MONITORING REPORT SUMMARY

2022

SPRUCE SPRING

PIERCE POND TOWNSHIP, MAINE

Poland Spring® BRAND
1845
BORN IN MAINE

MANAGING FOR SUSTAINABILITY

ABOUT SPRUCE SPRING

Spruce Spring is located in Pierce Pond Township, Somerset County, Maine, within the watershed of Cold Brook. The spring site drainage basin is approximately 1,280 acres in size and lies just east of Flagstaff Lake. The Spruce Spring aquifer is a body of permeable sand and gravel that exists beneath the Cold Brook valley. The aquifer and associated sediments - all of which are mapped as significant sand and gravel aquifers by the Maine Geological Survey - are up to 60 feet thick. The valley filled with sand and gravel sediments during the recession of the continental ice sheet that occurred between 11,000 and 13,200 years ago. As the ice sheet melted and receded to the north, active deposition of sediments occurred along the ice margin where meltwater flowed from the glacier. Today, the Spruce Spring aquifer is comprised of these thick sand and gravel features. Precipitation recharges the aquifer by infiltration, as gravity pulls the water down into the aquifer to become groundwater. Poland Spring withdraws water that falls as precipitation within the Cold Brook watershed and infiltrates into the Spruce Spring aquifer.

The aquifer deposits that are formed along the east-west valley of Cold Brook include springs, which is where Spruce Spring is located. Rain and snow that fall in the watershed recharge the aquifer and groundwater resource throughout most of the year. This natural cycle of water occurs throughout Maine and includes precipitation, runoff, infiltration to groundwater and evaporation/transpiration as illustrated below.

