From Source to Safety: Programs & Modernization in WDG

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Recommendations

It is recommended that the Board of Health receive this report for information.

Key Points

- Safe drinking water remains a core public health priority for Wellington-Dufferin-Guelph, requiring ongoing oversight of Regulation 319 Small Drinking Water Systems, Regulation 170 Drinking Water Systems, and private drinking water sources.
- WDGPH's drinking water programs help prevent waterborne illness through risk assessments, inspections, surveillance, adverse-result follow-up, and public education.
- Private well water users, particularly in rural areas, benefit from expanded testing access, timely result interpretation, and targeted outreach to reduce barriers to safe water information.
- Modernization initiatives, including *Robotext* notifications and automated audit processes, are improving how quickly WDGPH identifies risks, communicates with residents, and supports operator compliance.
- Enhanced GIS mapping and data analysis will help WDGPH identify local trends, emerging risks, and communities that may need more focused drinking water supports.
- Partnerships with Public Health Ontario, municipalities, drinking water operators, and community organizations strengthen coordinated action to protect drinking water across the region.

Background

Safe drinking water is essential to protecting public health, as contamination can result in illness and waterborne disease outbreaks. Reliable access to safe drinking water also supports community well-being and contributes to healthy, sustainable communities. In Ontario, responsibility for drinking water safety is shared across provincial ministries, municipalities, drinking water system owners and operators, Public Health Ontario, and local public health units. Within this system, WDGPH's role is to assess and respond to drinking water risks, support regulatory compliance, provide public education, and help residents understand and act on drinking water test results.

This report describes how WDGPH's drinking water programs have evolved from routine regulatory oversight and testing support toward a more integrated, data-informed, and client-focused approach. The work has involved collaboration with Public Health Ontario, municipalities, drinking water system owners and operators, community partners, and WDGPH staff who deliver inspections, surveillance, adverse-result response, public education, and program improvement activities.

The legislative and program context for WDGPH's drinking water role is established through the Ontario Public Health Standards, which require boards of health to deliver programs and services that identify, assess, and address safe water risks.[1] WDGPH's drinking water protection activities include three connected program areas: Small Drinking Water Systems, which are regulated under Ontario Regulation 319/08 and include certain public-facing non-municipal systems;[2] regulated drinking water systems under Ontario Regulation 170/03, where Public Health supports response to adverse water quality incidents and public health concerns;[3] and private drinking water systems, such as wells, where residents are responsible for routine testing and maintenance.[4]

In Wellington-Dufferin-Guelph, this context is particularly important because many rural residents rely on private wells that are not routinely monitored in the same way as municipal systems. Private well testing through Public Health Ontario identifies bacterial indicators of contamination, including *E. coli* and total coliforms, but participation depends on residents collecting and submitting samples and accessing their results in a timely way.[4] Barriers such as distance to sample drop-off locations, awareness of testing recommendations, and delays in receiving or acting on adverse results can create gaps in protection.

These gaps helped shape WDGPH's current drinking water modernization work. The project was developed to strengthen surveillance, improve the speed and consistency of follow-up, increase access to testing services, and make better use of local data to identify trends and emerging risks.

This report highlights two key modernization initiatives; adverse-result *Robotext* notifications and automated audit processes for drinking water program monitoring through the Laboratory Result Management Application (LRMA). The report also makes mention of other improvement efforts in the areas of strategic partnerships and community initiatives, such as GIS mapping and enhanced analysis of private well water trends, participation in Public Health Ontario's digital submission pilot, and expansion of well water sample drop-off locations.

Discussion

Program Overview: Regulation 319, Regulation 170, and Private Well Water

WDGPH's drinking water work is organized across three primary program areas: Small Drinking Water Systems under Ontario Regulation 319/08, regulated Drinking Water Systems under Ontario Regulation 170/03, and the Private Well Water Program.[2,3,4] Together, these programs reduce the risk of exposure to unsafe drinking water by supporting regulatory oversight, risk assessment, adverse-result response, public education, and timely communication with residents and system operators.

Regulation 319 – Small Drinking Water Systems Oversight and Risk Assessment

In Ontario, Small Drinking Water Systems generally include businesses or premises that make drinking water available to the public from a source other than a municipal drinking water system and are subject to Ontario Regulation 319/08.[2] These systems include community centres, motels, restaurants, bed and breakfasts, gas stations, and churches. [2] WDGPH uses a risk-based approach to oversee these systems. Public Health Inspectors complete site-specific risk assessments using the Ministry's Risk Categorization Assessment Tool, which classifies systems as low, moderate, or high risk and informs directives for sampling, treatment, operational checks, record-keeping, training, and inspection frequency. As of 2026, there are 204 Small Drinking Water Systems in the WDGPH region. Since 2021, Public Health Inspectors have completed 128 risk assessments to support system-specific oversight and ensure that required controls reflect the level of risk identified for each system.

