IN THE SUPREME COURT OF BRITISH COLUMBIA

Citation: *Shields v. Strata Plan VIS 5030,*
2017 BCSC 1522

Date: 20170828
Docket: S162229
Registry: Vancouver

Between:

Donald Shields and Arlette Baker

Plaintiffs

And

Strata Plan VIS 5030

Defendant

Before: The Honourable Mr. Justice A. Saunders

Reasons for Judgment

Counsel for the Plaintiffs:	J. D. Shields
Counsel for the Defendant:	F. Cabanos S. U. Hamilton
Place and Date of Trial:	Vancouver, B.C. January 9-12, 16-20, 2017
Place and Date of Judgment:	Vancouver, B.C. August 28, 2017

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Introduction

[1] The plaintiffs seek damages and a mandatory injunction, by reason of what I refer to collectively as poor water quality issues in their condominium unit. The plaintiff Donald Shields is the owner of residential strata unit #801 in a building complex known as Shoal Point, on the Victoria Harbour waterfront. He resides there for at least part of every year with his spouse, the plaintiff Arlette Baker. The defendant is the strata corporation. (The defendant's legal name under the Strata Property Act, S.B.C. 1998, c. 43, s. 2(b), by which it ought to have been named, is The Owners, Strata Plan VIS 5030. No objection was taken by the defendant to the misnomer in the style of proceeding.)

[2] There are two complaints with respect to water quality at unit #801. One is that over more than eight years, there have been repeated instances of the hot water being grossly discoloured. Typically, this has occurred after periods of unit #801 having been vacant, and the unit's plumbing not being used for days or even months at a time. That these instances of discoloured water have occurred is not contested, but the defendant contests their severity and denies legal responsibility. I refer to this generally herein as the "discolouration issue".

[3] Mr. Shields has complained about the discolouration issue for years, but not only has the problem never been remedied, the defendant has never conclusively identified the source or cause of the problem.

[4] The other complaint is that the water supply – both the incoming water to the building, and the water supplied to unit #801 – has occasionally been tested and shown to have what are alleged to be unacceptably high levels of minerals and heavy metals, including lead. I refer to this generally herein as the "contamination issue".

[5] The plaintiffs only learned of the contamination issue through testing of samples of discoloured water undertaken as a result of their complaining about that issue, and only learned of the full extent of the contamination issue through the

production of evidence in the possession of the defendant in the course of document discovery in the present action.

[6] I emphasize that in describing these as two separate issues, I do not mean to prejudge whether they result from separate or independent causes. My findings on that issue, which draw on the evidence as a whole but particularly on expert opinion evidence tendered by the defendant, are set out later in these reasons. I refer to them as separate issues because whether or not they are causally or consequentially related, they are distinct aspects of the quality of the plaintiffs' strata unit's water supply.

Background

[7] The facts are largely not in dispute. An extensive Statement of Agreed Facts and a voluminous set of joint books of documents have been admitted into evidence, including emails, minutes of meetings, and reports that document the long history of this matter and the fruitless efforts of the defendant to solve the discolouration issue. However, there is a dispute as to whether the defendant's efforts over the years have been sufficient to discharge their legal obligation to the plaintiffs, which is based on a standard of reasonableness. There is also a dispute as to what conclusions can be drawn from the evidence concerning the water quality. It is therefore necessary to review the evidence in some detail.

[8] The plaintiffs are both retired from working as academics. Ms. Baker was a professor of Latin; Mr. Shields was formerly Dean of the Faculty of Engineering at the University of Manitoba. They have been together since 2004. Since Mr. Shields purchased the unit in early 2006, they have used it for part of each year, typically spending about half the year in Victoria, and dividing the rest of the year between a residence Ms. Baker owns in New York State and travel abroad. Mr. Shields has children and grandchildren in British Columbia, and the unit has become an important focal point for family and social gatherings.

[9] The Shoal Point complex may be fairly described as a luxury or high-end condominium development; the Statement of Agreed Facts describes it as "deluxe".

It was built in three phases; the plaintiffs' unit is part of Phase I, completed in or around 2003. There is a mix of residential and ground-floor commercial units. There are separate Strata Councils for the residential and commercial sides. Management of the residential stratas is overseen by the defendant's Strata Council, which has a Building Committee. There has also been an on-site building maintenance superintendent, employed by a property management company.

[10] The plaintiffs' unit is on the eighth floor of Phase I. It is about 2300 square feet, with a 900 square foot deck. There are two bedrooms, and two full bathrooms. The kitchen sink has a single faucet for hot and cold water.

[11] Mr. Shields purchased the unit in 2006 for $1.6 million. Its current assessed value is a little more than $2 million.

Facts as to Water Quality Issues – Complaints, Investigations and Repairs

Initial Complaints – 2004-2009

[12] In 2004, prior to Mr. Shields' purchase of the unit, some of the strata's owners complained of blue-green staining from the water in their bathtubs and toilets. Testing of four different water samples – possibly from four different suites – in December 2004 showed one sample from unit #901 having levels of lead, copper, iron and manganese above the concentrations permitted under Health Canada's Guidelines for Canadian Drinking Water Quality (the "Guidelines"). (That laboratory report, dated December 31, 2004, is in evidence, but only as evidence of what information the defendant had, not as to the truth of its contents.) It is not known where in the units the samples were taken from, whether they were from hot or cold water sources, or what sampling protocol was used (i.e. whether the taps were run for a period before sampling to flush the lines). As a result of these tests, a system was installed on the complex's water intake to inject soda ash. A certificate of analysis from the same laboratory dated January 31, 2005 reported that two samples drawn from the bathroom and kitchen of unit #901 were within acceptable limits.

[13] The Building Committee's minutes for October 2006 record a number of experiments conducted by a contractor in response to complaints of:

> … "brown water" in some of the infrequently used suites of Phase I's North Tower.
>
> [Emphasis added.]

The minutes record that evidence pointed toward a defective recirculating pump on the hot water return line in one of the suites. The Building Committee, and the Strata Council, took the position that the recirculating pumps were the responsibility of the individual unit owners. The issue was listed as a "completed item" in the Building Committee's November 2006 monthly meeting minutes.

[14] I accept Mr. Shields' evidence that he first noticed dirty brown water coming out of the hot water taps in the bathrooms, and sometimes the kitchen hot water as well, around 2007. He complained to the maintenance manager, who said he would flush the water supply lines.

[15] Mr. Shields first made a formal written complaint about the discolouration issue in February 2009, when he sent an email to the building manager, a Mr. Mueller. He complained that he had recently returned to his unit, and found the hot water supplied to his bathtub was muddy and brown, with much sediment. Although the problem seemed confined to the hot water, Mr. Shields experimented with his kitchen tap, finding that when the cold water supply was turned off, turning on the cold water tap would result in some hot water being drawn in. From this he concluded that there was no way to isolate the cold (drinking) water from the hot water supply.

[16] The defendant responded to Mr. Shields' complaint by resolving to flush the water lines to all units in the "stack" servicing unit #801; it appears from the email correspondence that it was thought that previous flushing had only involved three of a possible 10 units. I infer from the emails that there may have been further consultations with the original mechanical contractor for Phase I. In follow-up emails sent through April and May 2009, Mr. Shields repeatedly pointed out that flushing

was unlikely to solve the problem, and urged the defendant to hire an independent contractor to find the source of the discolouration.

[17] Mr. Shields noted in a further email, sent on May 12, 2009, that upon returning after six days away, the water in the bath was brown and contained "disgusting" debris. A couple of days later he asked to be informed on a weekly basis what progress was being made and what action was being taken to resolve the issues with his unit's water.

[18] Mr. Mueller emailed Mr. Shields in response and agreed that they needed to diagnose the cause and find a permanent solution, and that "everyone agrees this issue is a priority". The Strata Council's minutes for May 13, 2009 record agreement that the discolouration issue had persisted for a lengthy period of time, and was adversely affecting "some" residents. The council resolved that:

> …the present situation was not acceptable and that all reasonable steps be taken to identify and correct this problem.

[19] It appears from the emails that two different mechanical contractors were consulted in the spring of 2009, Westbay Mechanical and Erb Technical Contracting. There are no invoices or reports in evidence documenting what steps they took, what causes or potential causes they identified, or what recommendations they made. Emails between Mr. Mueller and other unit owners responsible for building issues suggest there were various attempts at flushing the building's hot water tanks and risers in the spring and summer of 2009.

Hirschfield Williams Timmins ("HWT") Investigation and Recommendations – May-September 2009

[20] In May 2009 the property management company engaged a mechanical engineering firm, Hirschfield Williams Timmins ("HWT"), to undertake an audit of the potable water system servicing units where discolouration issues had been reported, the worst being the plaintiffs' unit and the unit immediately above them, #901. The audit consisted of a building walk-through; visual observation of the poor water quality; and selective laboratory analysis of water samples.

[21] HWT reported on their findings in early July 2009. Observations had been made of some rust-coloured hot water being delivered to the west bathtub in the plaintiffs' unit, but only "little colour" at the east bathtub. However, when the isolation valve on the cold water riser serving unit #801 was turned off and then re-opened, the resulting surge of flow carried "significant amounts of rust coloured water and particulate" to the east tub. HWT concluded that this result indicated the presence of particulate and dissolved iron in sections of piping that were subject to low or no velocity.

