



February 24, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037

RE: January 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on January 20<sup>th</sup>, 2012.

Table 2 presents the surface water elevation data measured on January 20<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
JANUARY 20<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	362.91
WPMP-1	401.27	Frozen
SRMP-1	418.79	Frozen
WPSG-2A	403.97 <sup>3</sup>	Frozen

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (6/23/2011).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for January, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
JANUARY, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	3.60
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	3.58

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 5,747,670 gallons for the month of January, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

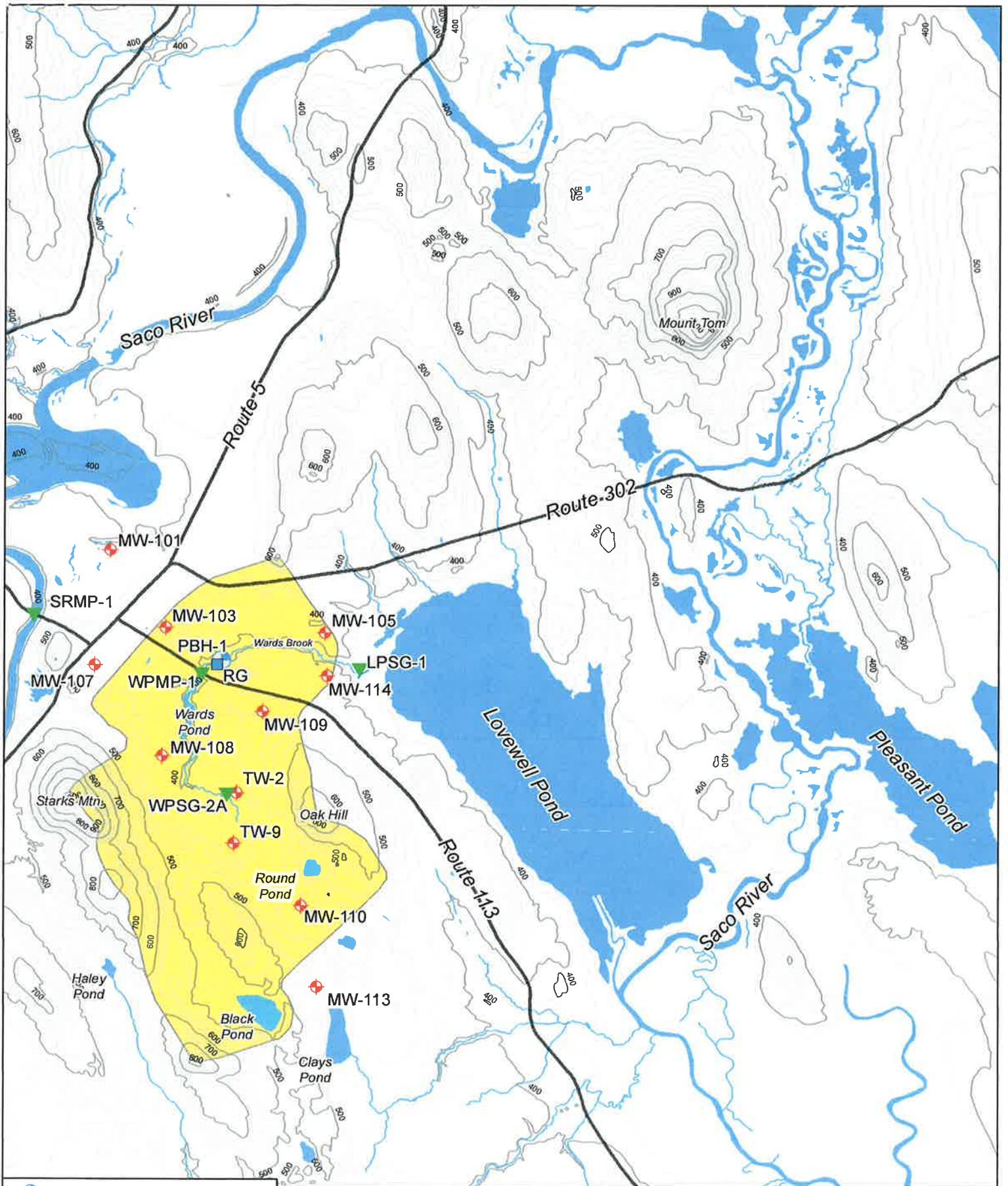
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



-  BOREHOLE
-  MONITORING WELL
-  RAIN GAUGE
-  SURFACE WATER STATION
-  CONTOUR LINES
-  WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**



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

  
 DATE:  
 1/3/2012

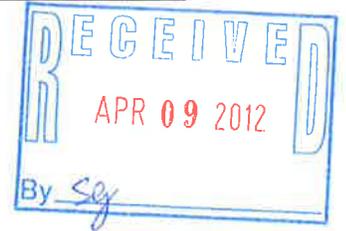
  
**LUETTE GEOLOGICAL SERVICES**  
 58 FORD STREET  
 PORTLAND, MAINE 04101  
 207-415-9898  
 lg@maine.rr.com



Luetje Geological Services, LLC  
Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

April 5, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037



RE: February 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on February 20<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
FEBRUARY 20<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	398.48
MW-103	421.58	412.09
MW-105	404.98	380.68
MW-107	431.95	425.40
MW-108	419.89	411.39
MW-109	420.11	399.91
MW-110	461.86	419.42
MW-113	441.13	422.08
MW-114	405.20	385.47
TW-2 <sup>4</sup>	404.18	405.18
TW-9	409.24	411.13

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on February 20<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
FEBRUARY 20<sup>th</sup>, 2012**

<b>Surface Water Station</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Surface Water Elevation (feet NAVD) <sup>2</sup></b>
LPSG-1	364.85	362.83
WPMP-1	401.27	397.14
SRMP-1	418.79	395.84
WPSG-2A	403.97 <sup>3</sup>	Frozen

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (6/23/2011).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for February, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
FEBRUARY, 2012**

<b>Station ID</b>	<b>Monthly Precipitation Total (Inches)</b>
On-Site Rain Gauge (RG)	0.77
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	0.89

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 1,138,592 gallons for the month of February, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