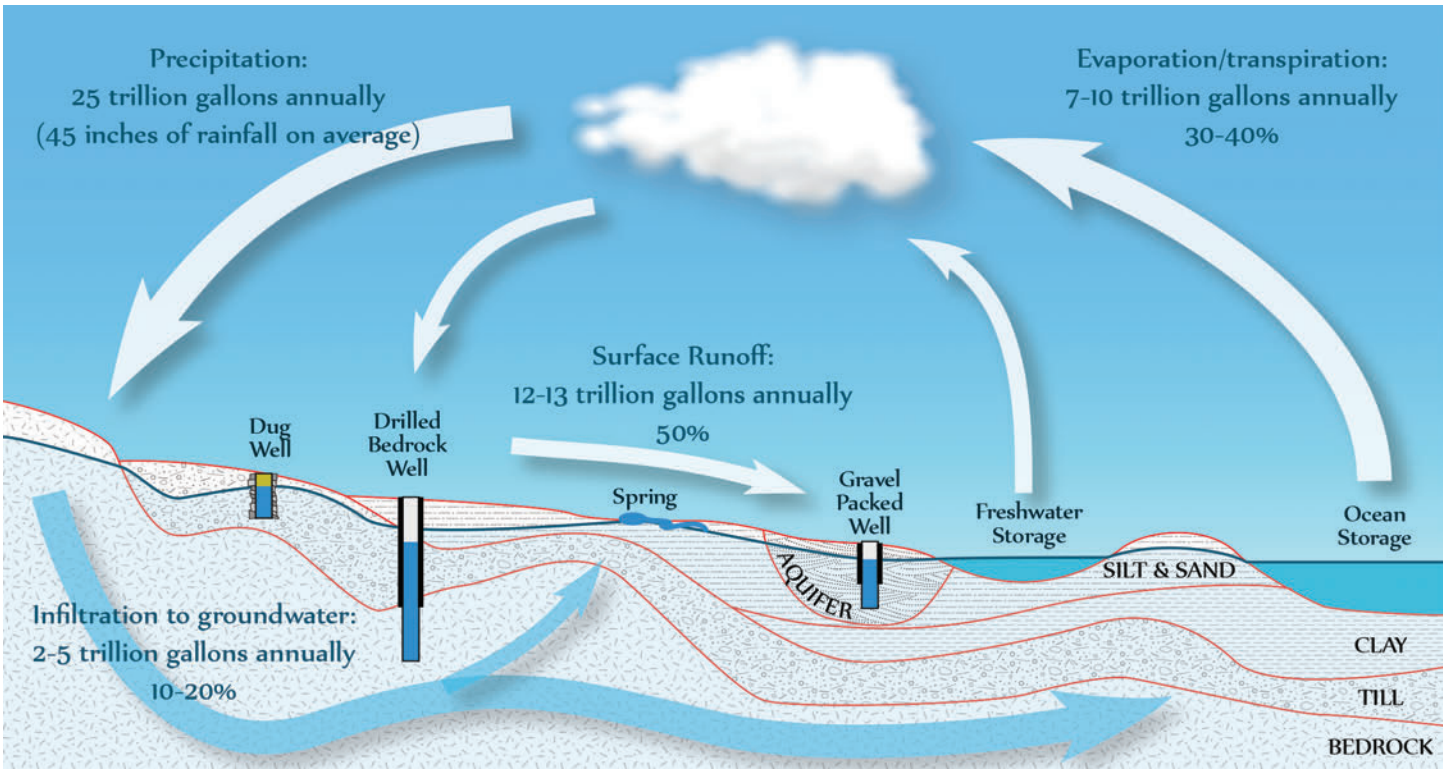

Figure 1: Maine's Water Cycle

DEFINITION OF A SPRING

A spring is the location where groundwater (water that exists beneath the earth's surface) naturally emerges from the ground. Poland Spring withdraws water from two boreholes located at Spruce Spring, intercepting a portion of the spring water that would otherwise naturally emerge from the ground. Spring water occurs along the aquifer segment where Spruce Spring is located. The spring water here eventually flows into the Dead River, which outlets from Flagstaff Lake and flows to the north.

WATER WITHDRAWALS AND SUSTAINABILITY

The Maine Land Use Planning Commission (LUPC) regulates spring water withdrawal at Spruce Spring through the issuance of permits. In addition to requiring extensive scientific investigations of the site, LUPC established a series of conditions in connection with issuing a water extraction permit. These performance standards protect the aquifer and other natural resources for long term sustainability.

Hydrologic analyses were used by regulators to establish an extraction volume from the Spruce Spring sources of 80 million gallons (MG) of water in any given 365-day period. It is important to note that this amount represents on average only 6%

of the average annual precipitation falling in the watershed. Since water withdrawals began in July 2005 at Spruce Spring, the average utilization has been approximately 1% of the average annual precipitation falling in the watershed. In each year, 2021 and 2022, withdrawals were limited to approximately 11 million gallons.

Poland Spring's water withdrawals from Spruce Spring are regulated by:

- Maine Land Use Planning Commission (LUPC)
- Dept. of Health & Human Services (Maine Drinking Water Program)

SITE MONITORING

Water Supply

Independent scientists contracted by Poland Spring regularly and thoroughly monitor the groundwater system, springs, wetlands and surface water bodies located in and around the Spruce Spring aquifer. Poland Spring continuously monitors extraction rates at the spring water boreholes and monitors stream flow, stream levels and temperature along Cold Brook. These considerable monitoring efforts ensure that Poland Spring's operations do not adversely affect the groundwater, surface water, or natural environments in the valley. These independent scientists submit annual reports to the LUPC to demonstrate compliance with Poland Spring's permit.

Wetland Health

Poland Spring also assesses the health of nearby wetlands through wetland water level monitoring. The independent scientists who conduct these assessments submit the monitoring data via annual monitoring reports. These reports show that there have been no adverse effects on wetlands. The annual reports are available to the public for review.