[22] Testing of water samples from the building's intake and from the plaintiffs' cold water showed minerals and metals within acceptable limits, but the sample from the plaintiffs' hot water showed elevated levels of iron, copper, and lead, in relation to the Guidelines. The lead concentration was 12.1 µg/L, whereas the maximum acceptable concentration ("MAC") under the Guidelines was 10 µg/L. (The Guidelines, it is agreed, are intended to apply to average concentrations in water consumed for extended periods.)

[23] HWT made a few recommendations, including flushing the risers and modifying the soda ash injection system; as will be seen, these two recommendations were implemented, but did not solve the discolouration issue.

[24] HWT also recommended inspecting the building's hot water tanks to ascertain if there was any failure of the liner or accumulation of iron oxide, and to check the condition of the sacrificial anodes (a corrosion protection measure). This recommendation was ignored. Mr. Palmer, one of the unit owners, who served on the Building Committee from 2004 to 2014, testified for the defendant. Under cross-examination, he could not explain why this recommendation was not implemented. He had some recollection that the hot water tanks were replaced because of leakage at some point in time during his tenure on the Building Committee, but he could not say if that happened before or after 2009.

[25] HWT further recommended that the defendant consider reconfiguring the building's hot water system by diverting return water to the swimming pool, to allow

constant introduction of clean, cold replacement water and dilution of any dissolved solids. When Mr. Palmer reviewed the HWT report, he sent an email to Mr. Ullathorne, who was then president of the Strata Council, in which he suggested alternative reconfigurations: piping the return hot water from risers with low-flow to the bottom of risers that experienced higher flow rates; or, injecting it into the boiler inputs, or into the hot water supply of the commercial units that had a high demand for hot water. He suggested that the building superintendent research these alternatives. There is no evidence that these suggestions of Mr. Palmer were ever discussed with HWT, or that research into these alternatives was ever undertaken.

[26] Under cross-examination, Mr. Palmer stated that while he cannot say any of these reconfigurations would have solved the water issues, he felt his suggestion was a prudent course of action, and still believes so. The work was never undertaken.

[27] The Building Committee's review of the HWT report, reflected in the committee minutes, concluded with the observation that "resolving the cloudy water issue" was one of the building superintendent's highest priorities.

[28] Mr. Shields was given a copy of the HWT report. He wrote to Mr. Ullathorne, in August 2009, expressing his concern with the high lead levels in the hot water sample. He wrote:

> The kitchen tap in my apartment is a mixing tap. As I explained some time ago in an earlier email to Dwight [Mueller], it is impossible with mixing taps to isolate the hot water from the cold water. Also, it is only natural to run hot water into pans or kettles (or directly into mugs to put into the microwave) in which the water will be heated for cooking or drinking (coffee and tea). Also, we use hot water for dishes, showers, and so on.
>
> Frankly, I do not want to continue to use leaded water for any purpose – external or internal.
>
> In addition the water quality – colour, sand/silt grains, and so on – is simply not acceptable, whatever use to which the water is put.

He demanded that the defendant install a filtration system.

[29] Flushing the hot water riser servicing unit #801, and monitoring the results in that unit and in adjacent premises, in August 2009, showed that the water was dirtier in suites that were not occupied. The plaintiffs' unit was noted as having "substantial amounts of sandy water" which "did eventually clear up".

[30] About this time, the defendant determined that its mechanical drawings were incorrect, and the wrong risers were being flushed. To the date of trial, the defendant still does not have an accurate set of as-built drawings for the complex's water system.

[31] The defendant then began flushing the correct riser to the plaintiffs' unit. Soda ash injection was increased. Experiments were carried out with increasing the rate of return hot water circulation.

[32] In early September 2009 Mr. Palmer wrote a memo – intended, I infer, for the Building Committee – summarizing the history of the plaintiff's water quality issues, and the steps that had been taken over the previous months to find a solution. The memo's opening paragraph notes that Mr. Shields:

> …has complained that whenever he returns from a period away from Shoal Point, that the hot water coming from his faucets is discoloured and contains sediment. …Other suites in the building have not reported this problem, although in the past there used to be reports from suite 901 of "muddy water" from both hot and cold faucets after returning from a prolonged absence.

[33] I note that no reference was made by Mr. Palmer in this memorandum to the fact that the Building Committee's minutes from October 2006 indicated complaints of this issue from multiple unit owners. As set out in the Statement of Agreed Facts, by this time there had been "brown water" reports made not only by the plaintiffs and the owners of unit #901, but by the owners of unit #807 as well. Mr. Palmer did not account in his testimony for his failure to acknowledge these other complaints in his memo. I infer that he had not reviewed the Building Committee's minutes to ascertain the true history of the discolouration issue.

[34] Mr. Palmer stated in his memo that HWT had recommended an increase in circulation flow; I am not certain this was exactly what HWT meant by its

recommendation, but it does not seem to me to have been an unreasonable interpretation, bearing in mind that Mr. Palmer is not a professional engineer. Mr. Palmer concluded his memo by stating that if an upcoming analysis of water samples showed no improvement, they would have to find a way to increase the flow rate of recirculating hot water. HWT was not consulted on this proposal.

[35] Mr. Palmer agreed with counsel's suggestion that the HWT report had identified "toxic substances" in the hot water system, and that rather than diluting these substances – as HWT's professional engineers had recommended – increasing the flow rate would simply make the "toxic substances" recirculate faster. Notwithstanding Mr. Palmer having made this concession, I do not think that necessarily follows; it at least seems possible to me that a higher rate of flow could have affected at least the buildup of solids in the hot water pipes serving the plaintiff's unit. The essential point that emerged from this cross-examination of Mr. Palmer was that the defendant was apparently set on undertaking its own initiatives without consulting the experts it had retained.

[36] Mr. Palmer also wrote in his memo that Erb Technical Contracting would be engaged to decide whether to do anything about a short length of ductile iron pipe that had been located at the bottom of one of the risers, which was thought to be contributing to the water quality issues. There is no evidence that this potential cause was investigated at this time; as described below, a length of ductile iron pipe was ultimately removed in the summer of 2012.

[37] No copy of Mr. Palmer's memorandum was provided to Mr. Shields.

Further Complaints and Further Investigations – 2009-2012

[38] In September 2009, the defendant had samples of the building's intake water, supplied by the Capital Regional District ("CRD"), and of unit #801's hot water, tested by a laboratory. Both samples showed equally elevated levels of lead, at 130% of the Guidelines amount, and the chemical and microbiological parameters for both were deemed "unacceptable" as well. The "Aesthetic Objectives" ("AO") for

the hot water in unit #801 were deemed unacceptable, while the AO for the city water supply were deemed acceptable.

[39] This lab report was not provided to the plaintiffs. Instead, Mr. Ullathorne sent Mr. Shields an email on September 11, 2009 reporting on "the progress that had been made so far in addressing your concerns about water quality". He stated:

> …The lab report that the level of lead in your suite water is exactly the same as the level from the City water as it enters the building – there was no elevation. The levels of iron and copper were also well within the limits for safe drinking water.

While it was the case that there was no elevation of lead levels in Mr. Shields' hot water relative to the CRD supply – i.e. no elevation caused by the building's system – this was a misleading statement, as the lab report clearly showed that the lead concentration in both samples was above the Guidelines amount. Further, the statement that "levels of iron and copper were also well within limits" – particularly, the use of the word "also" – falsely implied that the lead levels were deemed safe.

[40] Follow-up testing by the CRD in December 2009 demonstrated that the water supply to the building had returned to MAC levels within the Guidelines.

[41] As the flushing and the increased soda ash injection did not solve the discolouration issue, the defendant purchased and installed a higher-capacity hot water recirculation pump. Installation of the pump was delayed. The plaintiffs' unit continued to receive discoloured water – which they reported to the defendant in February 2010 as "a steady stream of brown, disgusting water". It appears the pump was installed in or about early March 2010. No testing was undertaken to ascertain if the new recirculation pump made any appreciable difference to the hot water quality in the unit #801, or the other units served by the same riser.

[42] There is no evidence of Mr. Shields complaining of water quality issues over the next approximately seventeen months, until August 2011. Sometime in 2010 Mr. Shields had a separate drinking water tap installed at his kitchen sink, with a filter on the cold water line. That filter is not on the hot and cold lines that feed the "mixing tap" at the kitchen sink, nor the line or lines to the dishwasher. The filtered

cold water feeds an on-demand hot water supply to the kitchen faucet, which Mr. Shields also had installed at the same time.

[43] Mr. Shields implied, under cross-examination, that he may have sent emails to the defendant in 2010 and early 2011 complaining about the water quality in unit #801; however no such emails were produced and he gave no evidence of any positive recollection that the problems continued over this period of time. It is not certain how often the plaintiffs resided in their unit during these months. It is reasonable to infer that there were in fact no complaints from Mr. Shields over this time period, and that this was because the unit was continuously occupied and the water system continuously used, such that there was no opportunity for significant amounts of corrosion products, sediment, or other forms of debris or precipitates to accumulate in the pipes servicing his unit.

[44] In late August 2011, Mr. Shields reported to the Strata Council president, Mr. Ullathorne, that after an absence from his unit of only two-and-a-half days he was again faced with "murky", "brown and filthy" hot water coming out of his bathroom and kitchen taps. He reported that it would clear after the water was run for about three minutes. He left a jar containing a specimen with the concierge. He repeated his earlier requests that the defendant install a filtration system on its intake water supply line, and that a supply of water be provided from a clean source – possibly one of the other building phases. Mr. Ullathorne replied that the Building Committee "would like to resolve this problem as much as you do" and would make it a "top priority".

