



Groundwater Matters


September 2018





Well driller Charlie Walsh demonstrating how to test a water well for the presence of salmon. From deep in the BCGWA archives courtesy of Pacific Water Wells

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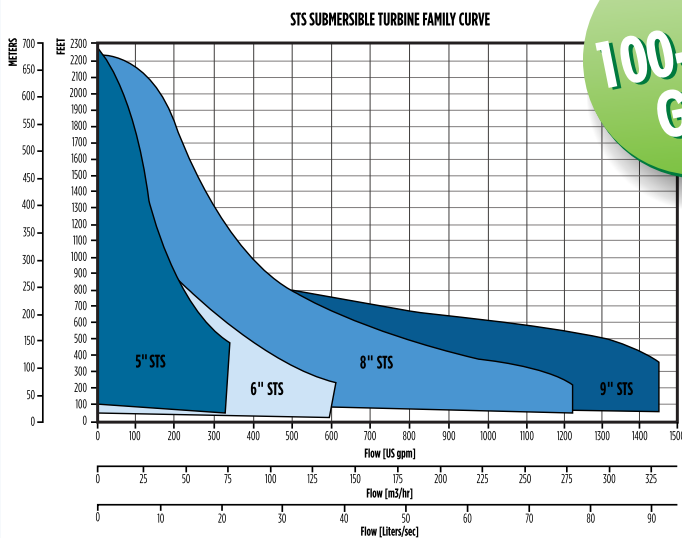
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GENERAL MANAGER'S REPORT

September 2018, by Kathy Tixier

For some of us, the new year starts with the new calendar year on January 1. For others, it starts with a new fiscal year, say on April 1. However, for many of us, a new year starts after Labour Day. Kids go back to school, folks return from their summer retreats, and a new daily routine sets in. This year brings one more new element for members of this Association: our new General Manager, Dave Mercer.

Dave is ready, willing, and able to take on this new role, having spent over 30 years working in the groundwater resource sector – as field engineer, business development leader, and communications and marketing specialist. At our lunch meeting not too long ago, I got the impression that Dave is a good listener, an enthusiastic adventurer, and a sharp thinker whose intuition and life experience has guided him in working positively and effectively with people. In this his first year as GM, he is eager to get to know all of you and acquire a better understand your day-to-day activities and concerns. Please feel free to reach out to Dave anytime at general-manager@bcgwa.org. I can continue to be reached at my personal e-mail: tixiereng@telus.net.

Since our 2018 trade show & convention in Langley, we have been busy processing membership renewals. I am pleased to say that we have several number of new members to welcome to the Association.

Our goal over the next few years will be to continue to grow our membership. As of January of this year, 287 individuals were listed on the Register of Well Drillers, and 319 individuals were listed on the Register of Well Pump Installers. Our Association counts approximately 85 well driller members and 75 well pump installer members, which is well below half of those who operate as such in this Province. Therefore, opportunity knocks for bringing new members into the fold.

This fall we will be gearing up for our regional meetings in Prince George, Vernon, Langley, and Parksville, BC. If you know a tradesperson, geoscientist/engineer, or manufacturer/supplier working in the groundwater industry and who may be interested in joining our Association, please invite them to attend. The dates are listed in the current events of the newsletter. No need to register on-line this year– just show up at the door. As we are in the process of getting acquainted with our new GM and vice versa, we will try to keep these meetings 'light', with a few presentations and lots of room for discussion.

And we still have lots of things to talk about. On the Flowing Artesian Well front, we will look to the Ministry to continue the dialogue on the liability question and help us find ways to better mitigate that liability. The Province have released a review of the professional reliance model, with specific recommendations pertaining the *Water Sustainability Act* and how it relies on the work of professionals to manage groundwater resources. The report found that the Ground Water Protection Regulation adequately sets out means for achieving competency, clarity, and accountability, however during the past 5 years there have been several significant flowing artesian wells that demanded extraordinary government resources. For further details, see <https://engage.gov.bc.ca/professionalreliance/>

In closing, while I am no longer in the 'driver's seat' of the Association, rest assured that I plan to stay on this bus as long as I am in this industry. Those who are riding this bus are going places, and it is way more fun to travel alongside you. All the best to each and every one of you and thank you for your support over the past three years.



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PRESIDENT'S REPORT

September 2018

Again summer has flown by, and despite the smoke, I hope everyone had the opportunity to take some time off this summer. After several years of working most of the summer, I think I had four weeks of vacation this summer and it was great to travel and spend time with my family. At the risk of sounding crazy, I have to admit it does feel good to get back to work and keep some projects moving forward, as there seems to be lots of activity at least in the interior this year.

There is some exciting news for the BCGWA. This summer we posted the job opportunity for our new General Manager, and the executive vetted three solid candidates for the position. In the end I am pleased to announce that Dave Mercer, P.Geog has accepted the GM role and will be starting work very soon. Dave has a background in hydrogeology, but brings several skill sets to the position that I believe will be of great benefit to our organization. Dave founded and also continues to work at Underground Communications, a corporate communications business providing services to environmental and resource-based companies. As such he will be bringing his experience in marketing, messaging and business development to bear for the BCGWA. He has several ideas related to refreshing our annual conference and bringing business development opportunities to our membership that I am excited to see him pursue.