Regulation 170 – Drinking Water Systems

Although the Ministry of the Environment, Conservation and Parks (MECP) is the lead agency for drinking water systems regulated under Ontario Regulation 170/03, WDGPH supports the public health response when adverse water quality incidents or health concerns arise.[3] This includes working with system owners, operators, municipalities, provincial partners, and laboratories to support timely communication, risk assessment, corrective action, and coordinated response.

Private Well Water (Surveillance and Trends)

Private well water surveillance provides important information about testing participation, adverse results, and potential drinking water risks in rural areas. Annual private well water sample submissions were 5,310 in 2021, 4,578 in 2022, 4,972 in 2023, 4,822 in 2024, and 4,720 in 2025. Submissions have remained relatively stable since 2022, suggesting ongoing use of the private well testing service following a higher submission volume in 2021, which may have been influenced by pandemic-related factors such as household water-use patterns.

Adverse private well water test results were 775 in 2021, 1,100 in 2022, 880 in 2023, 625 in 2024, and 665 in 2025. The 2022 increase appears to be an episodic spike rather than evidence of a sustained decline in private well water quality. A likely contributing factor is short-term environmental conditions that increase the movement of surface contamination into groundwater, such as intense rainfall, flooding, and increased runoff from agricultural or rural land uses into vulnerable wells.

Geographic and environmental patterns will be further explored through enhanced GIS mapping. An upcoming GIS mapping project led by a summer student or intern will support improved spatial analysis and visualization of private well water sampling trends across the region. This work will help identify local patterns, areas with lower testing participation, and communities that may benefit from targeted education, outreach, or follow-up.

Program Innovation and Modernization

1. *Robotext* Notification System: Private Well Water

Private well owners with adverse test results may not receive timely notification and guidance under traditional follow-up processes. The *Robotext* notification system helps address this gap by sending automated and faster notifications directly to the well owner's mobile device when adverse drinking water results are identified *(see figures 1 and 2)*. This improves notification timelines, supports more consistent client communication, and helps residents connect easily with WDGPH for guidance on interpreting results and taking corrective action. Preliminary implementation findings suggest that *Robotext* notifications are improving responsiveness for residents while creating operational efficiencies for the program. Notifications are sent when three criteria are met: the result is adverse, defined as code 1–5 with *E. coli* or total coliform present; valid contact information is available; and not a landline telephone. **To date, a total of 175 notifications were sent to private well owners with adverse test results**. The estimated annual operating cost for the SMS *Robotext* notification system is approximately $54 per year, based on about 5,000 messages.

Figure 1. *Robotext* Notification 1

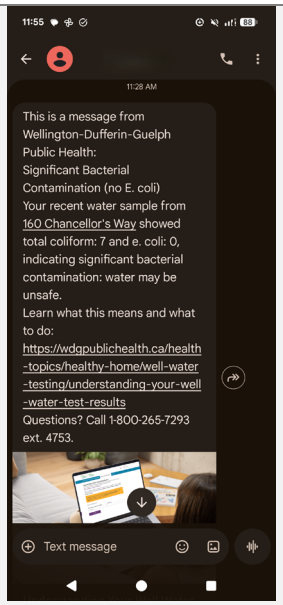
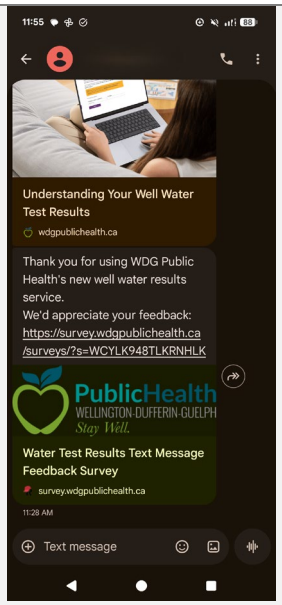


Figure 2. *Robotext* Notification 2



2. LRMA Audit Automation

LRMA stands for Laboratory Result Management Application and is used to review Small Drinking Water System sampling compliance, test results, and adverse water quality incidents.[8] WDGPH's LRMA audit process uses these records to confirm that required sampling, results review, adverse-result follow-up, directives, and other program actions are complete, current, and documented. WDGPH is modernizing this work by shifting from periodic manual audits toward more automated, real-time monitoring, allowing staff to identify outstanding actions earlier, improve consistency, reduce manual review time, and focus Public Health Inspector follow-up on higher-risk systems or unresolved issues.