[45] The following day Mr. Ullathorne passed Mr. Shields' complaint on to Mr. Palmer and Mr. Cyr, the Building Committee chair. Mr. Ullathorne commented that he was at a loss as to why this problem was only being experienced by Mr. Shields. This, of course, was incorrect, as there had been similar reports from Mr. Shields' upstairs neighbour, and discoloured water had been found in sampling from all units served by the same riser. Mr. Palmer's reaction to this complaint,

documented in emails he sent to the Strata Council president and the chair of the Building Committee, was one of incredulity. He remarked:

> I personally don't think that he has a real problem! Don has caused problems before, and has unrealistic expectations!

Mr. Mueller was a recipient of these emails. In cross-examination, he agreed that he knew the discolouration issue had not been confined to the plaintiffs' unit. He agreed that Mr. Shields had never been one to cause problems. He agreed that Mr. Shields' expectation of clean water was not unrealistic. However, he did not come to Mr. Shields' defence in response to Mr. Palmer's email.

[46] Mr. Cyr responded to Mr. Shields on August 31, advising him that the Strata Council had discussed his situation and that in their view the building's water was "conformant to water quality requirements". Nevertheless, they agreed to have samples from his suite and some other suites in the complex taken and sent for analysis. Mr. Cyr stated that the Strata Council shared Mr. Shields' concerns, and would "do its utmost to bring this matter to a close to the satisfaction of everyone in Shoal Point". There is no evidence that anyone in a position of responsibility viewed the jar of discoloured water Mr. Shields had left with the concierge.

[47] In early September 2011, the CRD took samples from the plaintiffs' hot and cold water taps, and, for comparison purposes, from the hot and cold taps of a fifth-floor suite, and from the manager's office. The CRD noted that the plaintiffs' unit had not been occupied for four months. High turbidity was noted in the samples from the plaintiffs' unit, more so in the hot water. The CRD's Aquatic Ecology Lab report on the cold water sample from the plaintiffs' suite read:

> The sample is composed of primarily decomposed organic material with algal remains embedded in it. The algae present are those that are currently dominant in Sooke Reservoir (e.g. Dinobryon). There is [sic] also fine bits of rusts present.

[48] In reaction to this finding, the defendant conducted "speed flushes" of the risers throughout the fall of 2011. In December 2011 the Building Committee reported to the Strata Council that the "murky water" issue appeared to be "mostly

evident with one specific riser". It was stated that particles in the "murky water" would be tested and analyzed to "shed some light on whether pipe corrosion exists". The Strata Council's minutes note the Council agreed the investigation needed to continue "in order to identify the cause so that appropriate action can be taken". There is no evidence any such testing or analysis was conducted, and I find that none was carried out.

[49] In the fall of 2011 and again in the winter of 2012, the owner of unit #807, having seen reports of the discolouration issue in various strata meeting minutes, reported similar problems in her unit.

[50] The Building Committee and Strata Council minutes in early 2012 reflect a suspicion, or belief, that Mr. Shields' problem was possibly the result of corrosion in the hot water recirculating pump servicing his unit. That possibility was eventually discounted after the defendant hired a plumbing contractor, West Bay Mechanical, whose project supervisor, Mr. Cumberbatch, conducted an investigation of the building's hot water system. He suggested to Mr. Shields that the brown water was accumulating due to the operation of his hot water recirculation pump during extended absences from the suite, and he gave Mr. Shields directions on how to turn to pump off.

[51] Mr. Cumberbatch was not advised of the work that had been undertaken, and the recommendations made, by HWT in 2009. Nor was he told of the excessive lead levels found in the samples taken from the plaintiffs' suite in 2009.

[52] During his investigation, Mr. Cumberbatch identified a ductile iron pipe in the system serving the main water feed lines into Phase I. I infer this was the same iron pipe at the bottom of a riser that had been identified some three years previously as a potential cause or contributing factor to the water quality issues.

AME Group Investigation and Recommendations – April-June 2012

[53] On the advice of Mr. Cumberbatch, the defendant retained another consulting engineering firm, AME Group. The defendant's Strata Council minutes for April 2012

note that a demand letter had been received from Mr. Shields' lawyers, threatening litigation if the ongoing issue with murky water in unit #801 was not solved. The minutes note:

> ...it was agreed the strata corporation was obligated to continue, with the assistance of AME Group to take steps to fully resolve the problem. It was also agreed to keep the affected unit owner fully apprised during this process.

The minutes also reflect, however, that AME Group's engagement would be "subject to a capped limit".

[54] Mr. Palmer advised Mr. Shields that AME Group had been contracted "to resolve the murky water issue".

[55] AME Group reported their findings and recommendations at the end of May 2012. Their report noted the following:

- Copper, iron, and lead were all present in the piping systems in some form, and as such portions of the piping systems (fittings, pipe, etc.) were the source of the contamination;
- The affected parts of the piping systems were deteriorating and this process would ultimately lead to a piping system failure;
- The colour of the contamination suggested that iron content was a major contributor, and therefore that iron piping system components were the primary area of concern. Internal failure of the ductile piping was suspected as being the primary source of the contamination;
- The piping systems that potentially contained iron components appeared to be limited to the horizontal supply lines on the parking level;
- The domestic hot water was able to "back feed" through the recirculation piping system; and
- The domestic hot water recirculating lines from several units (including unit #801) all converged and connected within the ceiling space above the plaintiffs' suite; it was speculated that this might result in a reduced velocity condition at that particular location, enabling solids suspended in the water stream to precipitate out and collect.

[56] AME Group made two firm recommendations: (1) replacement of the horizontal ductile iron piping in the parking level, with copper pipe, followed by

flushing and monitoring; and, (2) replacement of any non-standard fittings within the parking level. In addition, they wrote:

> Reconfiguration of the DHW recirculation piping in the ceiling of Suite 801 to eliminate the potential "reduced velocity" zone is not considered to be mandatory, but may be prudent to ensure that any potential build-up of solids be prevented.

This recommendation was never pursued.

[57] The defendant obtained a quote for the replacement of 100 feet of ductile iron piping with copper piping from Cornerstone Plumbing, a sole proprietorship operated by Mr. Cumberbatch (the former project supervisor with West Bay Mechanical). The Strata Council met in June 2012 and accepted the quote, directing that the work proceed. The minutes for that meeting record a discussion about using the strata's contingency fund to cover the cost without the strata owners' approval, on the basis that the expenditure was necessary to ensure safety or prevent significant loss or damage. The minutes record that it was:

> …agreed that the present situation with brown water contamination, particularly in one suite in Phase 1, is a safety issue and needs to be resolved immediately.

[58] Once the ductile iron piping was removed, inspection revealed that the quarter-inch concrete liner had completely deteriorated. There were no other non-standard fittings found. Mr. Palmer emailed photographs of the pipe interior depicting the deteriorated lining to members of the Building Committee and the Strata Council, in which he stated,

> It certainly confirms that this was the cause of the murky water in Phase one.

Mr. Shields was not copied on the email.

[59] There is no evidence of any follow-up testing of affected suites in 2012, after the new copper pipe was installed.

Continuing Discolouration Issues and Lead Findings – 2013-2015

[60] Mr. Shields testified that he may have been away from his suite between July 2012 and April 2013. When he returned in April, he found – to his disbelief – that the hot water was still brown when the taps were turned on, although there was no sediment. For about three weeks he tried flushing the system by running the hot water, but the problem persisted.

[61] The defendant's facilities manager Mr. Gutowski attended at Mr. Shields' suite, along with Mr. Cyr, who was then serving as the Strata Council president, to see for themselves how murky the water was, and how quickly it would clear up. Mr. Gutowski testified that he recalls there being a "light-colour discolouration" that would take about 20 seconds to clear, which he described as "about normal, when water hasn't been run for a while".

[62] In response to Mr. Shields' renewed complaint, Mr. Gutowski did some flushing of the building's hot water tanks, risers and strainers in May and June of 2013. Mr. Shields reported that discoloured water was coming out of the hot water tap of the master bathtub only; the tub was not used often, but would be run once a week, and "brown water" was consistently appearing.

[63] At about the same time, in May 2013, the owners of unit #907 also began complaining about "brown hot water" in their bathtub. They advised Mr. Gutowski, in an "Action Form" requesting maintenance, that they had first noticed brown water the previous December after moving in, but they attributed it to the unit having been vacant for nine months. They had then left town for two months, returned in March 2013, noticed there was still brown water, and again attributed it to a lack of use. Since then, however, they reported having run the bath every couple of weeks, and were finding that the hot water was still dirty.

[64] (The owners of unit #907 did not testify; there is no evidence of the defendant's representatives such as Mr. Gutowski having seen the discolouration in this suite; and there has been no admission made by the defendant as to the truth of their reports of discoloured water. Regardless, the owners' report was accepted by

the defendant as true at the time, leading them to take some steps – as described below – to ascertain the quality of that unit's water. I take it as uncontroversial that a discolouration issue, similar if not identical to that reported by Mr. Shields, was affecting unit #907 as well.)