Dave will be moving quickly into the GM role, and will be playing a large part in organizing the upcoming regional meetings and will be present at them all. I encourage everyone to put these meetings on their calendars as it will be a great opportunity to meet Dave. Kathy will shadow

Dave over the coming months to make the transition as smooth as possible, and I want to thank Kathy again for this and all her hard work over the last three years. She has been great to work with and I want to wish her all the best in her future endeavours.

I got a few questions from well drillers this summer about the need to collect water samples from new or altered wells. Section 63 of the *Water Sustainability Act* seems to require this, but there are no specifics on how to collect these samples, what to sample for or how to submit those results to the Province. I would guess more than half of new wells get sampled for one reason or another (subdivision approval, building permit, prudent curiosity on the part of the well owner) but some wells might not. If someone at the MoE or MFLNRORD is reading this and can provide some clarification on this, please get in touch with me and we get this information out in an upcoming newsletter.

Work safe, and feel free to reach out if you have an issue the Association can help with.

Ryan Rhodes, P.Geog

President, B.C. Ground Water Association





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MEET THE NEW GENERAL MANAGER

The British Columbia Ground Water Association would like to congratulate and welcome Dave Mercer as our new General Manager. Dave will replace Kathy Tixier as she takes on a career shift following three years at the helm of the organization.

Dave is a Professional Geoscientist with over 30 years of experience working in groundwater related industries. He began his career with Westbay Instruments, a Vancouver based groundwater instrumentation company, where he managed projects on a wide variety of sites in BC and around the world, including open pit and underground mines, large geotechnical projects, nuclear waste repositories, US Department of Energy laboratories, and groundwater remediation and water resource management projects.

Dave also spent over a decade working with Schlumberger, a large multinational oil company, helping to establish and grow a water services division to provide primarily groundwater related services to their clients. Taking on several management roles related to business development, sales and marketing, and product development and integration, Dave worked with an international team focused on unconventional oil and gas, mining and water resources.

Dave launched Underground Communications in 2011 to provide strategic business development, marketing and communications services to resource-based industries. His clients include geotechnical and

environmental consultants, service providers and equipment suppliers.

Dave is excited to become the BCGWA general manager and to have the opportunity to work with its members. His diverse career experience has provided him with a unique hands-on understanding of the groundwater industry and associated technologies, in combination with valuable business development, corporate management and marketing skills. Dave looks forward to helping build upon the strong foundation established by BCGWA leadership past and present, so we can continue to meet our mission statement goals and prepare to meet new challenges facing the groundwater industry.

Kathy Tixier will be working closely with Dave over the next six to nine months to help him transition smoothly into his new role. You'll have the opportunity to meet Dave at our upcoming fall regional meetings.



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UPCOMING EVENTS



BCGWA 2018 Regional Meetings



Detailed meeting agendas will be posted on our website and emailed to our members before September 30



PRINCE GEORGE, Saturday Oct 13
12pm-3pm, lunch included
Sandman Signature Prince George Hotel

VERNON, Friday Oct 19
1pm-4pm, snack included
Village Green Hotel

PARKSVILLE, Saturday Oct 27
10am-1pm, lunch included
Quality Bayside Resort

LANGLEY, Saturday Nov 3
10am-1pm, lunch included
KPMG Boardroom, 200 St

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Asset Management BC Annual Convention

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<https://www.assetmanagementbc.ca/2018-asset-management-bc-annual-conference/>



12th Washington Hydrogeology Symposium

April 9 - 11, 2019

Tacoma, Washington

<http://depts.washington.edu/uwconf/wordpress/wahgs/>

49TH Annual BCGWA Trade Show & Convention

April 10-11, 2019 Coast Langley Hotel and Convention Center, Langley, BC



REGULATIONS, RISK, AND REALITY

Preventing catastrophe – and bankruptcy – by being prepared for flowing artesian conditions

By Carolyn Camilleri

By now, everyone in the industry probably knows this story, but just in case. In September 2015, in Vancouver's expensive, densely urban Kerrisdale neighborhood, a homeowner contracted a homebuilder who contracted a drilling company to install a geothermal heating system. The drillers encountered a high-pressure aquifer at very shallow depths and weren't able to re-achieve control before it became catastrophic. An estimated two million liters of fresh water a day flowed out of that borehole. In May 2017, the *Vancouver Sun* put the cost at \$10 million dollars, and at that point, the water was still flowing.

Thierry Carriou and Richard Cronin of BC Groundwater Consulting Services Ltd. know all about that story, because they were called in to get it under control and closed, which they did.

Carriou is a professional engineer with 25 years of experience as a consultant, crew foreman, engineer and superintendent. Cronin, who got his start working with his father in Ontario's Keswick-Sutton area, has been in the industry for 35 years, including 20 years in flowing well control and grouting in B.C., Alberta and Manitoba.