Strategic Partnerships and Community Initiatives

Strategic partnerships and community initiatives strengthen local drinking water protection by improving access, education, coordination, and program modernization. WDGPH continues to collaborate with Public Health Ontario on laboratory services and the new digital submission portal pilot, including piloting and evaluating the digital submission process.[5,6] These efforts support more efficient sample submission workflows and improved client experience.

Community-based initiatives, such as the Children's Drinking Water Festival, provide opportunities for public education and outreach on safe drinking water. The festival is a hands-on, curriculum-linked education event that helps students learn about water protection, conservation, science, and stewardship. WDGPH has expanded private well water drop-off locations to improve accessibility and increase participation in testing programs across the region, particularly for rural residents who may face transportation or distance-related barriers.

Next Steps

- Continue routine inspections, risk assessments, and follow-up for Small Drinking Water Systems and adverse water quality incidents.
- Monitor private well water sample submissions, adverse results, participation trends, and geographic patterns.
- Evaluate and refine *Robotext* adverse-result notifications to support timely resident action.
- Advance automated audit workflows to improve consistency, timeliness, and staff capacity for risk-based follow-up.
- Use GIS mapping and data analysis to identify priority areas for education, outreach, or environmental investigation.
- Continue collaboration with Public Health Ontario, municipalities, drinking water operators, and community partners to support coordinated drinking water protection.

Health Equity Implications

Access to safe drinking water is a determinant of health, but barriers are not experienced equally. Residents who rely on private wells, particularly in rural or remote areas, may face challenges related to transportation, distance to sample drop-off locations, limited awareness of testing recommendations, and the ability to respond quickly to adverse results. Low-income households, older adults, people with disabilities, residents with limited digital access, residents who are uncomfortable communicating in English, and people who are underhoused or in temporary/shared accommodations may experience additional barriers to testing, notification, and corrective action.

WDGPH is mitigating these barriers through expanded well water sample drop-off opportunities, timely *Robotext* adverse-result notifications, public health follow-up, plain-language guidance to support result interpretation, and surveillance tools such as GIS mapping to identify communities that may benefit from targeted outreach. Collaboration with Public Health Ontario, municipalities, drinking water operators, and community partners will continue to support equitable access to drinking water information and services.[4,7]

Conclusion

WDGPH's drinking water programs protect community health by supporting prevention, surveillance, regulatory oversight, adverse-result follow-up, public education, and partnerships across Wellington, Dufferin, and Guelph. This report highlights how modernization initiatives, including *Robotext* notifications, automated audit processes, expanded sample drop-off opportunities, and enhanced GIS analysis, are strengthening WDGPH's ability to identify risks, respond quickly, and support residents and system operators. Next steps include continuing inspections and risk assessments, monitoring private well water trends, evaluating modernization tools, and working with partners to improve access, communication, and coordinated action. Safe drinking water requires ongoing public health oversight, local data, timely communication, sustained collaboration and continued vigilance to prevent illness and protect communities.

Ontario Public Health Standards

Foundational Standards

- ☒ Population Health Assessment
- ☒ Health Equity
- ☒ Effective Public Health Practice
- ☐ Emergency Management

Program Standards

- ☐ Chronic Disease Prevention and Well-Being
- ☐ Food Safety
- ☒ Healthy Environments
- ☐ Healthy Growth and Development
- ☐ Immunization
- ☒ Infectious and Communicable Diseases Prevention and Control
- ☒ Safe Water
- ☐ School Health
- ☐ Substance Use and Injury Prevention

2024-2028 WDGPH Strategic Goals

More details about these strategic goals can be found in WDGPH's 2024-2028 Strategic Plan.[7]

- ☒ Improve health outcomes
- ☐ Focus on children's health
- ☒ Build strong partnerships
- ☒ Innovate our programs and services
- ☐ Lead the way toward a sustainable Public Health system

References

1. Ontario Ministry of Health. *Ontario Public Health Standards: Requirements for Programs, Services, and Accountability.* Toronto, ON: Government of Ontario.
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3. Government of Ontario. *Ontario Regulation 170/03: Drinking Water Systems*, made under the *Safe Drinking Water Act, 2002*. Toronto, ON: Government of Ontario.
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5. Public Health Ontario. *Online Water Testing Portal.* Toronto, ON: Public Health Ontario.
6. Public Health Ontario. *PHO's New Online Water Testing Portal.* Toronto, ON: Public Health Ontario.
7. Wellington-Dufferin-Guelph Public Health. *WDGPH Strategic Plan 2024–2028.* Guelph, ON: Wellington-Dufferin-Guelph Public Health.
8. Ontario Ministry of Health. *Laboratory Result Management System Application (LRMA)*. Ontario Data Catalogue. Toronto, ON: Government of Ontario.