[65] Neither of the mechanical engineering firms who had previously been retained with respect to the discolouration issue – HWT and AME Group – was re-engaged to get to the bottom of these persistent complaints. As previously stated, nothing was done to follow-up on AME Group's recommendation that the hot water recirculation system above Mr. Shields' unit be reconfigured. It will be recalled that AME Group had assumed that the iron precipitates causing the discolouration were coming from the building's water system components. I find that the continuation of the discolouration issue in 2013, after the ductile iron pipe had been removed, ought to have put the defendant on notice either that there were other iron components in the system, or that AME Group's assumption as to the source of the iron was incorrect.

[66] Instead, in August 2013 the defendant had Cornerstone Plumbing install a filter on Mr. Shields' hot water supply line, in the ceiling of his unit. Mr. Cumberbatch testified that he understood from Mr. Gutowski that that this was being requested "to mitigate the amount of brown water being supplied" to Mr. Shields' unit. I note that Cornerstone's invoice records the specific problem as being "rust particles", but neither Mr. Gutowski nor Mr. Cumberbatch testified as to whether rust was specifically identified as a source of the discolouration. There is no evidence that this filter was designed to remove dissolved metals.

[67] The newly installed filter canister – which was designed to be replaced every six months – quickly became clogged with debris, interfering with the unit's hot water supply, and had to be replaced after a month. Thereafter, Mr. Cumberbatch put it on a schedule of being replaced quarterly.

[68] The evidence is somewhat ambiguous as to whether, or to what extent, the filter in the plaintiffs' suite mitigated the discolouration issue, for as long as it was in

service. Neither Mr. Shields nor Ms. Baker testified specifically as to the water quality when the filter was in use. It appears from email communications that they were out of town for seven months, from mid-September 2013 until April 21, 2014. On April 30, 2014 Mr. Shields did write to the Strata Council President, then Mr. Tweddell, following up on earlier requests he had made for a more extensive investigation as to whether there was other ductile piping in the complex that ought to be replaced, and that a self-cleaning filter be installed on the building's water intake. In that email, Mr. Shields stated that his "brown water" problem was persisting, although he was now getting brown water without the sediment that occurred before the ductile pipe was replaced. In a follow-up email sent on May 17, 2014 to Mr. Tweddell, the Building Committee chair Mr. Hunter, and Mr. Mueller of the property management company, Mr. Shields wrote:

> Brown water continues to plague 801. If not used for a few days, both tubs in my suite run brown water for a period of time. This is not acceptable, but I guess I am tired of trying to get things rectified. Roger Cyr took this problem as a 'cause' when he was Chair. Certainly the replacement of a length of failed iron pipe helped – at least there are no lumps in the brown water now.

He repeated his request that a self-cleaning filter be installed on the building intake water line.

[69] In his testimony, Mr. Shields did not elaborate on his experience of the discolouration issue at this point in the chronology. In respect of this complaint – as with many other incidents described in his testimony – Mr. Shields' evidence consisted largely of a narrative of his email correspondence with the defendant, without testifying as to the truth of the statements he made in the correspondence, and without demonstrating any detailed memory as to the circumstances in which the discolouration became manifest. The plaintiffs' emails were not in evidence for the truth of their contents. The wording of this particular email message, stating that the tubs ran brown water if not used for a few days, implied that there were periods when the tubs were being used on a daily basis, but Mr. Shields did not elaborate. Mr. Shields did not testify as to what he meant by a "period of time". The manner in which Mr. Shields' evidence was presented unfortunately precluded my making detailed findings of fact on these matters.

[70] Having said that, it is also true that Mr. Shields was not cross-examined on the content of his email complaints. There is no evidence that the defendant investigated Mr. Shields' complaint of persistent "brown water" at this time and found it to be false or exaggerated. Neither is there evidence from the defendant that the filter above unit #801 successfully resolved Mr. Shields' complaint. It appears uncontroversial that the quality of the hot water in unit #801 was as stated in these emails, even while the filter was in place. I therefore do not find that the filter installed by the defendant in the hot water recirculation lines in the ceiling of unit #801 significantly mitigated the water discolouration issue.

[71] (In November 2015 a significant quantity of water leaked from that filter into the plaintiffs' suite, shortly after the filter cartridge had been replaced by Mr. Cumberbatch. This resulted in property damage, and the plaintiffs' losses in respect of that property damage originally formed part of the damages claim in the present action. That aspect of the claim was settled prior to trial, leaving only the water quality issues in dispute. The filter system above unit #801 has been out of operation since then.)

[72] In response to Mr. Shields' ongoing concerns, Mr. Gutowski, at the request of the Building Committee, began to take water samples and submit them to a lab for testing in October 2013. A sample taken from unit #801 was tested for iron and algae, as these, in Mr. Gutowski's words, are the two main causes of "brown water". The test results showed that the iron levels were 1930 µg/L, and thus exceeded the Aesthetic Objectives standard under the Guidelines of 300 µg/L. Mr. Gutowski was unable to say if this sample was from unit #801's hot or cold water taps, but as Mr. Shields' complaint had been of discolouration in the bathroom hot water, I find it probable that this was a hot water sample. There is no evidence as to whether this test result was discussed by the Building Committee. The Building Committee's minutes for 2013 have not been produced.

[73] Further samples, this time from units #801 and #907, were tested in December 2013. Unit #907's owner had been complaining about brown water as

well. The Building Committee directed Mr. Gutowski to have the samples tested for a wider range of elements. (His recollection was that this was based on advice from Mr. Cumberbatch; Mr. Cumberbatch, however, only testified to being involved in a further series of samples that were taken in late April 2014). These December 2013 samples met the Guidelines' Aesthetic Objectives standards for iron, copper, manganese, and zinc. Relative to the MAC standard for lead – 10 µg/L – the #907 sample was acceptable at a reading of 4.94 µg/L, but the sample from #801 read 17.7 µg/L – exceeding the Guideline standard by almost 80%. There is no direct evidence as to whether this sample had been drawn from the hot water or cold water taps, but again, as Mr. Shields' complaints had been limited to discolouration of the hot water in his unit, I find it is probable that this was a hot water sample.

[74] Mr. Gutowski testified that he would have been concerned with the excessive lead level; he agreed, on cross-examination, that his understanding would have been that this concentration of lead was above the "safe limit". His recollection is that he was not asked by the Building Committee to do any further tests. When he attended the next Building Committee meeting, at which the test results were discussed, he was told to stay out of it, as there was a conflict between him and the owner of unit #907. Mr. Shields was not given a copy of the lab report, and was not told of the excess lead in the sample taken from his unit.

[75] Mr. Gutowski could not recall, one way or the other, whether the lead result from #801 was discussed by the Building Committee at its next meeting, on January 9, 2013. The minutes record a discussion of a "brown water" sample having been analyzed in response to a resident having complained of brown water flowing for a number of seconds after a hot water tap was opened; Mr. Gutowski testified that this was in relation to the complaints from the owner of unit #907. This, I find, is verified by the comment in the minutes that it would have to be determined if there was a recirculating pump in the unit in question; it was already known that there was such a pump in the ceiling of unit #801.

[76] Those Building Committee minutes do not indicate whether the members of the Committee were given a copy of the lab report on the December 2013 samples, or whether that report was simply summarized by a Committee member. The Minutes state,

> …A water analysis of the brown water was made, and the report indicates that the levels of all metallic elements present are normal and well below the maximum acceptable level. Hence the hot water is absolutely safe… .

The latter statement, of course, was true only in respect of the water in unit #907. The defendant offers no explanation as to why the excessive level of lead in Mr. Shields' suite was not disclosed or discussed.

[77] Nor is there any evidence that the Strata Council was apprised of the excessive amount of lead in the sample from unit #801. The Strata Council's minutes for January 13, 2014 simply record that Mr. Cyr gave an overview of "a brown water issue in one residential suite", believed to be due to a recirculating pump.

[78] The owner of unit #907 continued to complain of discolouration, and in early April 2014 it appears that Mr. Gutowski and Mr. Cyr took further samples from unit #907. There are emails in evidence between Mr. Gutowski, Mr. Cyr, the Strata Council president Mr. Tweddell, and unit #907's owner, describing the sampling and the tests; the emails are not in evidence for the truth of their contents, and Mr. Gutowski did not testify as to this test series. The lab analysis results from these tests are however in evidence for their truth, pursuant to the parties' document agreement. Those results show an elevated lead concentration (23.2 µg/L) in the sample purportedly taken from the bathroom, but an acceptable concentration (3.58 µg/L) in the sample purportedly taken from the kitchen.

[79] Cornerstone Plumbing, Mr. Cumberbatch's company, was then contracted in late April 2014 to take further water samples from unit #907 and from the building's water supply, and have them tested by a lab. I infer this was undertaken to determine if the high lead result in the last tests was attributable to the incoming building water supply, as opposed to the building's internal piping. Mr. Cumberbatch

drew two samples from a test port on a backflow preventer – a series of check valves – on the building's water supply line, in the mechanical room, and one sample from the hot water in unit #907's bathtub. The most significant test result of those samples, relative to the Guidelines criteria (MAC for lead; AO for copper, iron, and manganese; and a third criterion for aluminum), were as follows:

Table 1 – April 2014 Water Samples

	MAC	AO	Criteria C	Mech #1	Mech #2	Unit #907
Aluminum			**100**	428	17.6	24.2
Copper		**1000**		3300	95.2	701
Iron		**300**		4810	137	251
Lead	**10.0**			202	6.29	15.6
Manganese		**50**		161	5.9	13.4

[80] Mr. Cumberbatch testified that first mechanical room sample was drawn after turning the tap on briefly – for "seconds" – to clear debris from the test port. The second sample was drawn from the same tap after draw flushing the line by filling a five-gallon pail, so as to remove particulates or sediment and get a representative fresh water sample from the water main. The sample from unit #907 was drawn in a similar manner to the first mechanical room sample, with only a brief flushing.