Carriou points out that the Kerrisdale situation was rare only because it occurred in a densely populated residential area. Because of the older storm drain infrastructure, which is connected to the sanitary system, twin eight-inch overland pipelines had to be constructed to carry the water a kilometer away to the main



Photo courtesy of Kathy Tixier

storm drain. Surrounding homes were on evacuation alert, and there were concerns about sewage backup and million-dollar homes dropping into sinkholes.

But flowing artesian conditions are quite common.

"Probably a full third of well construction that we supervise is some version of artesian," Carriou says.

Another example of an out-of-control well, perhaps less spectacular in location, but also a nightmare: in rural B.C., a driller hit 750 gallons a minute at about 12 psi, which continues flowing to this day.

"There was no record of any artesian flows in that area either," says Cronin, adding that, in fact, two other wells had been drilled nearby – one a stone's throw away and another to the north – and they didn't flow.

"The driller naturally assumed, 'Well, I'm in good shape,' " Cronin says. "But this happened. These types of wells always seem to happen in the most terrible places. This well was drilled probably 30, 40 feet from a provincial highway. Now, it's snowballed with the Ministry of Transportation involved, because they're worried about erosion of their highway."

It really can happen to anyone and not only water well drillers: “Any type of driller, whether it be geotechnical, environmental, or whomever, can run into these situations,” Cronin says.

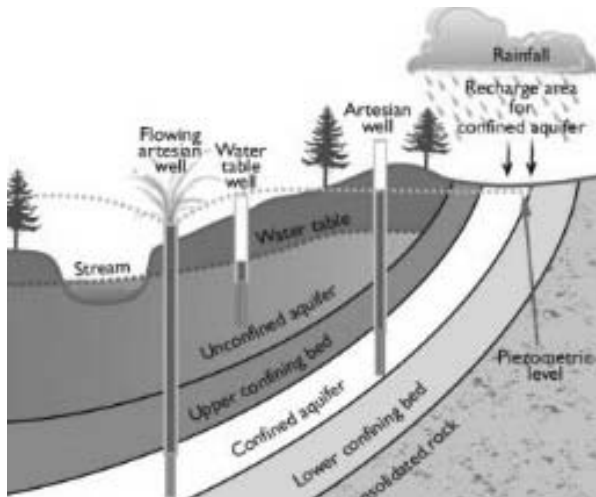


Photo courtesy of BC Ministry of Environment and Climate Change Strategy

Getting that message across was a focus in “Flowing Artesian Wells: Experience with Control and Closure in British Columbia,” a seminar Carriou and Cronin jointly presented at the National Ground Water Association conference in Nashville last December. While the risk is something drillers everywhere need to consider, it is a particularly hot topic in B.C.

Under B.C.’s new *Water Sustainability Act* and Groundwater Protection Regulation, drillers are responsible if a flowing well goes out of control.

“Originally, the homeowner or the landowner was responsible, and then it would go down from there to the driller and if there was a professional involved,” Cronin says. “Now [with the new *Water Sustainability Act* in B.C.], that’s kind of reversed: if there’s a professional involved, he’s at the top of the responsibility ladder, and then there’s the driller and then the homeowner.”

Craig Stainton, executive director for the Ontario Ground Water Association, provides an Ontario perspective: “Responsibility basically boils down

to who pays the additional costs, be it beforehand or in response to a flowing situation. The driller is responsible in Ontario, as well, unless they have a contract with the well/land owner absolving them of the additional costs of dealing with a flowing well. They are, however, still responsible.”

Personal responsibility is a heavy burden for an individual driller, especially when there are issues of interpretation within the regulations and questions about the experience and understanding of the people writing the regulations.

“One of the biggest issues is regulation,” Stainton says. “When one considers – with a view to Ontario – with a well and pumping system, to get the water under pressure in a house and useable, as in coming out of a showerhead or flushing a toilet and certified potable for human consumption, there is more than one ministry involved and none seem to be on the same page. Or, in fact, often in the same room. It is the proverbial ‘dog’s breakfast.’ ”

While Carriou says he hopes and expects that eventually the regulations and responsibilities will become clearer, there is another reason drillers need to be more proactive about risks involved with flowing artesian conditions: you might get sued.

The geothermal drillers at the Kerrisdale project didn’t have the experience to deal with the situation – which they made worse by pulling their casing out – but they knew they were in trouble.

“They didn’t leave their casing, but they did leave the country,” Cronin says. “Within a few days they were gone. Completely gone. They’re a big company back in Italy, and they’re not fools. You see a certain condition arising, you have to make a decision.”

Cronin explains that, in the past, drillers were out of the public eye: “It’s great to be out in the middle of a field. You got the wind blowing in your



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hair. You're alone. You're independent. But we've become a litigious society now. Water, as we all know, is in the forefront."

Carriou adds: "A lot of people like to blame the regulations, but it's not just that. The regulations is a piece of it, but I would say, it kind of reinforces, just generally, where we are right now society-wise."

PROTECTING YOURSELF

So how do you protect yourself? The message from Carriou and Cronin is clear: Do your homework. Don't cut corners. Uncontrolled flow can lead to bankruptcy.

In other words: build better wells.



Photo courtesy of A&H Well Drilling Ltd.