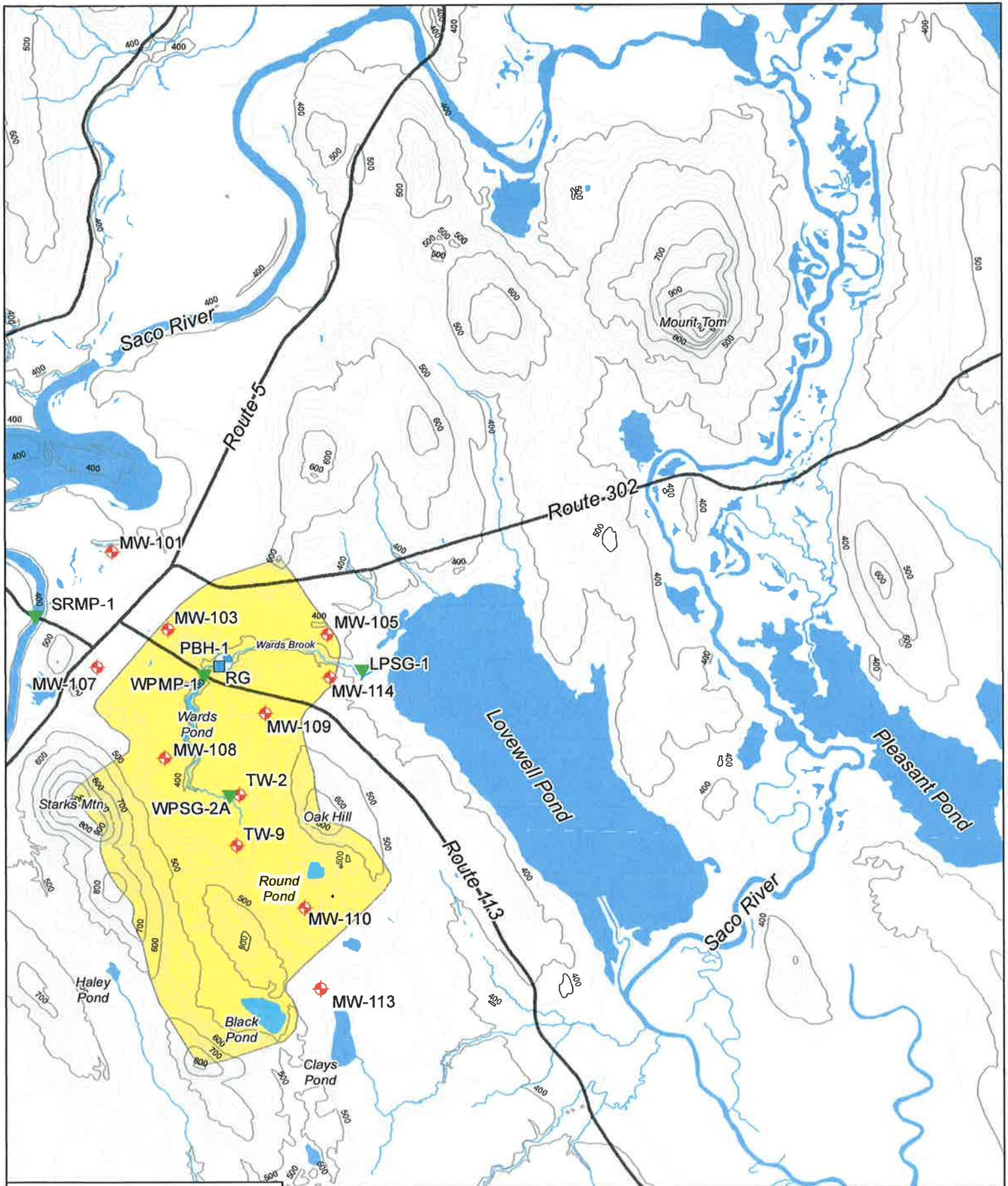
Luetje Geological Services, LLC



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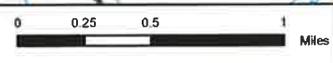
Ed Luetje C.G.

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



-  BOREHOLE
-  MONITORING WELL
-  RAIN GAUGE
-  SURFACE WATER STATION
-  CONTOUR LINES
-  WARDS BROOK WATERSHED (APPROXIMATE)

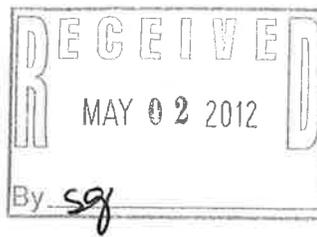
FIGURE 1  
VOLUNTARY AQUIFER MONITORING REPORT  
FRYEBURG, MAINE



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

N  
  
DATE:  
1/3/2012

  
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Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

April 29, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037

RE: March 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on March 20<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
MARCH 20<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	400.16
MW-103	421.58	412.31
MW-105	404.98	380.99
MW-107	431.95	426.25
MW-108	419.89	411.79
MW-109	420.11	399.85
MW-110	461.86	419.10
MW-113	441.13	421.96
MW-114	405.20	386.45
TW-2 <sup>4</sup>	404.18	406.10
TW-9	409.24	411.08

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
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## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on March 20<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
MARCH 20<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	363.18
WPMP-1	401.27	397.31
SRMP-1	418.79	399.99
WPSG-2A	403.97 <sup>3</sup>	401.46

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  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for March, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
MARCH, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	1.54
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	1.58

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 6,803,690 gallons for the month of March, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

Luetje Geological Services, LLC



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Ed Luetje C.G.

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

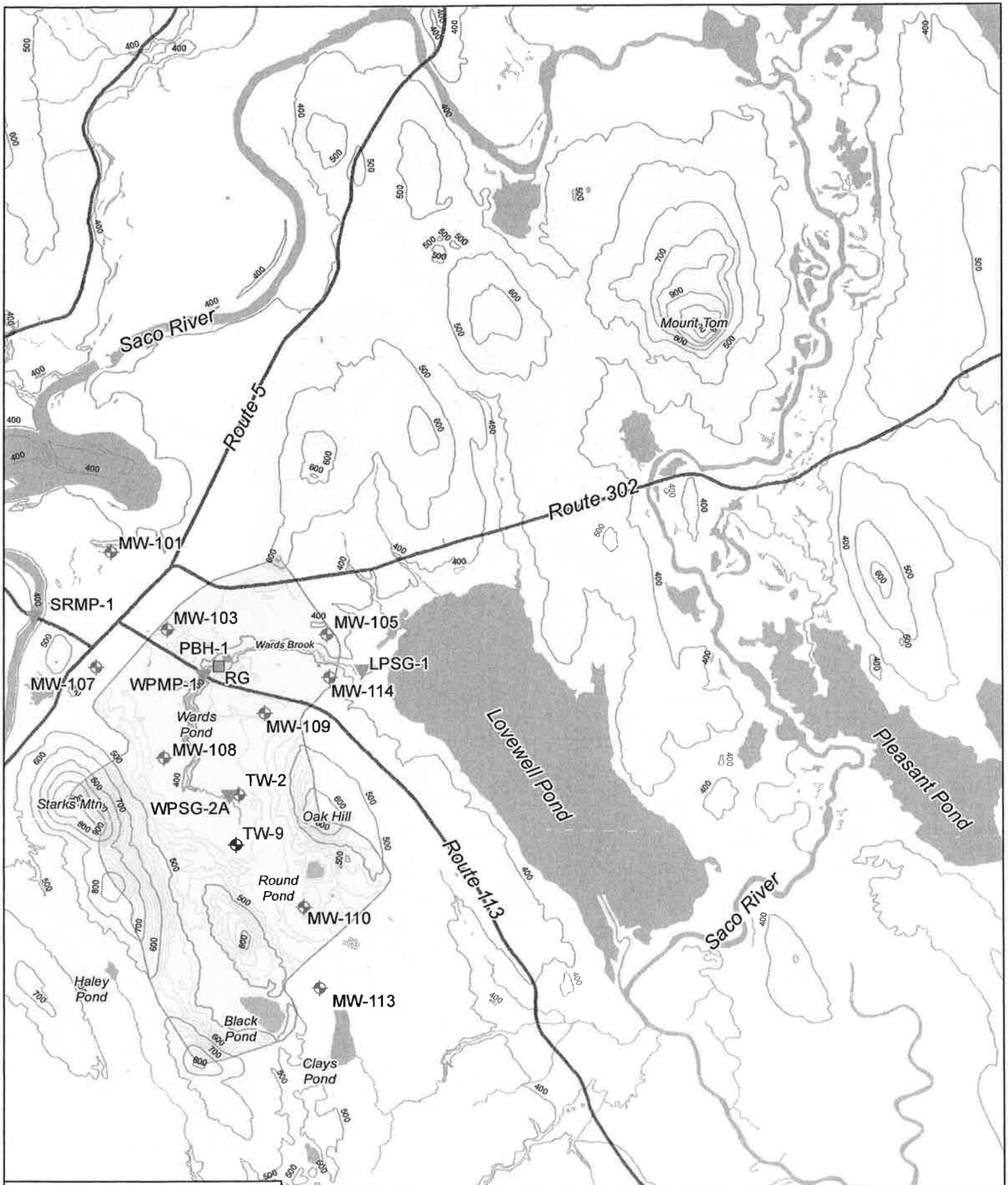


FIGURE 1  
VOLUNTARY AQUIFER MONITORING REPORT  
FRYEBURG, MAINE

-  BOREHOLE
-  MONITORING WELL
-  RAIN GAUGE
-  SURFACE WATER STATION
-  CONTOUR LINES
-  WARDS BROOK WATERSHED (APPROXIMATE)