[81] Mr. Cumberbatch made a formal written report to the Building Committee. He expressed concern that the elevated lead concentrations were a health risk, and recommended that independent testing for lead be conducted by the City and the CRD. He was of the opinion that the only contributing factor to the brown water in the building was iron content, and on the basis of his understanding of the layout of the municipal water mains, he felt that the mains serving the building were more

susceptible to iron particles settling. He recommended that a large filter be installed for the building's water supply.

[82] Mr. Cumberbatch later learned from the City that his understanding of the layout of the water mains was incorrect. Further, the City's Engineering Department was of the view that the drop-off in concentrations between the two mechanical room samples strongly indicated that the elevated concentrations were due to the building's piping, not the water supply. (I note that evidence, of course, not for the truth of its content, but as going to the information that the defendant reasonably would have relied upon.)

[83] The City did agree to flush the mains, and afterwards Mr. Cumberbatch and the CRD took further water samples from the mechanical room in June 2014. Repeating the methodology used in taking the April samples, after very brief flushing the lead concentration at the test port was 11.6 µg/L, and the iron concentration was 112 µg/L; still above Guidelines levels, but greatly reduced from the comparable numbers obtained in April (as set out in Table 1 above, 202 µg/L and 4810 µg/L, respectively). After five gallons of flushing, these levels fell to within the Guidelines standards (lead and iron values of 2.56 µg/L and 70.0 µg/L, respectively). The CRD samples showed a similar pattern. Mr. Cumberbatch reported the test results to the defendant, recommending that regular flushing of the water mains be co-ordinated with the City, with internal flushing of the building's piping to be conducted on slightly offset dates. He also reiterated his recommendation for a water supply filter.

[84] Mr. Mueller corresponded with the City's Engineering Department on behalf of the defendant, and in September 2014 received written assurance that the mains service the building would be flushed annually.

[85] The discolouration issue was discussed at the Strata Council's September 2014 meeting. By then the Council had concluded that the problem originated primarily with the City's water supply. The minutes stated:

> The Strata Council is also seeking more information on a filtering system however at this time the cost and uncertainty as to whether it will be effective

> are weighing against implementing such a questionable solution. If residents have been away for a period of time and notice "brown water" the solution is to run the water for a very short time in order to clear the water. Water tests have demonstrated that running the water for a very short period of time returns the water to acceptable levels…

There is no evidence as to what specific steps were taken to determine what options were available with respect to a water filter system for the building. The defendant's only source of independent advice at this time was the plumbing contractor Mr. Cumberbatch.

[86] There is no evidence of the defendant taking any further steps in respect of the complex's water quality issues until the owner of unit #907 appeared again before the Strata Council in April 2015, demanding a solution to the "brown water" issue. The Council decided at this time to engage an engineering consultant to "troubleshoot" and make recommendations.

Pro-Star Investigation, Recommendations and Repair – 2015-2016

[87] Mr. Mueller testified that he contacted AME Group, and was referred to Pro Star Mechanical Technologies, a plumbing/HVAC contractor. Pro Star presented a proposal in May 2015, and after some negotiation of the terms of engagement, the firm was retained in June.

[88] In July 2015, Pro Star arranged to test water samples taken from the cold water taps in nine different suites in Phases I, II, and III of the Shoal Point complex, including units #801 and #907. Chemical analysis showed that the Guidelines AO for "True Colour" and "Suspended Solids" were met in all cases, as were the AO criteria for copper under atomic spectroscopy testing. Likewise, the Guidelines MAC for lead was met in all cases; unit #801's lead concentration was measured at 0.62 µg/L (as compared to the Guidelines threshold of 10 µg/L). Pro Star did not sample any unit's hot water supply.

[89] Pro Star submitted a written report to the defendant in September 2015. Their recommendations included the following:

a) Upgrading the soda ash injection system so that injection would vary directly with the water flow rate, in order to properly control the total dissolved solids ("TDS") in the water supply. This would also raise the pH level of the water supply, which would be expected to have a "moderate to serious range of corrosive potential" if left untreated;

b) Use of a hand-held TDS meter by maintenance staff to monitor water and make necessary adjustments to the soda ash injection, on a monthly basis;

c) Installation of a self-cleaning strainer/filter on the building's water supply, at a cost of approximately $15,000;

d) Possible installation of additional filtration systems to remove dirt and algae; and

e) Frequent flushing of tanks, mains and risers at pre-planned three-month intervals, and possible installation of addition valves to allow for flushing, in order to reduce the amount of dirt carried in lines and settling during low-flow periods, including low flow caused by the many owners who travelled and left their suites unoccupied for extended periods of time.

[90] The report also noted that very substantial amounts of built-up debris such as algae and dirt residue could accumulate in pressure relief and pressure reducing valves, Y-strainers, expansion tanks, long runs of large horizontal pipe, and dead end runs, and could be released when those components experienced higher flow rates.

[91] Pro Star's report made no reference to AME Group's May 2012 recommendation that the hot water pipes in the ceiling space above unit #801 be reconfigured to address low-flow issues. There is no evidence of Pro Star being asked to comment on this recommendation or to provide an estimate of the cost of undertaking it.

[92] Pro Star's recommendations were discussed at the October 2015 Strata Council meeting. The minutes record that the cost of the soda ash injection system upgrades was estimated at $10,000, and a decision was made to obtain competitive quotes. It was agreed that the filter system for the water supply – estimated at $20,000 – would be put to the owners at the next general meeting.

[93] The Strata Council issued a written notice to residents in early November 2015, with a recommended protocol for flushing unit water pipes after absences of a week or more. It stated, in part:

> The recommended approach to flush water from the pipes within your suite is to draw the water from the largest fixture, generally the bath tub/soaker tub, for a minimum of 3 minutes. Both the hot water and cold water taps should be opened during this process. Additional water treatment and filtration are under review by the Strata Council.

[94] (It will be recalled that it was shortly after this, in mid-November 2015, that the filter installed in the pipes located in the ceiling of the plaintiffs' unit failed.)

[95] By late November 2015, Pro Star gave a quote for the soda ash injection system upgrade, in the amount of $8,720 plus GST. At the direction of the Strata Council Mr. Mueller sought a second quote, from Mr. Cumberbatch, which ultimately was not provided. Pro Star's quote was accepted in December 2015. The new filtration system was approved at the defendant's Annual General Meeting in February 2016. The new soda ash injection system and the new filtration system were installed by June 2016, respectively by Pro Star and Mr. Cumberbatch, who worked with the filtration system's supplier. Ms. Zeidler, the defendant's current Strata Council president, testified that there were issues with the delivery of some components, as well as delays in commissioning the soda ash injection system, with the result that it was only fully operational in August 2016.

August 2016 Water Sampling Conducted by the Plaintiff Mr. Shields

[96] Mr. Shields decided to arrange his own water sample testing in August 2016. In his direct testimony, he described how he had returned from one of his lengthy absences, and was again appalled by the quality of the water coming out of his taps,

and dismayed that the issue remained unsolved. He decided to take samples and have them tested. Mr. Shields stated that he knew running the water for a long time would "clarify" the water and cause the "brown stuff" to disappear. His concern was that he didn't know whether the lead contamination also subsided after running the water in this way. He therefore decided to test samples of the water that came out "immediately", and also another sample taken after the water had run for three minutes or more.

[97] Later in his direct evidence, and in his cross-examination, Mr. Shields described the sampling process in greater detail. He purchased small glass canning jars with metal screw tops. He lined up 5 empty jars beside the master bathtub, started to run the hot water, filled up the first jar after 5 or 10 seconds, and then continued until he had filled all five. He repeated this process at the guest bathtub. He then took a sample at the kitchen sink. Finally, he took another sample from a bathtub, after letting the water run for three or four minutes. He testified in direct that he picked two of what he felt were representative samples from each source, and submitted those to Maxxam Analytics – the same lab that had tested all of the samples previously submitted by the defendant – for analysis.

[98] Mr. Shields testified that the sample jars were labelled sequentially, reflecting the order in which they were drawn.

[99] A jar of water labelled "M3" was shown to the court and marked as an exhibit. Mr. Shields testified that this sample would have been taken about 30 seconds after the master bathtub tap had been opened. He stated that the hot water in his taps before the ceiling filter was installed in 2013 were visually similar to the water in the M3 jar.

[100] The water in the M3 jar is, in a word, disgusting: dark, thick, and apparently full of sediment or debris.

[101] The lab testing certificate for the samples taken by Mr. Shields indicates the lab received six samples, labelled Kitchen Tap K1; Master Bath M2 and M4; and

Guest Bath G2, G4 and G6. I infer from the test results – which are in evidence under a document agreement, and agreed to be true and accurate – and from Mr. Shields' evidence, that the G6 sample is the one taken after the hot water had run for three or four minutes.