Stainton fully agrees: "If every well is constructed in such a manner that a flow could be controlled, then better wells will abound."

"I know a lot of drillers do not like it, but I see it as a way of reinforcing research on where you are drilling prior to starting and providing good-quality construction," Stainton says. "I have had drillers argue with me that they didn't or don't know if a well would flow, but when you get right down to it, if the well is constructed right from jump street to accommodate control in a flowing situation, in my opinion, it is going to be a better well."

And it's about being prepared, Cronin says.

"That's my big thing. I'm big on logistics that way," Cronin says. "Have the equipment on site if, in fact, something does happen, because – and this is part of the issue – it could've happened to anybody [referring to Kerrisdale]. You've got to be knowledgeable and prepared and able to handle it."

Stainton concurs, saying that, in Ontario, most people know where the flowing wells are, but there are some surprises, "And it should only be a surprise for a few minutes."

Another sign of changing times is whom you need on your team. Carriou and Stainton both comment that drillers need to work together with consultants and lawyers. And they emphasize the need for a team approach, with both sides – professional/education and field/direct experience – working in conjunction.

"It's a structural issue because both sides are kind of entrenched," Carriou says. "That's the part that is going to take a long time to change. I also don't think you can ram things down somebody's throat."

The team approach is clear in the advice Carriou and Cronin offered at the Nashville seminar:

"Every situation is unique. Expect the unexpected. Seek external assistance and advice (contractor, professional, legal). Team up with a qualified, experienced hydrogeologist or engineer with a

proven track record and insurance. Consider specialty contractor services. If engaging a professional, ensure they accept the role of preparing the instructions *in consultation with a driller*. Also, assign them the role of ensuring all work is carried out in accordance with the regulations in your area.”

The elephant in the room is that all of this costs money.

“[Drillers] may have to construct a water well under artesian well control standards, and obviously, when you do that, it costs more money,” Cronin says.

Cost can make it a hard sell for drilling contractors, and Cronin understands that: “I’m fully aware of the challenges drillers have because they want to work. They’ve got mouths to feed. They’ve got to make payments on their rigs, and I get that. We all want to appease our customers. Do the best for them.”

Cronin also knows customers can be very persuasive when it comes to negotiating a price, even if it means cutting a few corners. He likens it to asking a dentist to leave out the freezing as a cost savings. Stainton echoes that line of thinking: “You wouldn’t ask a gasfitter or an electrician to cut corners: why are drillers asked or expected to cut corners?”

RISK, SAFETY AND REPUTATION

Ultimately, it is about risk, safety and reputation.

“Why would you be taking on your client’s risk if there’s a potential for artesian? Why would you be directing the client to not take safety precautions or not do the safety precautions on your own?” Carriou says. “Then a problem happens, and you’re now completely wearing it.”

Stainton agrees that the cost of mitigating risk needs to be part of the overall cost of the well.

“The client/customer should have to pay for those additional costs, and I have a fundamental problem with drillers who discount their prices and services,” Stainton says.

Cronin echoes this: “Drilling contractors and people in the industry have to value their services a little bit better. I think that’s a key thing.”

Another point Carriou and Cronin are strong on is that flowing artesian wells are not only naturally occurring, they are also tremendous assets.

Carriou offers an example: “We just did a project last week where we drilled a new well. I had a very strong suspicion, based on a bit of science and a gut feeling and some other things, that there was a pretty darn good chance that the well’s going to end up being artesian. We put it to this commercial client: I said to them, ‘You know what? We want to do a Halliburton-style seal. Is it being proactive? Absolutely. Is it going to cost an extra day, maybe a day and a half of time to do it? Yup. Absolutely.’ ”

“If you do have an artesian well, I think it’s important as an industry that we leave our clients with an asset rather than a liability,” Carriou says. “People are starting to get that.”

They’re also starting to get that the risks of not being prepared for a flowing artesian conditions are higher than they used to be.

“Take precautions,” Carriou says. “It might end up saving – well, a few thousand dollars for sure – but it might also end up saving your business.”

Carolyn Camilleri is a Toronto-based writer, editor, and content strategist. She has been writing for consumer and trade magazines, as well as businesses and organizations, for more than 15 years.

This article appeared in the Spring 2018 issue of Ground Water Canada and is reprinted with permission. The BCGWA would like to thank Ground Water Canada for this opportunity.



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LET'S TALK SAFETY

By Blaine Matuga, President, Central Interior Pumps and BCGWA Past-President

It's something that everyone should preach. I may not be religious but if there is something I could do a sermon on, it would be safety.

Everyone wants to get the job done but what is the cost if someone gets hurt, or worse killed?

Safety isn't needed just on the job, but also in the things we do every day without thinking what the consequences could be.