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DATE:  
1/3/2012

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

**LG**  
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Luetje Geological Services, LLC  
Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

*6/7/12 Katie Haley  
cc: s/jmen*

May 29, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037

RE: April 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on April 20<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
APRIL 20<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	398.70
MW-103	421.58	411.61
MW-105	404.98	380.64
MW-107	431.95	425.42
MW-108	419.89	411.20
MW-109	420.11	399.67
MW-110	461.86	419.31
MW-113	441.13	422.01
MW-114	405.20	385.50
TW-2 <sup>4</sup>	404.18	405.87
TW-9	409.24	411.18

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
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- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on April 20<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
APRIL 20<sup>th</sup>, 2012**

<b>Surface Water Station</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Surface Water Elevation (feet NAVD) <sup>2</sup></b>
LPSG-1	364.85	362.73
WPMP-1	401.27	397.07
SRMP-1	418.79	396.51
WPSG-2A	403.97 <sup>3</sup>	400.91

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1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
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Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for April, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
APRIL, 2012**

<b>Station ID</b>	<b>Monthly Precipitation Total (Inches)</b>
On-Site Rain Gauge (RG)	3.04
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	3.30

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 6,424,093 gallons for the month of April, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

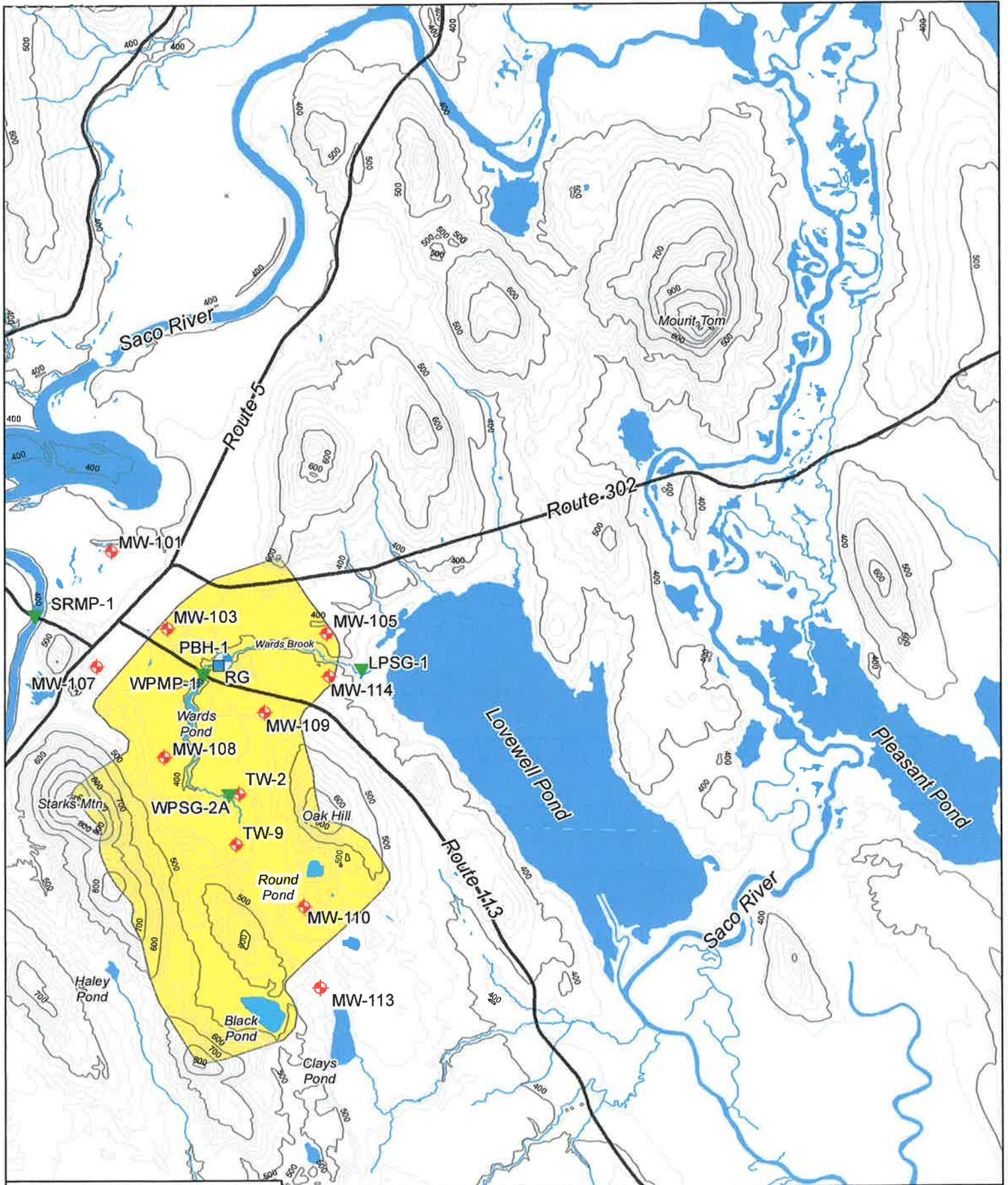
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



-  BOREHOLE
-  MONITORING WELL
-  RAIN GAUGE
-  SURFACE WATER STATION
-  CONTOUR LINES
-  WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**



N  
  
 DATE:  
 1/3/2012

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

  
 LUETJE GEOLOGICAL SERVICES  
 58 FORE STREET  
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 207-415-9898  
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Luetje Geological Services, LLC  
Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

*6/29/12 Original to Katie  
cc: selectmen*

June 29, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037

RE: May 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

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## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on May 18<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
MAY 18<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	399.75
MW-103	421.58	411.87
MW-105	404.98	380.75
MW-107	431.95	425.98
MW-108	419.89	411.40
MW-109	420.11	399.27
MW-110	461.86	419.08
MW-113	441.13	421.65
MW-114	405.20	386.11
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TW-9	409.24	410.93

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on May 18<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
MAY 18<sup>th</sup>, 2012**

<b>Surface Water Station</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Surface Water Elevation (feet NAVD) <sup>2</sup></b>
LPSG-1	364.85	363.05
WPMP-1	401.27	397.30
SRMP-1	418.79	397.64
WPSG-2A	403.97 <sup>3</sup>	401.08

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for May, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
MAY, 2012**

<b>Station ID</b>	<b>Monthly Precipitation Total (Inches)</b>
On-Site Rain Gauge (RG)	5.58
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	5.67

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 16,299,028 gallons for the month of May, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