[102] The lab testing certificate is in evidence. It shows excessive levels of aluminum, copper, iron, lead, and manganese, in relation to the relevant Guidelines standards, in all of the five samples drawn quickly after each tap was opened. However, in the case of sample G6 the levels of each substance are well within Guidelines standards.

[103] Mr. Shields testified that when he received the lab results, the readings for the levels of lead and other minerals were so excessive that for the first time he felt he really understood the severity not only of water's dirtiness, but also its mineral content. He described the tests as the "true eye opener" as to where he now stood.

[104] The results were as follows:

Table 2 – August 2016 Water Samples from Unit #801

	MAC	Aesthetic	Operational	K1	M2	M4	G2	G4	G6
Aluminum			**100**	612	1260	798	341	476	28.7
Copper		**1000**		7290	15400	10200	4510	6180	864
Iron		**300**		7290	15800	9500	4070	5890	272
Lead	**10.0**			104	264	155	80.7	91.3	5.81
Manganese		**50**		686	1400	811	351	526	21.6

[105] I note that there is no specific evidence as to how much time had elapsed since these taps had been last used. Mr. Shields testified in his direct examination that he drew the samples the day after he returned to his suite from being away, and

that he had not used the bathtubs' hot water since returning. However, he acknowledged that he did not know how long it had been since any of the taps had been used, as his unit would have been used by other people when he and Ms. Baker were away.

[106] The M2 and M4 samples would have been taken only as little as 10 to 20 seconds apart. In my view, it would not be unreasonable to infer that the decline in the metal concentration values between samples M2 and M4 – e.g., lead declining from 264ug/L to 155 ug/L, copper from 15400 to 10200, etc. – is evidence that the metal concentrations begin to fall off rapidly shortly after the hot water is turned on. This is, it must be acknowledged, perhaps somewhat inconsistent with comparison of the results of G2 and G4; those guest bathroom levels are strikingly lower, in raw terms, than the master bathroom levels, but all of the metal levels do appear to increase slightly between G2 and G4. Whether this might reflect the hot water in the pipes having been stirred up when the master bathroom samples were taken before the guest bathroom samples, causing some degree of randomness, is an open question. Neither party sought to explain the G2-G4 results.

[107] In any event, what does seem abundantly clear is that all the relevant Guidelines standards were met in the G6 sample that was obtained after running the hot water for 3 or 4 minutes.

Defence Expert Opinion – Report of Martin P. Vogel, Golder Associates

[108] After being served with the August 2016 test results obtained by Mr. Shields, and in preparation for trial, the defendant retained the services of the well-known engineering consulting firm of Golder Associates. Water samples were taken at Shoal Point on September 6, 2016 by a water treatment engineer, Ms. Alison Weick. The sampling protocol is as described in the October 13, 2016 report of Mr. Martin P. Vogel, a senior chemical engineer practising in environmental engineering with Golder Associates. It was taken from the Health Canada protocol for evaluating lead leaching from residential plumbing systems. It involved the following steps:

a) In unit #801, only the kitchen faucet's hot and cold water supplies were sampled. The Health Canada protocol was generally followed even though it applies only to cold water – there is no equivalent protocol for sampling from a hot water tap. Consistent with the Health Canada protocol, which specifies kitchen taps, no samples were taken from the bathrooms;

b) The hot and cold water lines were flushed by having them each run for five minutes;

c) The water was then left to sit in the pipes for six hours, the minimum waiting period specified;

d) Six one-litre samples were drawn from the cold water tap, and then from the hot tap, and then a one-litre sample was subsampled from each group;

e) The subsamples were acidified for preservation, with one subsample being filtered to determine the concentration of dissolved solids; and

f) For comparison purposes, samples were also drawn in a similar manner from unit #501; from the building's incoming water supply, downstream of the building filter and the soda ash injector; from a location on the hot water recirculation loop for Phase I, in the mechanical room; and from the cold water riser for Phase I.

[109] These samples were then tested, and Mr. Vogel opined as to their meaning and significance. He also reviewed the numerous historical water test results, and other relevant documents produced in the litigation.

[110] I found Mr. Vogel to be qualified to state opinion evidence in water quality assessment and water treatment in the context of water systems.

[111] Mr. Vogel's evidence on cross-examination provided important context to the Guidelines standards. Mr. Vogel testified that the Guidelines contemplate the potential for health concerns arising if the concentration limits (MAC) of certain metals, including lead, in drinking water are exceeded. The limits are derived with a

safety factor. They reflect permissible concentrations assuming consumption of two litres of water a day over a lifetime. The standards are a goal for exposure over an extended period, implying that for short periods, the standards could be exceeded without adverse health effects. (As noted above, the parties are in agreement that the Guidelines are intended to apply to average concentrations in water consumed for extended periods of time.)

[112] Mr. Vogel's report is framed as providing answers to six separate questions put to him by the defendant's counsel. Those questions, and his answers, may be summarized as follows:

a) Are there guidelines or standard protocols for taking water samples for testing of water quality?

   Mr. Vogel answered in the affirmative, referencing a number of standard protocols including Health Canada's Guidance on Controlling Corrosion in Drinking Water Distribution Systems.

b) What are the maximum acceptable levels of minerals, particularly lead and iron, that may be present in drinking water?

   Mr. Vogel referenced the Guidelines, in particular the aforementioned MAC limit for lead of 0.01 mg/L (10 µg/L) and the AO limit for iron of 0.3 mg/L (300 µg/L).

c) Does non-drinking water, such as water used for showering, have the same maximum acceptable levels of minerals?

   Referencing the *Drinking Water Protection Act*, S.B.C. 2001, c. 9, [*DWPA*], Mr. Vogel answered in the affirmative, stating that water used in a household for non-drinking purposes such as showering must comply with the same quality standards as are applicable to potable water. (Mr. Vogel did not opine, or make any assumptions, as to whether the *DWPA* requirements extend into the Shoal Point complex, and thus govern the

defendant's supply of water to the unit owners; or conversely, whether the statutory obligation to provide potable water applies only to the CRD, and ends at the building intake. This is a question of law, and is considered below.)

d) Based on Golder Associates' sampling, does the water at unit #801 comply with the maximum acceptable levels under the Guidelines?

Mr. Vogel opined in the affirmative. For example, the eight hot water samples taken from the unit #801 kitchen tap showed total and dissolved lead levels ranging between 1.41 and 0.62 µg/L (as compared to the Guidelines standard of 10 µg/L).

e) If the water does not comply with the maximum acceptable levels, what can the plaintiffs or defendant do to reduce the minerals in the water?

Mr. Vogel reiterated that the water sampled by Golder Associates was compliant with the relevant criteria. However, he conceded that the historical test results do indicate that metallic contaminants can accumulate in the hot water piping when the unit is not occupied for an extended period of time, with at least some of the contaminants being present in particulate form.

He recommended that the owners flush all hot water taps for several minutes upon returning from an extended absence, until the discoloured water is flushed out. He also made alternative recommendations as to what should be done before the owners leave for an extended absence: either closing the hot water shut-off valve and turning off the hot water recirculation pump; or, leaving the recirculation water flowing, with the pump turned on.

Mr. Vogel also noted the difference between the accumulation of contaminants in the hot and cold water lines was likely attributable to the hot water recirculation loop.

f) What is the source of the water discolouration?

> Mr. Vogel opined that the discolouration was likely caused by manganese and iron. He reasoned that because these elements are unlikely to be found in the building's plumbing fixtures, they probably originate from the municipal water supply. This was said to be particularly true of the manganese, since it was not possible to rule out the potential that the plumbing system contributed iron to some degree.
>
> The iron and manganese, in his opinion, were likely precipitating and settling in the pipes due to low flows – possibly as a result of backflow in the recirculation system caused by pressure fluctuations, or caused by the piping configuration.
>
> The aluminum, copper, and lead levels, in his opinion, resulted from leaching from the plumbing system, CRD water being known to be corrosive. It is also possible that the relatively high copper and lead levels found in some of the August 2016 samples reflected adsorption of those heavy metals by the iron and manganese precipitates.

[113] Mr. Vogel came under sustained attack in cross-examination. Some of the focus was on the rationale for his sampling protocol. The theme of much of the cross-examination was that the sampling – drawing samples only from the kitchen, waiting only the minimum period of six hours following flushing, and testing only one day after the plaintiffs had left their residence – did not reflect the plaintiffs' actual use of their water system or the nature of the problems they encountered, and the test results therefore gave a false impression of the severity of the water quality issues.

[114] I do not find that Mr. Vogel's opinion was undermined through cross-examination. Ms. Weick was cross-examined in a similar fashion, and likewise I do not find that the cross-examination raised any concerns as to the soundness of her methodology. The only meaningful comparison is to test the water against a known

standard utilizing a known protocol. Under the protocol, samples are to be drawn after five minutes of flushing. Had those samples been taken from a bathtub in the unit, or drawn after a more extended period of unoccupancy, as the plaintiffs' counsel suggests could have or should have been done, I have no reason to conclude or suspect that the results would have been different. Indeed, the August 2016 G6 sample would appear to suggest otherwise.

[115] Mr. Vogel did not downplay or minimize the discolouration issue as experienced by the plaintiffs, or the contamination issue as documented in the historical water sample test results. He identified the probable cause of these issues, and pointed to simple solutions. There was nothing in his characterization or description of the water quality issues that was markedly inconsistent with the plaintiffs' evidence. To the contrary, his opinion was fully supported by Mr. Shields' own evidence: flush the hot water lines, and the problem goes away.