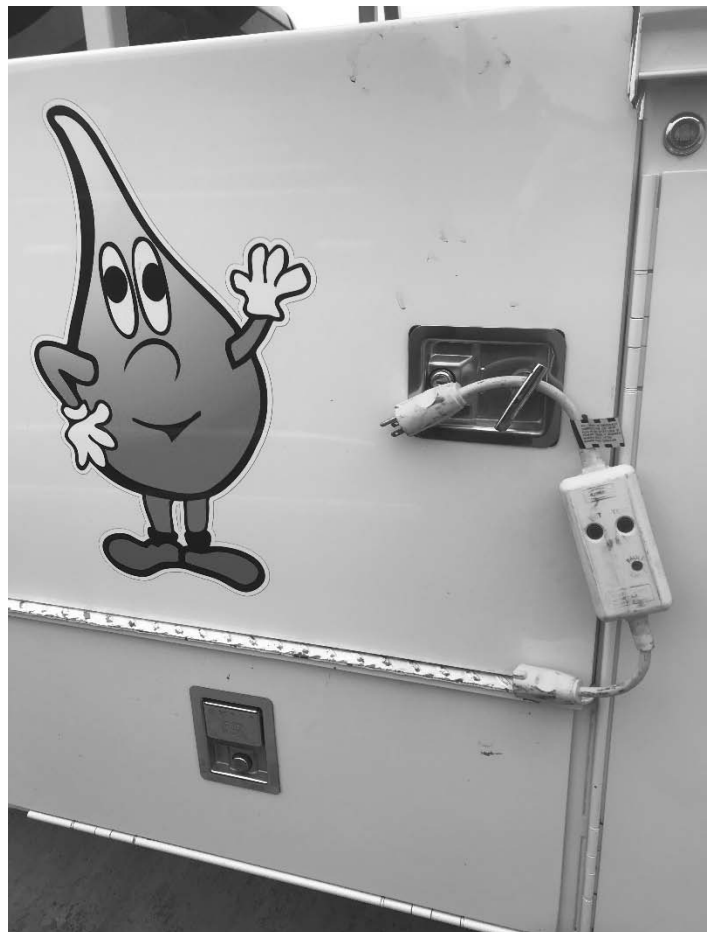
So I plan on writing about safety in the quarterly magazine. I hope you will get something out of it.

Some of you may remember about a guy that was repairing his boat with some electrical tools, when the drill slipped out of his hand and dropped into the bottom of the aluminum boat. The investigator at the time felt that it had been his reaction to grab the drill because it fell into the water, and he was electrocuted.

This accident could have been prevented with a simple in-line device called a Ground Fault Interrupter or better known as a (GFI). It's a simple device made by Hubbell that we as tradespeople could use all the time. They are cheap insurance that could save your life, and I think most of you work around water.

The problem now a days is that every tool out there is battery operated and we forget to be cognisant of AC electrical power. Electricity is very safe if we respect it.

We need to teach our apprentices and junior people we hire how to be safe. Where will they learn it if we don't teach them properly or show them by example that we are safe?





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August 10, 2018

President/Executive Director
BCGWA - British Columbia Ground Water Association
1334 Riverside Road
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Dear Sir or Madam,

We'd like to provide you with an update on the preliminary 2019 insurance premium rates for employers in the industry that your association represents, CU 721056- Water Well, Foundation, Directional Drill.

Changes for 2019

The base premium rate reflects the risk of injury and historical claim costs in the industry. Based on increases in the industry's claim costs, we have determined that the industry you represent needs to be moved to a higher-risk rate group. As a result, an increase is planned for the base premium rate.

While the industry's rate for 2018 was 5.10 percent, the rate needed to cover the costs of injuries and prevention activities in 2019 is actually 5.97 percent. Therefore, our Board of Directors has approved a preliminary industry base premium rate of 5.61 percent of employers' assessable payroll for 2019. Unless the industry's cost experience shows material improvement in the coming year, your members can expect another increase in 2020.

Before finalizing the 2019 rates, we welcome feedback at rates@worksafebc.com. Our Board will consider all feedback before approving the rates in October. We will then mail firms their annual rate notification letter for 2019, which will include their experience rating adjustment and net premium rate.

Resources to help you reduce your premium

While the base premium rate is set using the historical costs of injuries for the industry, your members have the opportunity to lower future rates by collectively reducing claim costs. We offer tools and expert advice on how to do so through injury prevention, workplace safety, and disability management and return to work programs for injured workers.

For best practices in injury prevention and injury management that could help you lower your costs, go to worksafebc.com and select the Health & Safety tab at the top of your screen.



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4. EQUIPMENT

- Portable Retro-fit Air Compressors
- 150 PSI to 350 PSI
- Booster Compressors
- Triplex Pumps
- Water Line Heaters
- Grout Pumps

5. DRILL STEEL

- Drill String 2 inch OD to 11 3/4 inch OD
- Waterwell, Blasthole, Exploration
- Construction & Piledriving
- Deck Bushings and Subs
- Shock Subs and Roller Stabilizers

6. TUNDRA THREADED PVC

- Slotted and Blank, 2 inches & Up

7. DRILLING FLUIDS

- Bentonite, Chips, Granuler, Coated
- Polymer Fluid Systems

8. TUNDRA ENVIRO OILS

- Hammer Oil, Rotary or Top Drive
- Hydraulic Oil
- Rotary Bit Lubricant
- Drill Rod Grease

9. BREAK OUT TOOLING

- Break Out Benches
- Chain Wrenches

WATERWELL

MINING

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To learn more about what's driving costs in your industry, visit our Industry Safety Information Centre at worksafebc.com (enter "ISIC" in the search field).