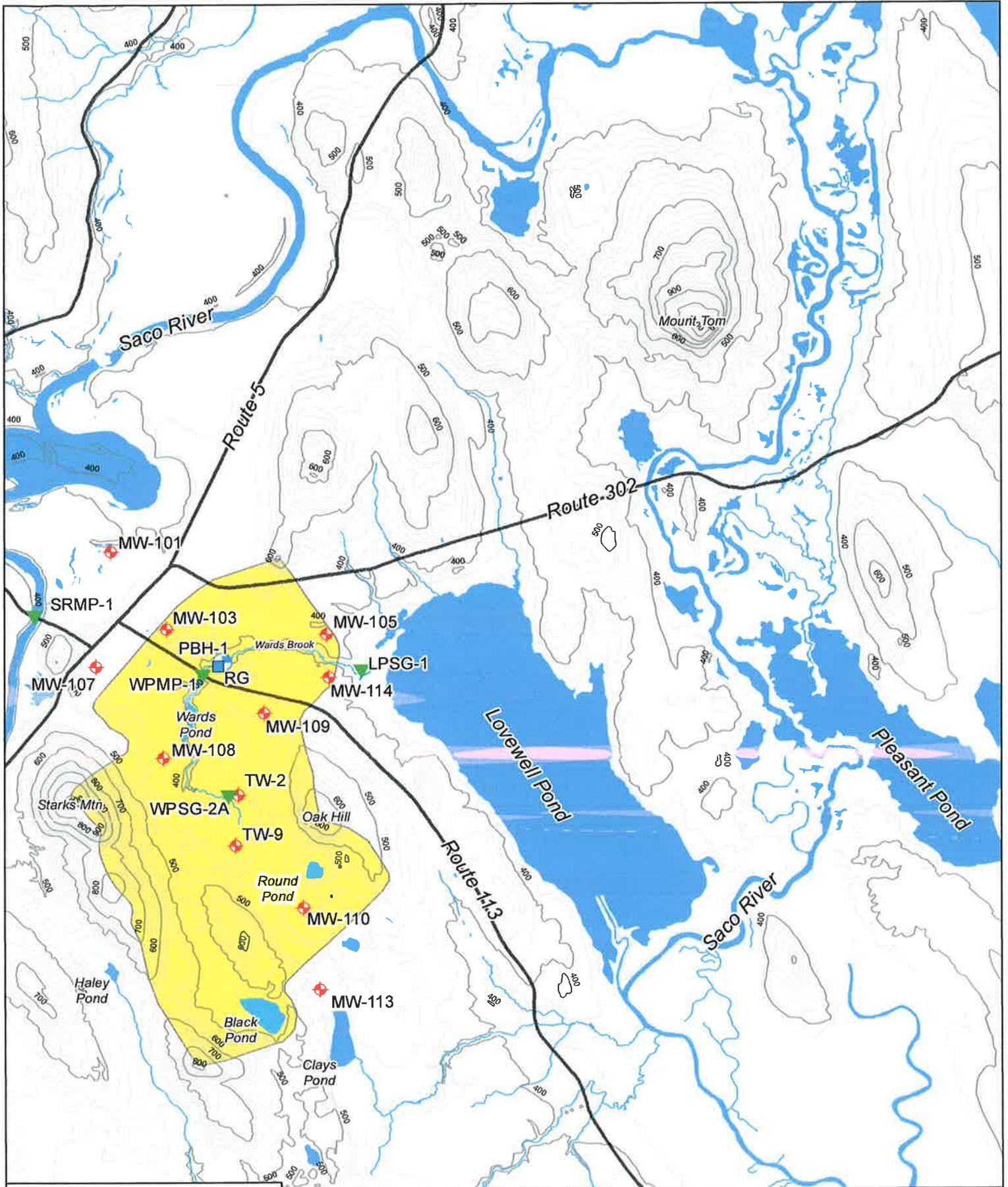
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



	BOREHOLE
	MONITORING WELL
	RAIN GAUGE
	SURFACE WATER STATION
	CONTOUR LINES
	WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**

0 0.25 0.5 1 Miles

NOTES:  
 1. ALL GENERAL DATALAYERS ACQUIRED FROM THE MAINE OFFICE OF GIS.  
 2. CONTOURS ARE 20' INTERVALS.

N

DATE:  
 1/3/2012

LUETJE GEOLOGICAL SERVICES  
 58 FORD STREET  
 PORTLAND, MAINE 04101  
 207-415-9898  
 lg@maine.rr.com



Luetje Geological Services, LLC  
Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

---

July 30, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037

RE: June 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on June 20<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
JUNE 20<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	399.77
MW-103	421.58	413.23
MW-105	404.98	381.60
MW-107	431.95	427.42
MW-108	419.89	412.14
MW-109	420.11	400.66
MW-110	461.86	421.09
MW-113	441.13	423.02
MW-114	405.20	386.64
TW-2 <sup>4</sup>	404.18	406.29
TW-9	409.24	412.36

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on June 20<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
JUNE 20<sup>th</sup>, 2012**

<b>Surface Water Station</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Surface Water Elevation (feet NAVD) <sup>2</sup></b>
LPSG-1	364.85	362.88
WPMP-1	401.27	397.18
SRMP-1	418.79	397.00
WPSG-2A	403.97 <sup>3</sup>	401.03

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for June, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
JUNE, 2012**

<b>Station ID</b>	<b>Monthly Precipitation Total (Inches)</b>
On-Site Rain Gauge (RG)	7.91
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	8.43

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 16,364,049 gallons for the month of June, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

Luetje Geological Services, LLC



---

Ed Luetje C.G.

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

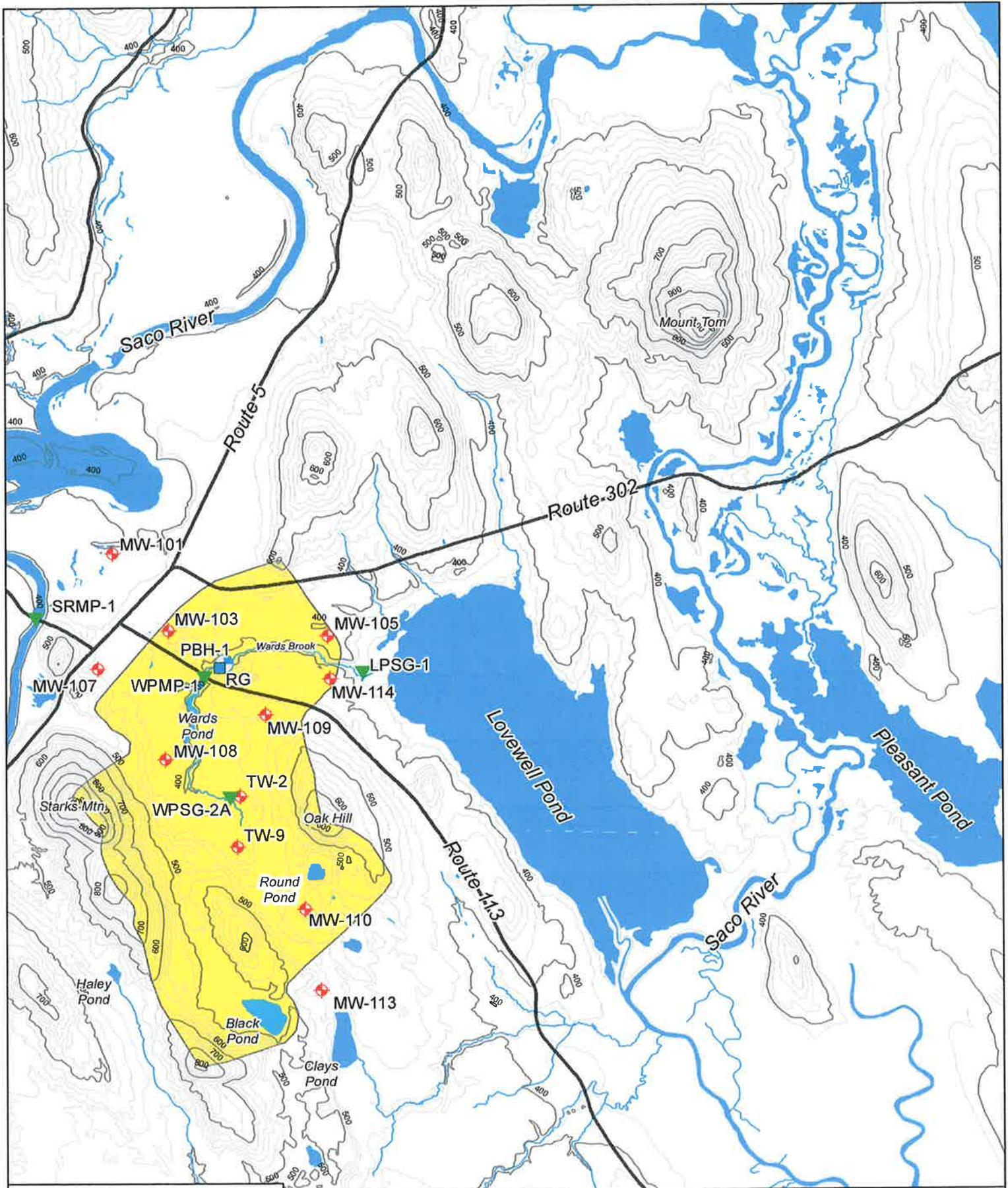


FIGURE 1  
VOLUNTARY AQUIFER MONITORING REPORT  
FRYEBURG, MAINE

-  BOREHOLE
-  MONITORING WELL
-  RAIN GAUGE
-  SURFACE WATER STATION
-  CONTOUR LINES
-  WARDS BROOK WATERSHED (APPROXIMATE)