RECENT MONITORING RESULTS

The graphs below summarize important measures of the health of the natural groundwater and surface water systems. The graph in Figure 2 depicts water levels observed in the Spruce Spring aquifer dating back more than 17 years. The water levels in the aquifer naturally fluctuate by a few feet, depending on the season. Spring and fall rains typically lead to recharge of the aquifer, while growth and uptake of water by plants in the summer usually decreases aquifer water levels, as does the lack of recharge during winter months when the ground is frozen. In Figure 2, water level trends observed at the site are representative of normal seasonal variation that is expected during the year in response to changes in precipitation and temperature. During 2022, the Spruce Spring area experienced a gain of approximately 2.5 inches compared to long-term normal annual precipitation. The monitoring data in 2022 show groundwater levels were highest in the spring as expected with snow melt and aquifer recharge. Groundwater levels declined slowly through the summer months from June through September in response to below normal precipitation that occurred from May through August. However, groundwater levels at the end of the year returned to approximately the same levels as measured at the beginning of the year.

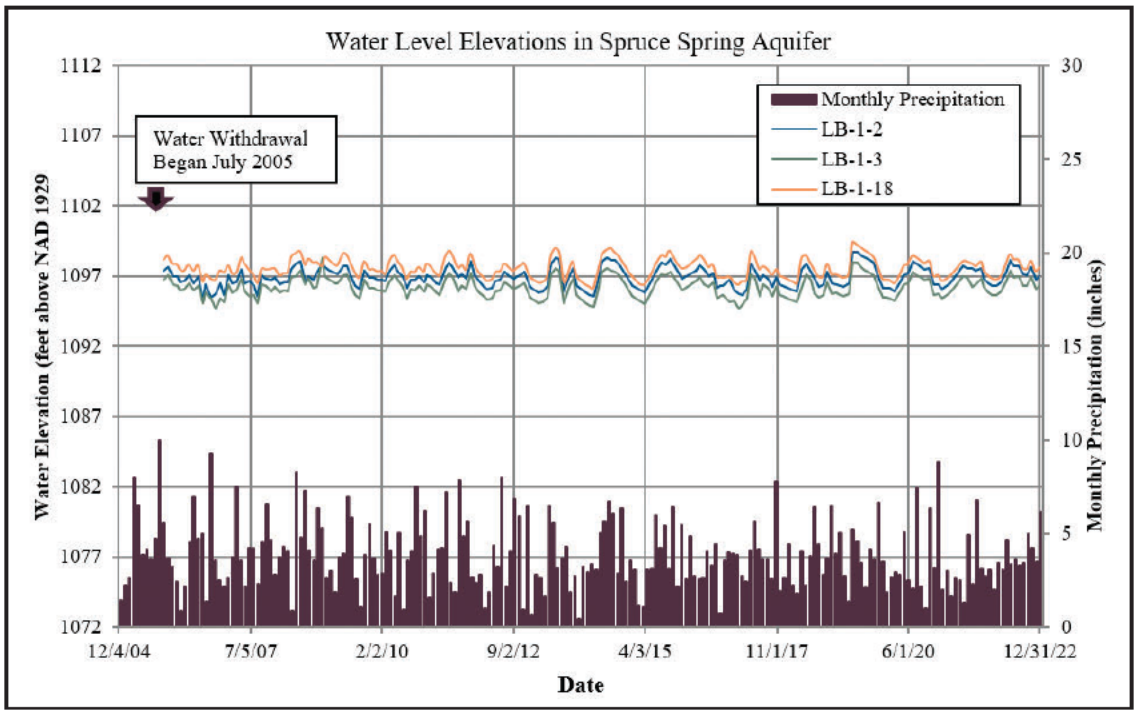

Figure 2: Groundwater Monitoring Data

continued on back

Over the many years of water level monitoring at Spruce Spring, the data show that Poland Spring's activities have not resulted in adverse impacts to the natural hydrologic conditions in the aquifer.
Surface water bodies respond similarly to the natural hydrologic cycles, as shown in Figure 3. Melting snow and spring rains lead to increased surface water flows as seen in April of 2007 and 2008. Hotter, drier summer weather, combined with the uptake of moisture by plants, reduces available surface water flows. In March and April 2022, the site experienced higher stream flows in response to snowmelt and runoff compared to the lower flows measured in August and September which resulted from below normal precipitation that occurred during the summer. Despite the fluctuating seasonal trends in water levels and stream flow, Poland Spring has complied with its permit conditions since spring water withdrawal for bottling began at Spruce Spring in 2005. The site had limited spring water withdrawals in 2022 similar to the withdrawals in 2021.