For more information about safety resources for your industry, please refer to the enclosed document. For further assistance, please contact Roberta Sheng-Taylor, Industry and Labour Services manager, at 604.231.8347 or roberta.sheng-taylor@worksafebc.com.

Contact us

If you, or your members have questions about your industry's insurance rate, or a firm's classification assignment, please email rates@worksafebc.com or call 604.247.7333. Learn more about how we set rates at worksafebc.com/rates.

Sincerely,



Howard Chang
Director, Assessments



Chris Back
Director, Industry and Labour Services

A MESSAGE FROM ONE OF OUR WELL PUMP INSTALLER MEMBERS

A couple months ago I received a questionnaire from Work Safe BC wanting some clarification on the industry that our pump installation business is associated with. When I completed the questionnaire I made it clear that our business was not a drilling company and more a kin to Plumbing services.

I later received a call from WSBC where they agreed and my rates have been adjusted. I'm passing this on to other well pump installer members who may be classified under drilling.

The only caveat is that pump installers cannot be drillers nor can they sub contract drilling services.

INFORMATION FROM THE **ITA** ON – *WHAT IF YOU FAIL AN EXAM?*

Recently several individuals have asked what happens if I fail the ITA Trade Exam. I contacted the ITA and received the following response:

- A challenger has 1 year (from Application) to write the exam, they can write it as many times as possible but must wait 30 days from the last time it was written (within a year from the first writing).;
- The first two writings are free but the third and after are \$100 per write.

A challenger may have to submit upgrading proof to be able to write again as follows:

- **Upgrading** is required on their third failed attempt and thereafter **OR** if they receive under 59% on their first and second attempts.

Upgrading options include:

- Complete **Home Study Form** information (*See ITA web site and note below);
- Complete **Employer Upgrading Form** information (*See ITA web site and note below);
- Letter from a teacher from an Upgrading Course
- Letter from a “journeyman” (*Qualified MOE* groundwater trades person). This is to be a tutoring/study session. This letter must state what he/she has gone over with the challenger and confirm that he/she feels confident of the challenger’s ability.

Home Study Form and **Employer Upgrading Form** can only be submitted once but the challenger can take as many upgrading courses or as many “journeyman” letters as needed.

If that challenger does not pass the ITA trade exam within a year (from their first attempt), they will need to reapply with the Application Form and a \$120 application fee. They will get two free writes.

NOTE: The Applicant will receive a breakdown of their exam performance when they receive their results. They can call the ITA if they wish to have the results resent or sent to a different email address.

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Report from the Government of B.C.

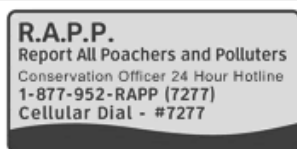
In this September 2018 issue:

- Well record submission for geotechnical and geoexchange well drillers
- New GWELLS development
- Regional groundwater program update
- Contact list of groundwater staff with regulatory authority

Report Non-Compliance

See a well that does not meet the construction standards of the Groundwater Protection Regulation? Or know of someone who is drilling a well or installing a well pump without being registered?

Report it anonymously through the Provincial R.A.P.P. line.



<https://forms.gov.bc.ca/environment/rapp/>

Well Record Submission Requirements for Geotechnical and Geoexchange Well Drillers

Attention all geotechnical and geoexchange well drillers!

Did you know that the Groundwater Protection Regulation requires submission of reports for the construction, alteration and decommissioning of geotechnical wells (boreholes) and geoexchange wells. Requirements are as follows:

Geotechnical Wells:

You must submit a report to the well owner for every geotechnical well that is constructed, altered or decommissioned.

Geoexchange Wells - Open Loop:

You must submit a report to the comptroller and well owner for every well that is constructed, altered or decommissioned.

Geoexchange Wells - Closed Loop:

You must submit one well construction report per geoexchange system to the comptroller, and one report for every well in that system to the well owner.

Any flowing Artesian Well:

You must submit a report to the comptroller and well owner for every flowing artesian well that is constructed, altered or decommissioned.

Please ensure you are compliant with the regulations by submitting required reports within 90 days of completing work and retaining a copy for at least 10 years. The information in these reports is very useful for helping us learn more about our groundwater and aquifers. By submitting these reports, you are contributing to the management of our groundwater resources. Contact your local groundwater staff for more information.

Groundwater Wells and Aquifers (GWELLS) – Project Update

The GWELLS team continues to make progress in the development of the new Groundwater Wells and Aquifers application (<https://apps.nrs.gov.bc.ca/gwells/>). The application now includes:

- Well Search
- Detailed well summary
- Access to historical well records (over 80,000 records are now publicly available)
- Well Driller and Well Pump Installer Register

Well record submission is currently being developed and the team is in the planning phase for the development of aquifer data. We are also looking at how the collection of lithologic data can be standardized in order to improve data collection and our understanding of aquifers in B.C.