0 0.25 0.5 1 Miles

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

N

DATE:  
1/3/2012

  
LUETTE GEOLOGICAL SERVICES  
58 FORE STREET  
PORTLAND, MAINE 04101  
207-415-9898  
lg@maine.rr.com



August 30, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037



RE: July 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on July 20<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
JULY 20<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	398.19
MW-103	421.58	412.31
MW-105	404.98	380.46
MW-107	431.95	425.49
MW-108	419.89	410.87
MW-109	420.11	399.75
MW-110	461.86	420.75
MW-113	441.13	422.80
MW-114	405.20	384.83
TW-2 <sup>4</sup>	404.18	405.28
TW-9	409.24	411.67

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on July 20<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
JULY 20<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	362.67
WPMP-1	401.27	397.07
SRMP-1	418.79	395.94
WPSG-2A	403.97 <sup>3</sup>	400.83

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for July, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
JULY, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	1.79
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	2.28

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 14,822,868 gallons for the month of July, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

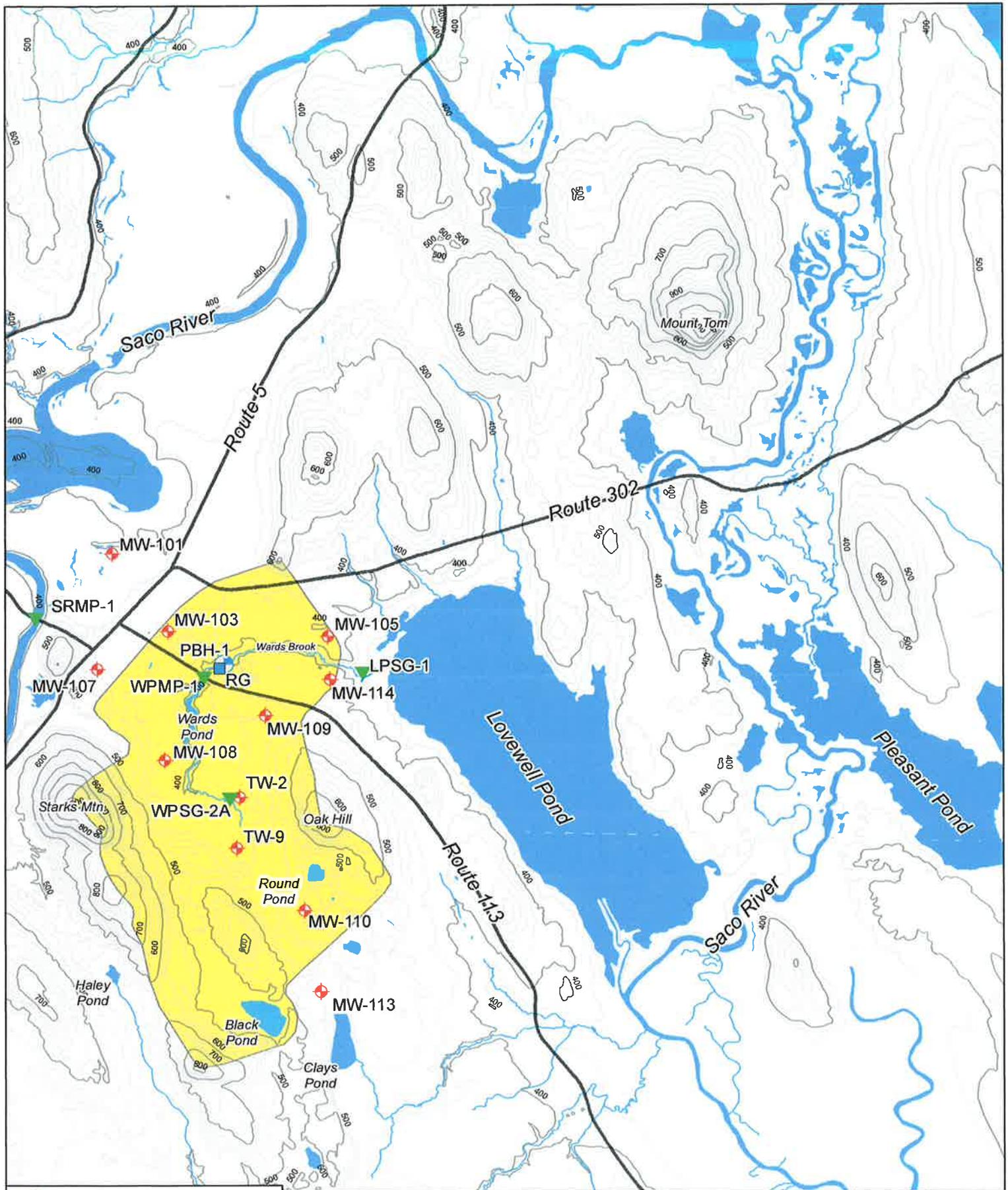
Luetje Geological Services, LLC



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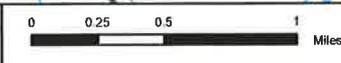
Ed Luetje C.G.

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



	BOREHOLE
	MONITORING WELL
	RAIN GAUGE
	SURFACE WATER STATION
	CONTOUR LINES
	WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**



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

N  
  
 DATE:  
 1/3/2012

LUETJE GEOLOGICAL SERVICES  
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 PORTLAND, MAINE 04101  
 207-415-9898  
 lgs@maine.net



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Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

*Katie  
Copies: selectmen*

September 30, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037



RE: August 2012 Aquifer Monitoring Report

## **INTRODUCTION**

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## **GROUNDWATER**

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on August 17<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
AUGUST 17<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	398.91
MW-103	421.58	412.00
MW-105	404.98	380.27
MW-107	431.95	424.56
MW-108	419.89	410.63
MW-109	420.11	398.96
MW-110	461.86	419.81
MW-113	441.13	422.26
MW-114	405.20	384.25
TW-2 <sup>4</sup>	404.18	404.48
TW-9	409.24	411.05

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on August 17<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
AUGUST 17<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	363.14
WPMP-1	401.27	397.36
SRMP-1	418.79	396.74
WPSG-2A	403.97 <sup>3</sup>	401.27

Notes: 1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.  
 2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.  
 3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

### PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for August, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
AUGUST, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	4.72
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	6.33

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 10,236,845 gallons for the month of August, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

