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

January 25, 2015

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

RE: December 2014 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 December 19th, 2014.

Phone: 207-415-9898 Email: lgs@maine.rr.com

**TABLE 1: GROUNDWATER ELEVATION DATA**
**DECEMBER 19th, 2014**

| Monitoring Well | Reference Elevation (feet NAVD) [1] | Groundwater Elevation (feet NAVD) [2] |
|---|---|---|
| MW-101 [3] | 408.35 | 399.85 |
| MW-103 | 421.58 | 410.69 |
| MW-105 | 404.98 | 379.76 |
| MW-107 | 431.95 | 422.56 |
| MW-108 | 419.89 | 410.09 |
| MW-109 | 420.11 | 397.66 |
| MW-110 | 461.86 | 415.87 |
| MW-113 | 441.13 | 420.10 |
| MW-114 | 405.20 | 385.08 |
| TW-2 [4] | 404.18 | 402.34 |
| TW-9 | 409.24 | Frozen |

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 Gage (LPSG-1): surface water elevation is measured at the inlet from Wards Pond Brook; and,
- Wards Pond Staff Gage (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 December 19th, 2014.

**TABLE 2: SURFACE WATER ELEVATION DATA DECEMBER 19th, 2014**

| Surface Water Station | Reference Elevation (feet NAVD) [1] | Surface Water Elevation (feet NAVD) [2] |
|---|---|---|
| LPSG-1 | 364.76[3] | 362.83 |
| WPMP-1 | 401.27 | 397.22 |
| SRMP-1 | 418.79 | 397.24 |
| WPSG-2A | 403.31[3] | 401.26 |

Notes:
1. NAVD is the North American Vertical Datum (1988). The Reference Elevation is the measuring point (usually the top of the staff gage 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. Reference elevations for LPSG-1 and WPSG-2A were resurveyed on May 8, 2014 because of the potential movement of the gages due to winter ice conditions. Surface water elevations in this report reflect the updated reference elevations.

## 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 December, 2014.

**TABLE 3: FRYEBURG AREA PRECIPITATION DATA DECEMBER, 2014**

| Station ID | Monthly Precipitation Total (Inches) |
|---|---|
| On-Site Rain Gauge (RG) | 5.32 |
| Fryeburg Eastern Slopes Airport (ICAO Station KIZG) | 5.40 |

**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 6,208,666 gallons for the month of December, 2014.

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.

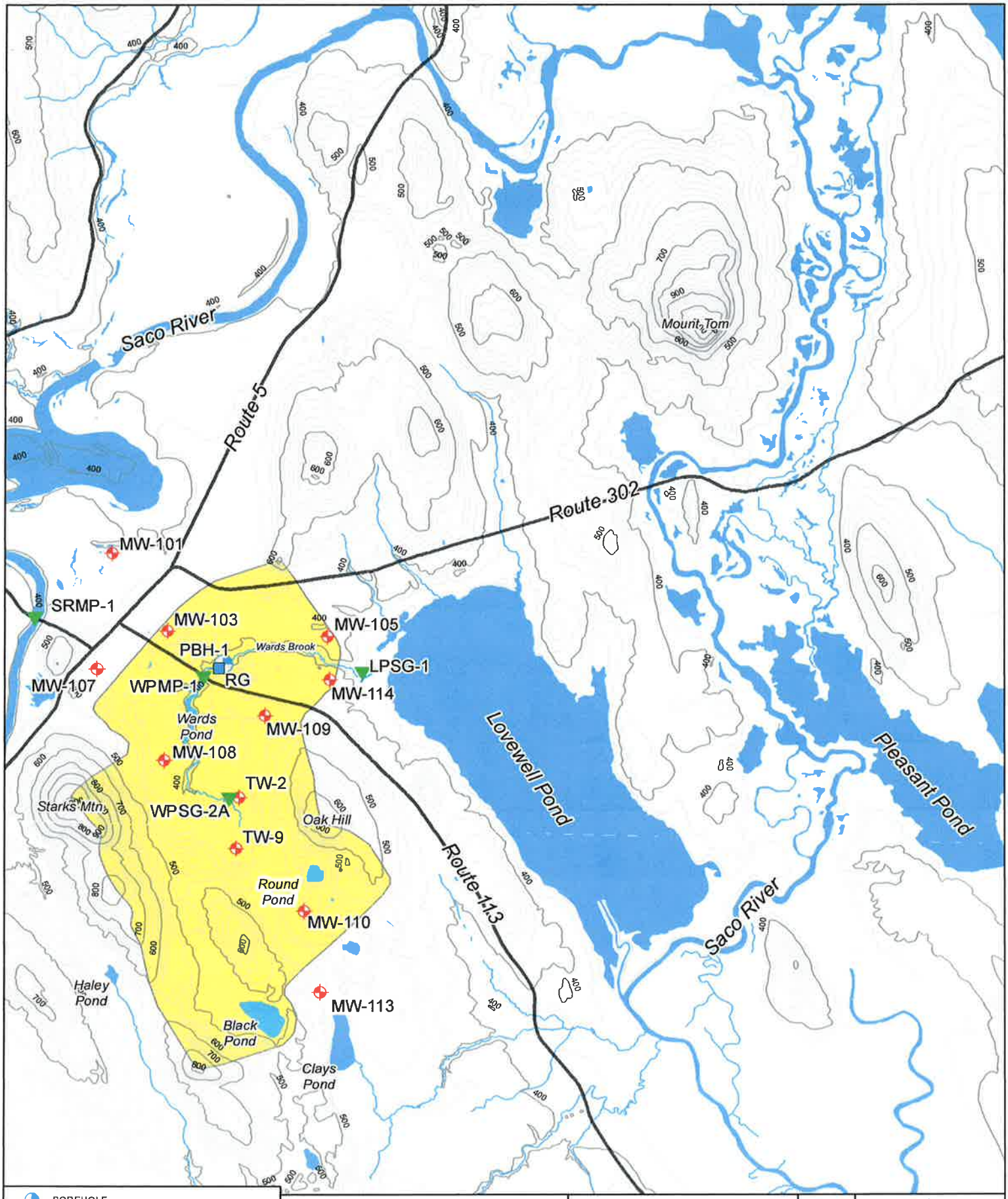
If you have any questions regarding the data included in this report, please do not hesitate to contact me at (207) 415-9898.

Sincerely,

Luetje Geological Services, LLC

Ed Luetje C.G.

cc: Fryeburg Water Company (Mr. Hugh Hastings)
Fryeburg Water District (Clerk)
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

LGS
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