If you have any questions regarding the project or would like to be involved in future research or testing, please contact Lindsay Macfarlane at Lindsay.Macfarlane@gov.bc.ca.

Regional Groundwater Program Update – South Natural Resource Area

The following is a brief update on the joint groundwater compliance and enforcement project being carried out by the Ministry of Forests, Lands and Natural Resource Operations & Rural Development's (FLNRD) groundwater staff working in the South Natural Resource Area.

Project Purpose

In 2017, the Compliance and Enforcement Branch (CEB) and Provincial Groundwater staff (FLNRD and ENV) developed the Joint Groundwater Compliance and Enforcement Project, a multi-agency groundwater compliance and enforcement project designed to enhance groundwater protection in rural areas. The project was initially implemented in the South Natural Resource Area in the fall of 2017 through proactive inspections targeting groundwater-sourced water systems in Rock Creek, Nelson, Castlegar and Princeton.



Map showing Natural Resource Regional Boundaries

The project met the following objectives:

- Engage Interior Health Authority staff to identify groundwater-sourced Small Water Systems (SWS) with known or potential water quality issues;
- Coordinate joint well inspections to capitalize on inherent skills of both FLNRD Groundwater staff and Natural Resource Officers (NROs) to identify and address non-compliances with respect to groundwater protection; and,
- Increase SWS operator and owner awareness regarding their legislated rights and responsibilities, including new groundwater licensing provisions.

Project Outcomes

Thirty-one (31) locations were inspected including fifteen (15) sites in the Regional District of Kootenay Boundary (RDKB), six (6) sites in the Regional District of Okanagan Similkameen (RDOS), and ten (10) sites in the Regional District of the Central Kootenay (RDCK). A combined total of 51 instances of non-compliance with the WSA and GWPR were identified in forty-four (44) wells. The absence of a Well ID Plate was the single most common non-compliance and represented approximately half of the total non-compliances identified. Other non-compliances included:

- Insufficient well cap or cover (WSA S54; GWPR Part 4)
- Insufficient well casing stick-up (GWPR S33)
- Storage of foreign matter near water supply wells (GWPR S62)
- Well operation and maintenance including grading around wellhead (GWPR S58)
- Protection of thermoplastic casings (GWPR S34)
- Requirement to decommission or deactivate a well (WSA S56; GWPR Part 9)