[116] I have no difficulty accepting Mr. Vogel's opinion. Although, as I noted in my ruling on the admissibility of his report, some of his statements are made in rather passive language – "it is theorized", "it is believed", etc. – I find this reflects a careful, logical process of inductive reasoning, as opposed to any degree of speculation or uncertainty as to underlying facts and opinions.

Defendant's Current Water Quality Program

[117] A new monthly program of flushing the building's water tanks and risers was implemented in September 2016. In October 2016 some additional valves were installed to increase the number of flushing ports for Phases II and III of Shoal Point, and for the south portion of Phase I. The current Strata Council president Ms. Zeidler – herself a trained engineer – testified that these additional valves only indirectly increased the flushing of Phase I's water system. She stated that the defendant had yet to figure out how to add more flushing capacity to Phase I, given access issues and drainage capacity.

[118] A contractor, Good Environmental, has been selected to implement a new program of water sampling and testing. Their formal retainer is on hold, pending the

outcome of this litigation, but Ms. Zeidler testified that there is money in the budget for it to be undertaken in 2017.

[119] The level of detail in the Building Committee minutes of October 11, 2016 as to the discussion of capital improvements related to the corrosion control initiative, as compared to that found in the minutes for previous years is, I find, evidence that water quality issues in the building are now being addressed in a systematic manner.

[120] A quantity surveyor, Beacon Construction Consultants, was retained in November 2016 to review mechanical drawings and provide an estimate of the cost of investigating the feasibility of installing new piping throughout the building. Ms. Zeidler testified that the surveyor advised her in December 2016 that simply doing the investigative work necessary to provide a quote would entail opening up suites and common property in order to expose and examine pipes, potentially costing in excess of $45,000 to $65,000. Ms. Zeidler was also advised that replacing the piping, if that was decided as the appropriate course of action, could take years and cost in excess of $1 million.

[121] Ms. Zeidler was asked in direct examination why the hot water supply filter on Mr. Shields' unit had not been replaced. She explained that Mr. Cumberbatch expressed concern as to the risk of further flooding. She said the Strata Council hoped that the new filter on the inlet water combined with the improvements to the soda ash injection system would "solve the problem" for all of the owners. She described the "problem" in the terms in which it had been identified in the expert opinion report of Golder Associates: that there is a corrosion issue that results in brown water.

[122] In response to the Golder Associates report, a more comprehensive advisory notice was issued to all residents in December 2016. It set out the following recommendations in cases where a suite was to be unoccupied for a week or more:

> a) Upon returning from an extended absence, open all the hot water taps starting with the one closest to the recirculation pump, if there is one in

> your suite, or with a tub tap and flush the water for several minutes until any discoloured water is flushed out. The remaining hot water taps would then only need to be flushed for a much shorter time.
>
> b) The shut-off valves for the hot and cold water supply could be closed before the suite is vacated. This would require that the hot water recirculation pump, if there is one in your suite, be tuned [sic] off to prevent damage to the pump. The water system should still be flushed upon return.
>
> c) Verify that the recirculation pump is indeed operating and that the water is actually flowing through it when the hot water system valves are open, whether the suite is occupied or not.

It is not known what effect the implementation of these recommendations by the plaintiffs would have on the water quality in their unit.

[123] In the course of reviewing old studies and reports in September 2016, Ms. Zeidler asked Mr. Cumberbatch by email if there was any remaining ductile iron pipe in the building. Mr. Cumberbatch replied that there was still ductile on the cold supply serving all three buildings, and ductile on the hot water main serving Phases II and III. Ms. Zeidler did not pass this information on to Mr. Mueller, who had been the defendant's discovery representative, nor to the defendant's counsel. The email chain setting out this exchange was not disclosed until the trial was nearing its conclusion. Those lengths of ductile piping have not been replaced.

Current Water Quality in Unit #801, and Plaintiffs' Concerns

[124] In reaction to the high lead levels discovered in the August 2016 samples, the plaintiffs have stopped drinking tap water at their unit; they now only drink bottled water. Mr. Shields testified that he found those results so shocking that it is clear to him that he and his family now face health risks due to the danger of the high mineral content, particularly lead. If he had known what he now knows about the water quality, he says would have stopped drinking the water years ago.

[125] The hot water supplied to unit #801 feeds the mixing tap at the kitchen sink, the dishwasher, and the washing machine. The plaintiffs also use the hot water to shower. Mr. Shields testified that he uses the cold water in the bathroom to brush his teeth, take pills, and gargle; also, if he wants a drink of water in the middle of the

night he might drink from the bathroom tap, rather than walk to the kitchen for bottled water.

[126] Mr. Shields is 82 years old. He estimates that he may have another four years of independent living, at which time he will have to sell the unit. The unit represents a major investment for him. He is concerned about how the water quality issues will affect the unit's marketability.

[127] (There was no evidence presented of any diminution in the unit's value, and no such claim is being made.)

[128] I do not doubt Mr. Shields' sincerity in holding these views. However, he did not attempt to explain the reasonableness of these views in the face of the August 2016 G6 test results. He was not cross-examined on that subject.

[129] Ms. Baker testified that she does not drink the tap water because she does not want to get sick. She has not taken a bath in the suite in the last 10 years, because of the brown water; she limits herself to short showers. Asked in direct examination if she worries about the water at all, she replied, "Oh, yes"; asked why that was, she explained that she feels they have a right to clean water, particularly in what is supposed to be one of the best buildings in Victoria.

[130] In cross-examination, it was put to Ms. Baker that brown water is typically noticed in the faucets and bathtub after returning from an extended absence. She replied that she has "always" seen brown water. It was suggested to her that after the bathroom taps are run, the water generally clears up, but Ms. Baker denied this was the case. (Her evidence in this regard was inconsistent with that of Mr. Shields.) She acknowledged that "perhaps" the unfiltered kitchen tap clears after running for a time. Defence counsel did not elicit from Ms. Baker any information has to how long she has observed a running tap with brown water continually emanating from it.

[131] Following their receipt of the August 2016 test results, the plaintiffs were away from their unit again from mid-September until December 20, 2016.

[132] Mr. Shields' daughter-in-law, Audrey Shields, stayed at unit #801 on November 25, 2016, when she was in town attending a sports event with her son. She took samples from the hot water in the kitchen, master bathroom, and guest bathroom hot water taps, filling half-litre canning jars after running the water for about ten seconds. Photographs of the jars containing the samples are in evidence. The kitchen and guest bathroom samples are cloudy; the master bath sample is dark brown, virtually opaque.

[133] Asked for her impressions of the colour of the water, Ms. Shields stated:

> A It looked filthy, it looked horrible. And, it scared our son. And, we were shocked by it, and we wouldn't drink it.
>
> Q What did you drink instead?
>
> A We had bottled water.
>
> Q Would you want to wash your clothes in that water?
>
> A No.

[134] (I note there is no evidence that the plaintiffs' clothes, bedlinens, or other laundry would be discoloured in any way if washed after the hot water lines were flushed for a few minutes.)

[135] Ms. Shields did not testify as to whether she was aware of the defendant's November 2015 notice to residents of the recommended protocol for the flushing of hot water lines after an extended absence.

[136] Looking at the photographs, I cannot disagree with Ms. Shields' characterization of the hot water as filthy, horrible, and shocking, if one were not forewarned that flushing of the lines would be required. I find however that her evidence that she would not drink it and her decision to use bottled water are curious, in that she was testing hot water only – not the cold water supply – and the unit has filtered water at the kitchen sink. Although not cross-examined on this point, it is hard to imagine that her decision to use bottled water was not based at least in part on information she obtained from her husband, the plaintiff Mr. Shields' son, who is acting as his legal counsel in this litigation.

[137] Asked in cross-examination if she let the water continue to run after she collected the samples, she said she did not remember.

[138] Plaintiff's counsel submitted the samples taken by Ms. Shields to the lab for testing. They contained significantly elevated levels of lead relative to the Guidelines MAC, as well as excessive levels of copper, iron, and manganese relative to the Guidelines AO. The level of aluminum was also high relative to the Guidelines Operational Guidance Value for that metal.

[139] Mr. Shields testified that when he returned on December 20, 2016, he was very surprised on his return as to the amount of dirt in the water, given that the unit had recently been used. In his words, "nothing had changed". There was dirty brown water coming out of the kitchen tap, the bathtub, and the bathroom basins. I note that as of that date, the unit had been unoccupied for more than three weeks.

Discussion and Findings

Water Quality at the Plaintiffs' Condominium Unit

[140] My first series of findings relates to the quality of the water delivered to the plaintiffs' unit.

[141] I find as a fact that the hot water supply to the plaintiffs' suite is burdened by both unreasonably high levels of particulates (i.e. suspended solids), causing gross discolouration; and by contamination of the water with adsorbed and dissolved heavy metals.

[142] I find that this condition in the plaintiffs' unit has existed at least since 2007, and has continued to the date of trial.

[143] I find that there has been, historically, at least one incident over the past ten years in which the water quality in Shoal Point – both hot and cold water – was adversely affected by algae, debris, or other contaminants in the municipal water supply. There is no evidence to suggest such incidents have been anything more than transitory. Such incidents have not been the responsibility of the defendant.

