	5	6	12	20	7	5	0	9	9	31	12	15	9
Trichoptera	Dolophilodes	0	80	104	184	125	101	0	12	1	6	12	21	22
Trichoptera	Glossosoma	0	0	0	0	1	0	0	0	0	0	0	0	0
Trichoptera	Hydropsyche	4	0	0	0	3	6	3	5	4	12	6	8	10
Trichoptera	Hydropsyche betteni	6	2	0	0	0	0	0	0	0	0	0	0	0
Trichoptera	Hydropsyche sparna	6	0	4	0	0	0	0	0	0	0	0	0	0
Trichoptera	Hydropsychidae	4	0	0	0	2	11	1	11	7	12	0	0	0
Trichoptera	Lepidostoma	1	0	0	0	9	6	0	12	29	38	3	5	5
Trichoptera	Limnephilidae	4	0	4	0	0	0	0	0	0	0	0	0	0
Trichoptera	Neophylax		0	0	0	0	0	0	0	1	0	0	0	0
Trichoptera	Oligostomis		0	0	0	0	0	0	0	0	1	0	0	0
Trichoptera	Palaeagapetus		0	0	0	0	0	0	0	1	0	0	0	0
Trichoptera	Parapsyche	0	0	0	0	1	2	0	0	0	1	1	0	0
Trichoptera	Philopotamidae	3	0	0	0	6	7	0	0	0	0	0	0	0
Trichoptera	Ptilostomis	5	0	0	4	0	0	0	0	0	0	0	0	0
Trichoptera	Rhyacophila	1	2	16	0	0	0	0	21	15	78	0	0	0
Trichoptera	Rhyacophila carolina	1	0	0	0	32	8	0	0	0	0	0	0	0
Trichoptera	Rhyacophila fuscula	0	0	0	0	17	25	1	0	0	0	3	12	6
Trombidiformes	Lebertia		0	0	0	0	1	0	0	0	2	0	0	0
Turbellaria	Planariidae	6	0	0	0	4	1	1	1	1	4	0	0	0
Veneroida	Sphaerium	6	0	0	0	0	0	0	0	0	0	0	1	2
Veneroida	Sphaeriidae	8	0	0	0	2	1	1	0	5	0	0	0	0

* 2007 data sampled by Normandeau Associates, Inc.; 2009 - 2013 data sampled by Stantec Consulting.
** Tolerance values obtained from Bode *et al.* 1996. Quality Assurance Work Plan for Biological Stream Monitoring in New York State. NYS Department of Environmental Conservation, Albany, NY. 89p.; Mandaville, S.M. 2002. Benthic Macroinvertebrates in Freshwaters- Taxa Tolerance Values, Metrics, and Protocols. Soil and Water Conservation Society of Metro Halifax, Nova Scotia, Canada