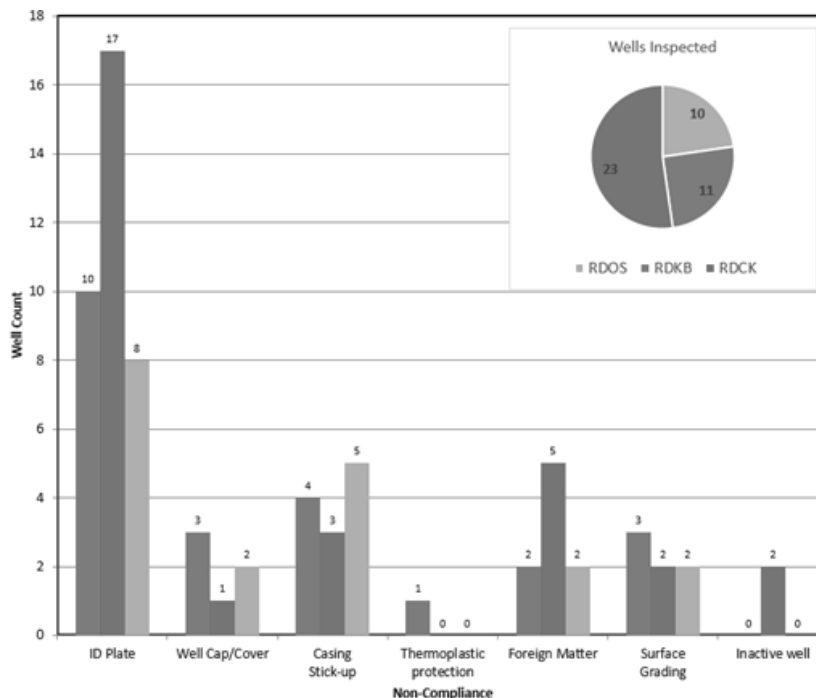


Table 1: Summary of Non-Compliances

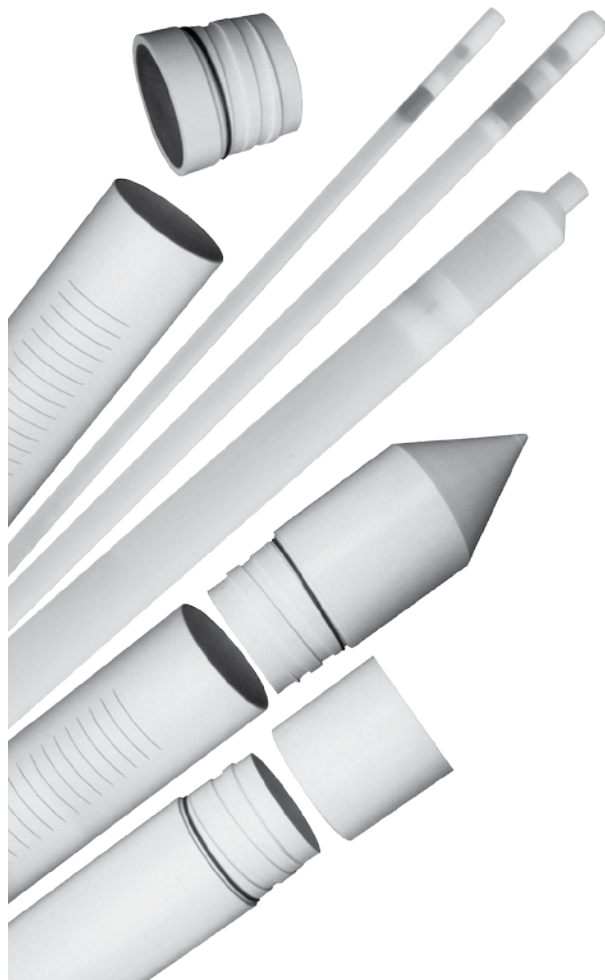


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Report from the Government of B.C.

Regional Groundwater Program Update – South Natural Resource Area, *Continued from previous page*

Next Steps

Learnings from this project can inform next steps for both South Natural Resource Area staff and staff working in groundwater across the Province. Within the South Natural Resource Area, we plan to complete the following:

- Continue regular cross-training activities with compliance and enforcement staff;
- Involve both Groundwater Staff and NROs in well inspections to build team groundwater compliance capacity and ensure the employment of a consistent approach on groundwater compliance files; and,
- Support the development of formal and informal relationships between NROs and Groundwater Staff.

At this time both the CEB and Provincial Groundwater staff are committed to making efforts to encourage a provincial response to groundwater C&E files that takes advantage of the natural skill sets of both teams. The Joint Groundwater Compliance and Enforcement Project is an excellent example of a co-operative effort to strengthen groundwater protection within British Columbia.

Well Record Submission

Well records can be submitted electronically (EWELLS) or by mail to the Ministry of Environment & Climate Change Strategy. Electronic submission of well records will replace paper submission to allow for more efficient processing and to help make information more accessible. Paper records will now only be accepted on a Ministry form.

- EWELLS: <https://a100.gov.bc.ca/ext/ewells/>
- Mail: **Ministry of Environment & Climate Change Strategy, PO Box 9362 STN PROV GOVT, Victoria BC V8W 9M2.**

Contact Information for Groundwater Staff with Statutory Designation

Office	Name	Statutory Designation	Phone	Email	Ministry
West Coast (Nanaimo)	Pat Lapcevic, P. Geo	Assistant Water Manager	250-751-3149	Pat.Lapcevic@gov.bc.ca	FLNRORD
	Graeme Henderson	Officer	250-751-7119	Graeme.Henderson@gov.bc.ca	
	Sylvia Barroso, P. Geo	Assistant Water Manager	250-751-3265	Sylvia.Barroso@gov.bc.ca	
	Ben Robinson	Officer	250-751-3266	Ben.Robinson@gov.bc.ca	
South Coast (Surrey)	Mike Simpson, P. Geo	Assistant Water Manager	604-586-2809	Mike.Simpson@gov.bc.ca	
	Bryan Jackson, P. Geo	Officer	604-586-2801	Bryan.Jackson@gov.bc.ca	
	Michele Lepitre, P. Geo	Assistant Water Manager	604-586-4413	Michee.Lepitre@gov.bc.ca	
	Emily Elsliger	Officer	604-586-2802	Emily.Elsiger@gov.bc.ca	
South Area (Penticton)	Skye Thomson, P. Geo.	Assistant Water Manager	250-490-8276	Skye.Thomson@gov.bc.ca	
	Nicole Pyett, P. Geo.	Assistant Water Manager	250-490-2285	Nicole.Pyett@gov.bc.ca	
	Twyla Legault, P. Eng.	Officer	250-490-8287	Twyla.Legault@gov.bc.ca	
	John Pogson, P. Geo.	Officer	250-490-8220	John.Pogson@gov.bc.ca	
	Harm Demon	Officer	250-490-2203	Harm.Demon@gov.bc.ca	
South Area (Vernon)	David Thomson, P. Geo	Assistant Water Manager	250-260-4641	David.Thomson@gov.bc.ca	
South Area (Kamloops)	Laurie Lyons	Officer	250-371-6280	Laurie.Lyons@gov.bc.ca	
North Area (Prince George)	Jun Yin, P. Geo.	Assistant Water Manager	778-693-3015	Jun.Yin@gov.bc.ca	
North Area (Smithers)	Barry Watson	Officer	250-847-7329	Barry.Watson@gov.bc.ca	
Victoria	Amy Sloma, P. Eng.	Deputy Comptroller	250-356-5062	Amy.Sloma@gov.bc.ca	ENV
	Lindsay Macfarlane	Officer (Sr. GW Data Specialist)	250-953-3408	Lindsay.Macfarlane@gov.bc.ca	

For general enquiries, contact Groundwater@gov.bc.ca.

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