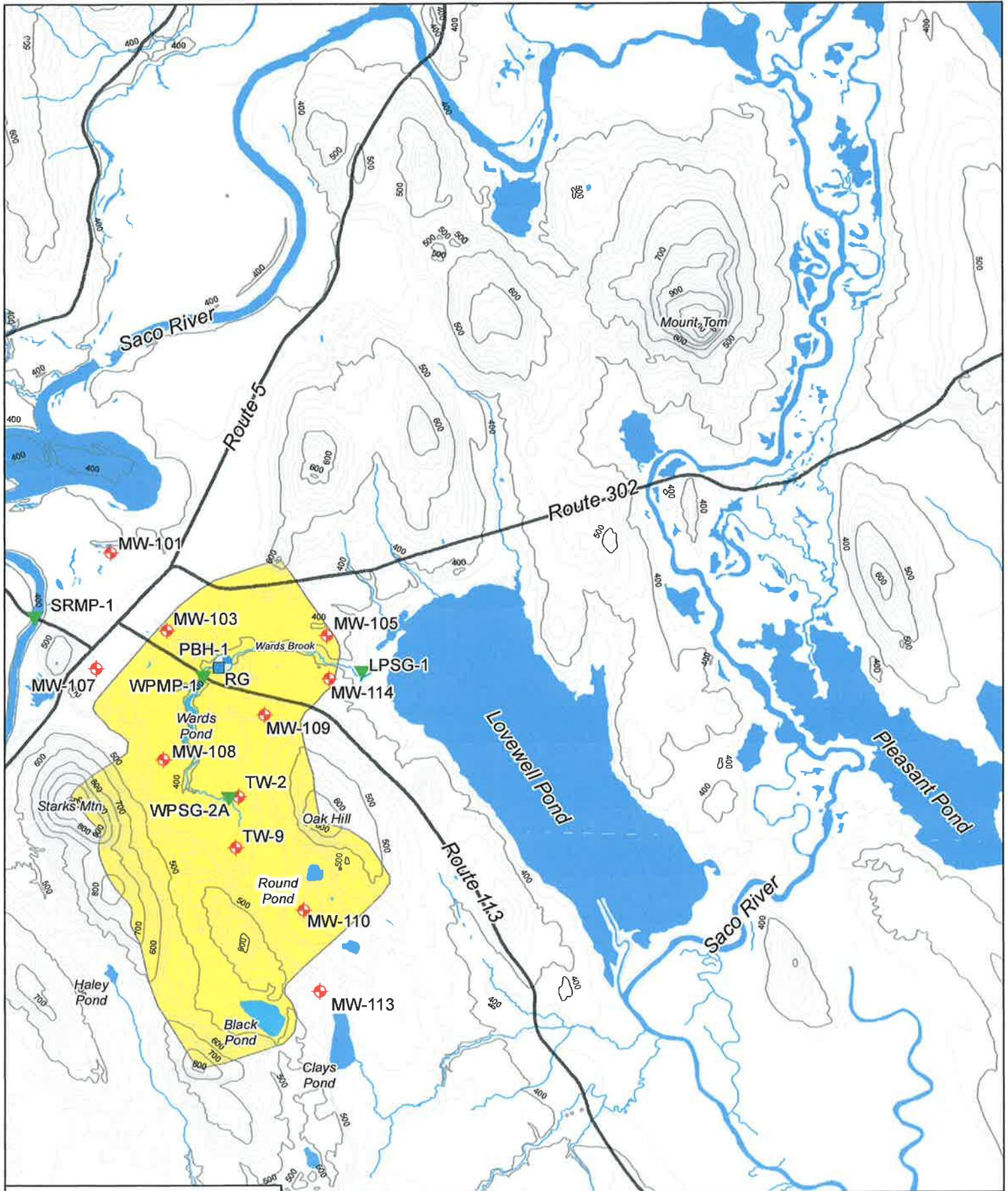
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



- BOREHOLE
- ◆ MONITORING WELL
- RAIN GAUGE
- ▲ SURFACE WATER STATION
- CONTOUR LINES
- WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**

0 0.25 0.5 1 Miles

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

N  
  
 DATE:  
 1/3/2012

LUETTE GEOLOGICAL SERVICES  
 58 FORD STREET  
 PORTLAND, MAINE 04101  
 207-415-1898  
 lgs@maine.rr.com



Original: Katie  
11-15-12 Copy: Selectmen

Luetje Geological Services, LLC  
Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

October 30, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037



RE: September 2012 Aquifer Monitoring Report

## INTRODUCTION

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## GROUNDWATER

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on September 18<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
SEPTEMBER 18<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	397.81
MW-103	421.58	411.21
MW-105	404.98	379.73
MW-107	431.95	423.01
MW-108	419.89	409.87
MW-109	420.11	398.80
MW-110	461.86	418.87
MW-113	441.13	421.65
MW-114	405.20	383.70
TW-2 <sup>4</sup>	404.18	404.87
TW-9	409.24	410.44

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on September 18<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
SEPTEMBER 18<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	362.73
WPMP-1	401.27	396.96
SRMP-1	418.79	395.81
WPSG-2A	403.97 <sup>3</sup>	400.94

Notes: 1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.  
2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.  
3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for September, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
SEPTEMBER, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	4.80
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	4.92

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 3,224,636 gallons for the month of September, 2012.

If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

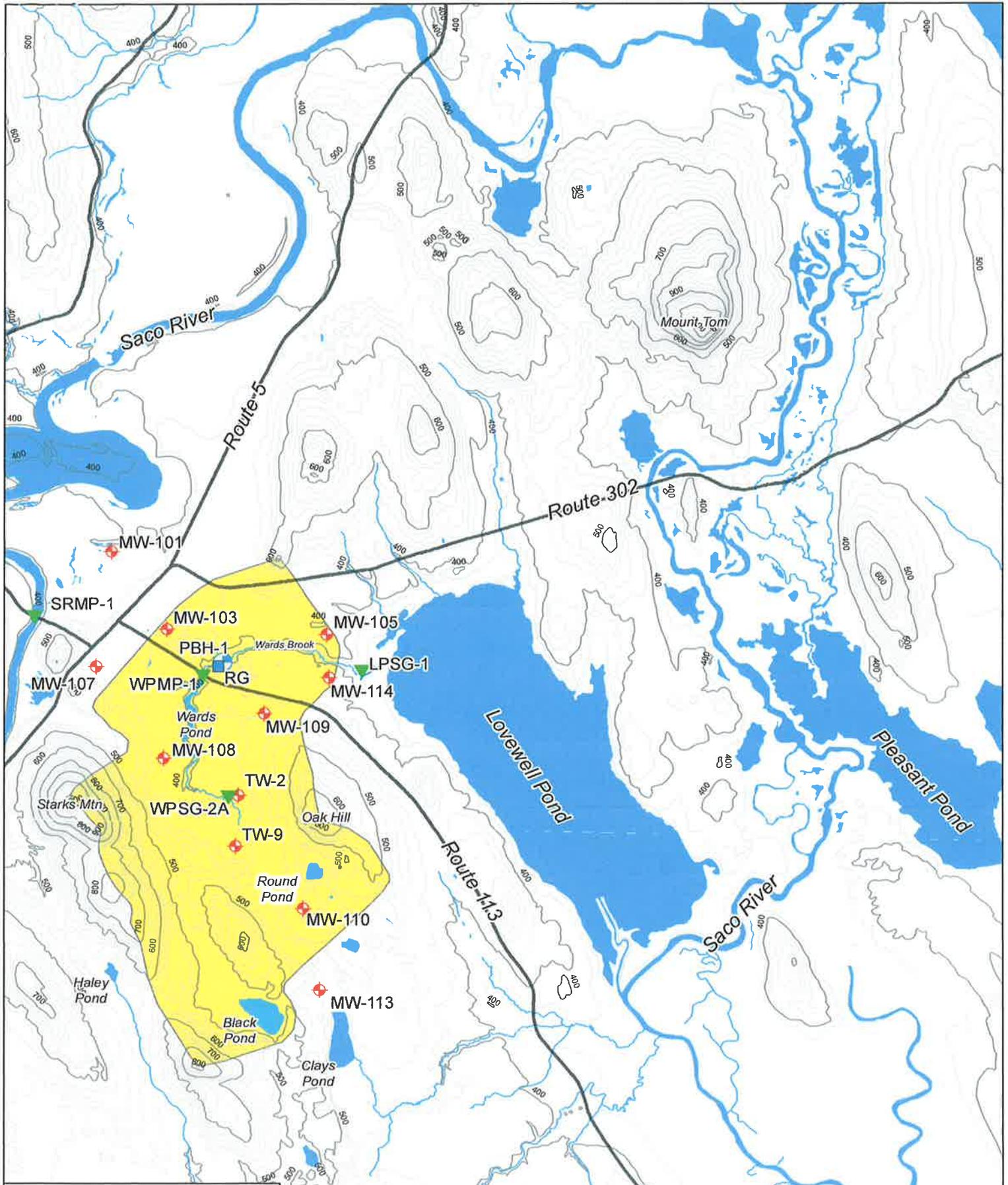
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