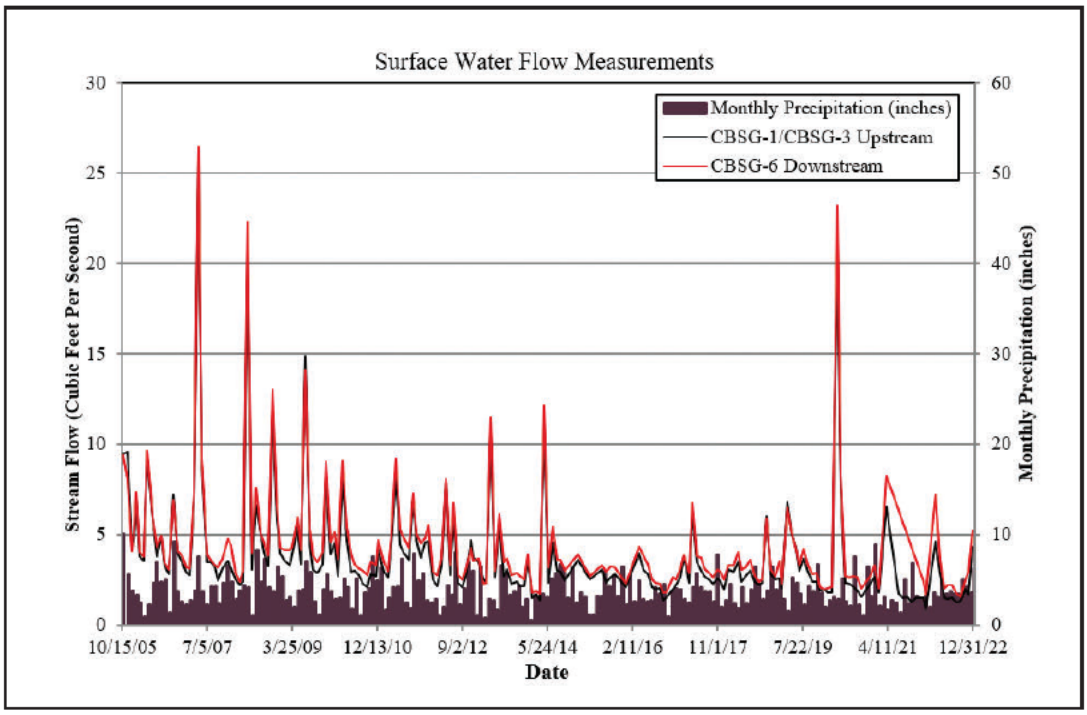

Figure 3: Surface Water Monitoring Data

FUTURE MONITORING

Poland Spring takes its environmental stewardship responsibilities seriously and is committed to sustainable management of natural resources. Monitoring the groundwater, surface water, habitat and precipitation will continue for as long as Poland Spring withdraws spring water from Spruce Spring.

SUMMARY

Water withdrawals by Poland Spring at Spruce Spring in Pierce Pond Township, Maine are overseen by its independent hydrogeologists and the LUPC. Poland Spring manages for sustainability through proactive monitoring and responsible use. Water withdrawal activity has not resulted in adverse impacts to groundwater, surface water, wetlands, or other natural resources.

Monthly monitoring results are available to the public.
Contact the Maine Land Use Planning Committee at
(207) 287-2631 to obtain reports.

[redacted]