- BOREHOLE
- ◆ MONITORING WELL
- RAIN GAUGE
- ▼ SURFACE WATER STATION
- CONTOUR LINES
- WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**



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

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 DATE:  
 1/3/2012

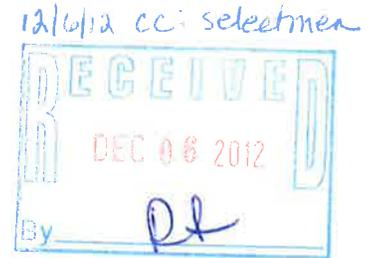
**LES**  
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 207-413-9898  
 lgs@maine.fr.com



Luetje Geological Services, LLC  
Ed Luetje, CG  
58 Fore Street  
Portland, Maine 04101

November 30, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037



RE: October 2012 Aquifer Monitoring Report

## INTRODUCTION

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## GROUNDWATER

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on October 17<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
OCTOBER 17<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	398.85
MW-103	421.58	411.04
MW-105	404.98	379.85
MW-107	431.95	422.59
MW-108	419.89	410.16
MW-109	420.11	398.68
MW-110	461.86	418.16
MW-113	441.13	421.24
MW-114	405.20	384.17
TW-2 <sup>4</sup>	404.18	404.65
TW-9	409.24	410.06

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of casing for monitoring wells) elevation in feet NAVD.
  2. The Groundwater Elevation is the elevation of the water table (feet NAVD) at the monitoring well.
  3. MW refers to 'monitoring well'
  4. TW refers to 'test well'

## **SURFACE WATER**

Surface water elevation is measured at four locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. Spring water was flowing to the ground surface this month near PBH-1 as observed at the main spring pool weir and several nearby springs. The surface water elevation measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge over the Saco River;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing over Wards Brook;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on October 17<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
OCTOBER 17<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	362.97
WPMP-1	401.27	397.18
SRMP-1	418.79	396.74
WPSG-2A	403.97 <sup>3</sup>	401.18

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for October, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
OCTOBER, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	5.42
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	3.95 <sup>1</sup>

- Notes:
1. Fryeburg Eastern Slopes Airport station missing data from October 29<sup>th</sup>, 2012. The on-site gauge recorded 1.17" of precipitation on October 29<sup>th</sup>, 2012.

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 3,532,881 gallons for the month of October, 2012.

Based on the groundwater and surface water data collected in Fryeburg, Luetje Geological Services has 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 included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

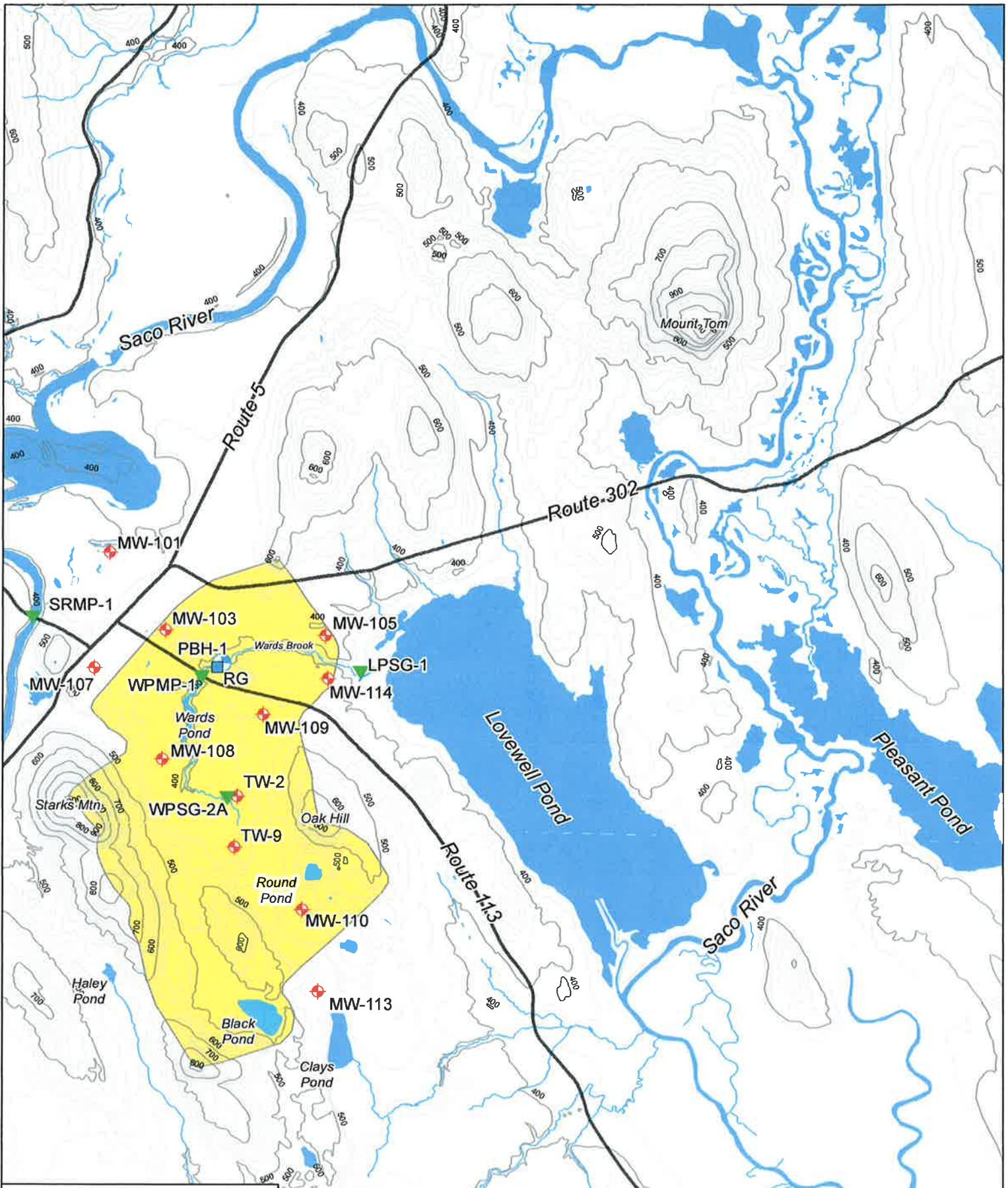
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



	BOREHOLE
	MONITORING WELL
	RAIN GAUGE
	SURFACE WATER STATION
	CONTOUR LINES
	WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**

0 0.25 0.5 1 Miles

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

N

DATE:  
 1/3/2012

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12-28-12 Copies Selected  
✓ Original CEO



December 30, 2012

Ms. Sharon Jackson  
Town Manager  
Town of Fryeburg  
16 Lovewell's Pond Road  
Fryeburg, Maine 04037

RE: November 2012 Aquifer Monitoring Report

## INTRODUCTION

Luetje Geological Services (LGS) of Portland, Maine, an independent hydrogeologic consulting firm, has been contracted by Nestle Waters North America Inc., (Poland Spring) to collect and compile hydraulic data from the Wards Brook Aquifer in Fryeburg, Maine. These data are collected as part of regular routine monitoring by Poland Spring and while the monitoring program is not part of a regulatory compliance program, the data are voluntarily provided to the Town of Fryeburg on a monthly basis. The data in the monthly reports, in turn, are used by Poland Spring to compile an annual report of the hydraulic data for the Wards Brook Aquifer.

Data are presented for eleven monitoring wells, four surface water stations, from rain gauges at the Borehole-1 load-out facility and the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center), and withdrawal data from Borehole-1 (PBH-1; dedicated spring water borehole). Locations of all data collection stations are shown in Figure 1 located at the end of this report.

## GROUNDWATER

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 (Figure 1). Table 1 provides a summary of groundwater elevations at these locations as measured on November 19<sup>th</sup>, 2012.

**TABLE 1: GROUNDWATER ELEVATION DATA  
NOVEMBER 19<sup>th</sup>, 2012**

<b>Monitoring Well</b>	<b>Reference Elevation (feet NAVD) <sup>1</sup></b>	<b>Groundwater Elevation (feet NAVD) <sup>2</sup></b>
MW-101 <sup>3</sup>	408.35	399.33
MW-103	421.58	411.53
MW-105	404.98	380.29
MW-107	431.95	423.72
MW-108	419.89	410.79
MW-109	420.11	399.02
MW-110	461.86	418.09
MW-113	441.13	421.24
MW-114	405.20	385.40
TW-2 <sup>4</sup>	404.18	405.00
TW-9	409.24	410.24

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- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Pond 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.

Table 2 presents the surface water elevation data measured on November 19<sup>th</sup>, 2012.

**TABLE 2: SURFACE WATER ELEVATION DATA  
NOVEMBER 19<sup>th</sup>, 2012**

Surface Water Station	Reference Elevation (feet NAVD) <sup>1</sup>	Surface Water Elevation (feet NAVD) <sup>2</sup>
LPSG-1	364.85	362.82
WPMP-1	401.27	397.14
SRMP-1	418.79	396.74
WPSG-2A	403.97 <sup>3</sup>	401.07

- Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gauge for surface water stations) elevation in feet NAVD.
  2. The Surface Water Elevation is the elevation of the water surface (feet NAVD) at the monitoring station.
  3. Resurveyed reference elevation for WPSG-2A (4/24/2012).

## PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG) as shown on Figure 1. 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). The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 3 presents monthly precipitation data for November, 2012.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA  
NOVEMBER, 2012**

Station ID	Monthly Precipitation Total (Inches)
On-Site Rain Gauge (RG)	0.62
Fryeburg Eastern Slopes Airport (ICAO Station KIZG)	0.84

## WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, PBH-1 withdrawal totals are presented as total gallons recorded as offloaded at plant facilities. Spring water withdrawals from PBH-1 totaled 4,699,117 gallons for the month of November, 2012.

Based on the groundwater and surface water data collected in Fryeburg, Luetje Geological Services has 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 included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

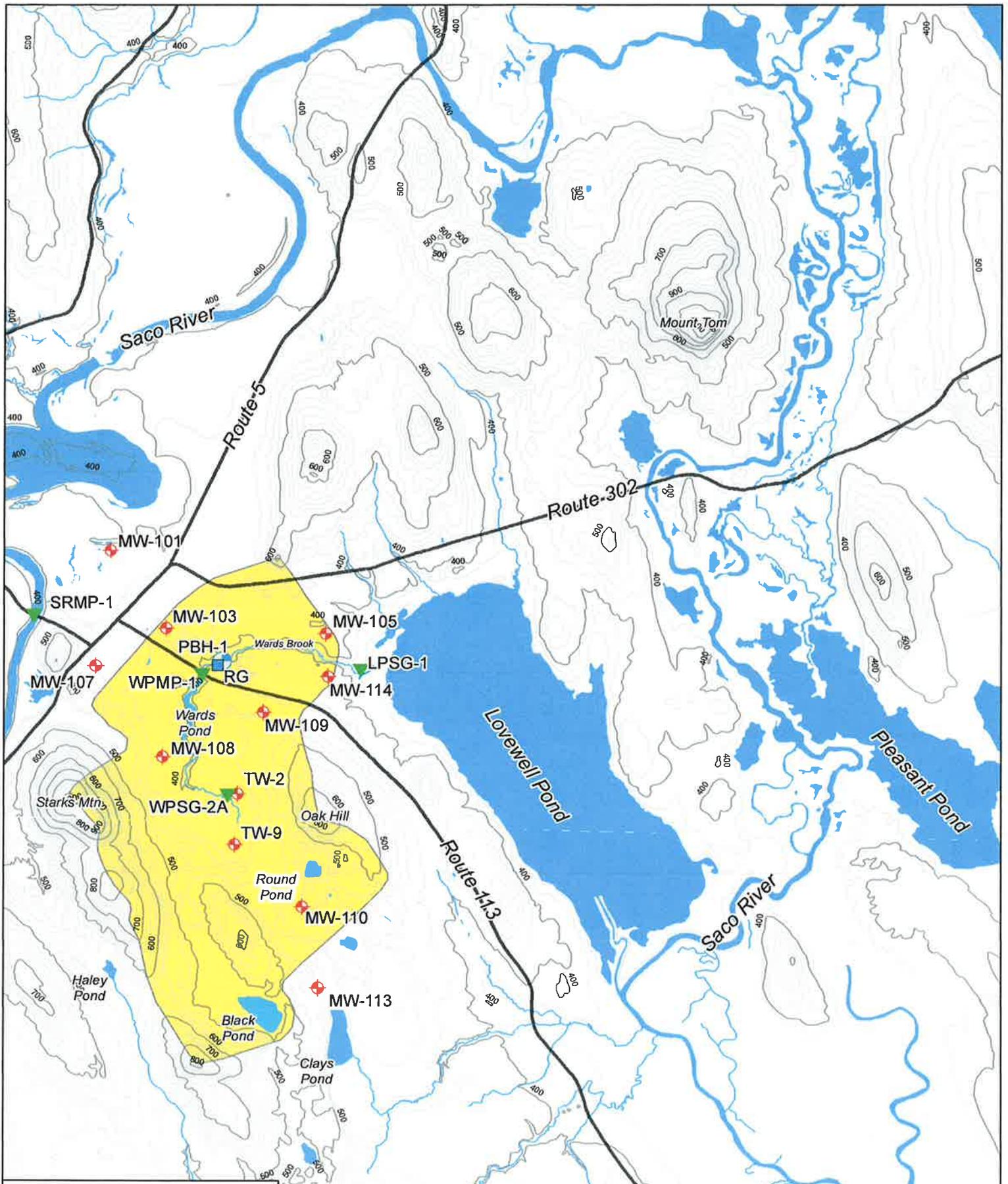
Luetje Geological Services, LLC



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Ed Luetje C.G.

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



	BOREHOLE
	MONITORING WELL
	RAIN GAUGE
	SURFACE WATER STATION
	CONTOUR LINES
	WARDS BROOK WATERSHED (APPROXIMATE)

**FIGURE 1**  
**VOLUNTARY AQUIFER MONITORING REPORT**  
**FRYEBURG, MAINE**

0 0.25 0.5 1 Miles

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N

DATE:  
 1/3/2012

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