[144] I further find that some degree of the hot water discolouration in Phase I units prior to the summer of 2012 was due to the deterioration of the cement liner of a length of ductile iron pipe, which was then replaced.

[145] The following findings relate to "current water quality issues". They encompass the discolouration and high metal contamination levels in the plaintiffs' hot water as of the date of trial; and to the same water quality issues in the plaintiff's hot water since 2007, apart from those that resulted from the aforementioned debris in the municipal water supply, and debris from the ductile iron pipe.

[146] HWT suggested a causal relationship between the water discolouration and low-flow conditions in the hot water system in July 2009. Mr. Palmer found this to be a proper subject for further investigation as reflected in his September 2009 memo. In their May 2012 report, AME found this relationship to be an area for further consideration, and made an alternative recommendation to reconfigure the piping above unit #801. Mr. Vogel has opined that the discolouration of the hot water in the unit is likely predominantly a result of oxidized and precipitated iron and manganese from the water supply due to low flow conditions in the hot water piping serving the plaintiff's unit. I accept Mr. Vogel's opinion. It is logical and consistent with the evidence of observations and recommendations made by others. I find this to be the likely cause of the discolouration issue.

[147] With respect to the contamination issue, I accept Mr. Vogel's conclusion that contamination of the hot water through elevated concentrations of aluminum, copper, and lead is most likely due to the corrosive effect on the building's plumbing system of the naturally acidic water supplied to the building from the municipal water system.

[148] I find that the current water quality issues are closely associated with the plaintiffs' unit being unoccupied, i.e. the issues are most pronounced when the hot water is run following an extended period of disuse.

[149] Similar water quality issues, I find, have been experienced by other unit owners at Shoal Point. The evidence suggests – though it is not conclusive – that the plaintiffs' experience with these issues has been somewhat worse than that of other unit owners. If this is so, it cannot be determined on the evidence if this is due to the plaintiffs' pattern of unoccupancy, to differences in the hot water piping configuration, to differences in the level of corrosion in the pipes, or to other factors, alone or in combination. To that, I would add the observation that the plaintiffs' limited use of their hot water supply when they do occupy the unit – through not taking baths, or only taking short showers – may have possibly exacerbated the problem, but again the evidence is not conclusive.

[150] I further find that the current water quality issues in the plaintiffs' unit resolve quickly – though only temporarily – if the hot water lines are flushed after an extended period of disuse by running water through them for a few minutes. I make this finding on the basis of Mr. Shields' report to Mr. Ullathorne of August 2011; on Mr. Shields' trial evidence that the water "clarifies" if it is run for a long time; on the analysis of the water samples Mr. Shields took in August 2016; and on the result of the Golder Associates testing.

[151] (Although, as Mr. Shields pointed out in his testimony, there is no means of flushing the lines to the unit's dishwasher and washing machine, I have no reason to conclude that the current water quality issues would persist in those machines if they were to be run empty for a full cycle after all other hot water lines in the unit were flushed.)

[152] As I have stated, the current water quality issues are resolved temporarily with flushing. At some point, after a period of disuse, the issues reappear. I am unable to find, on the evidence, how quickly the current water quality issues reappear after the hot water lines are left unused. Similarly, I am unable to find whether the speed at which the issues reappear varies with how long the lines were flushed during the preceding period of occupation, or with the degree of use of hot water when the unit has been occupied.

[153] I do not find that the plaintiffs have suffered or are suffering any water quality issues that cannot be satisfactorily addressed through periodic flushing of the hot water lines in their apartment by opening the taps for a few minutes until the water is clear. I use the word "satisfactorily" to describe the degree of mitigation that is achieved, not intending at this point in my reasons to make any finding as to responsibility or liability.

[154] As to the contamination issue in particular, the plaintiffs' counsel, in closing submissions, painted the presence of excess lead and other metals in the unit's water as a dire health issue. It was submitted that the plaintiffs' "home and health have been and remain … under constant toxic disruption and attack"; that there is an "ongoing crisis" caused by the plaintiffs having to "imbibe, wash, [and] bathe … in toxic substances, lead, copper, and iron"; and that as the plaintiffs "drink and use the water, even if diluted to below maximum levels, it continues to accumulate in their bodies".

[155] To be blunt, these submissions are hyperbolic and have no basis in fact.

[156] There is evidence of elevated levels of metals, including lead, in discoloured hot water samples taken from the plaintiff's unit. The lead concentration levels found in these samples would be unsafe in drinking water consumed over a lifetime. But the plaintiffs, sensibly, do not drink discoloured hot water. No one in their right mind would do so. Further, although the iron and manganese discolouration and the lead, copper, and aluminum concentrations arise from different causes, there is no evidence that the heavy metal concentrations persist once the hot water lines have been flushed enough that the discolouration subsides. In fact, the evidence is to the contrary; flushing the water for a few minutes appears to reduce the concentration of these metals below the limits set out in the Guidelines.

[157] If the hot water lines are flushed, there is no basis for me to conclude that any miniscule levels of lead or other metals to which the plaintiffs might – I stress the word "might" – be exposed to from incidental consumption of hot water from a tap, or

from having their dishes and clothing washed in hot water, would pose any sort of health risk.

[158] As to the cold water supply, there was, as described, one water sample test in September 2009 that showed the municipal water supply to the building had a somewhat elevated lead level. This was brought to the attention of the CRD, and appears to have been dealt with, as indicated by follow-up testing in December 2009 showing the water quality was acceptable.

[159] There were also the samples taken by Mr. Cumberbatch in April and June of 2014 from a test port located on the building water supply lines in the mechanical room that showed very high lead levels in samples drawn after turning the tap on for only a few seconds to clear debris from the test port. It will be recalled that the water samples taken from the same location a few minutes later, after the test port had been properly flushed, had metal levels under the Guidelines limits. I cannot find that the former test results in any way reflected the quality of water flowing to the building's residential units through the cold water pipes.

[160] That is the sum total of the evidence of high lead levels in the building's drinking water. I find the Golder Associates report proves conclusively that the cold water meets the Guidelines standards. There is simply no basis for me to conclude that the defendant's plumbing has adversely affected the cold water supply to the plaintiffs' unit.

[161] The plaintiffs' decision not to drink water from the cold taps is irrational. It is not supported by the evidence. Limiting their bathing to short showers, as testified to by Ms. Baker, is a matter of personal preference; on the evidence, it is not a reasonably necessary reaction to the water quality issues they have experienced.

Liability of the Defendant

[162] Mr. Vogel referred in his report to the *DWPA.* That Act defines "potable water" as water provided by a domestic water system that

> (a) meets the standards prescribed by regulation, and

> (b) is safe to drink and fit for domestic purposes without further treatment.

Under s. 6 of the *DWPA*, a water supplier must provide potable water to the users served by its water supply system. The term "water supplier" is defined as "a person who is the owner of a domestic water system. However, the *DWPA*'s definition of "domestic water system" excludes such equipment, works, or facilities as prescribed by regulation as being excluded. The *Drinking Water Protection Regulation*, B.C. Reg. 200/2003, excludes "a building system" from the definition. "Building system" is defined as:

> a system, within a building, to which the British Columbia Plumbing Code applies, that receives water from a water supply system operating under a valid operating permit under the Act.

[163] The defendant's plumbing system, I find, is such a "building system". The defendant is therefore not governed by any specific statutory duty in respect of water quality.

[164] The defendant is however responsible for the repair and maintenance of common property under s. 72 of the *Strata Property Act*, S.B.C. 1998, c. 43. As was held in *Taychuk v. Owners, Strata Plan LMS 744*, 2002 BCSC 1638 [*Taychuk*] at para. 33, this includes an obligation on the part of strata corporations to act reasonably to maintain and repair their plumbing systems, including making good plumbing that causes discolouration. This obligation extends, I find, to making good plumbing that is causing elevated heavy metal concentrations in water, relative to the Guidelines.

[165] The discharge of that duty of repair is not measured against a standard of perfection. It is only a duty to take reasonable steps: see *Wright v. Strata Plan No. 205* (1996), 20 B.C.L.R. (3d) 343 (S.C.), aff'd (1998), 43 B.C.L.R. (3d) 1032 (C.A.). A strata corporation is also, in discharging its duty, obliged to act in the best interests of all the owners, balancing competing needs and priorities and endeavouring to achieve the greatest good for the greatest possible number: *Sterloff v. Strata Plan VR 2613*, [1994] B.C.J. No. 445 (S.C.) at para. 35.

[166] A strata corporation's repair obligation is not avoided simply by reason of a water quality issue being a matter of aesthetics or inconvenience. As was held in *Taychuk* at para. 33, a serious health risk caused by a problem with water pipes might require a strata corporation to take immediate steps to solve the problem; if a problem is aesthetic only, the strata corporation might reasonably have more time. Likewise, a serious health risk might require a strata corporation to incur very substantial expense, whereas a purely aesthetic concern might justify a more limited response.

[167] I find that the gross discolouration and excessive heavy metal concentration of the hot water delivered to the plaintiffs' unit is not acceptable. It is no answer for the defendant to say that the hot water is potable, so long as the lines are flushed. No strata owner anywhere in Canada would reasonably be expected to accept water of such deficient quality without complaint. Shoal Point is described in the Statement of Agreed Facts as a "deluxe" development. Certainly, no unit owner in a development of this quality should have to tolerate such a state of affairs. This appears to have been recognized throughout by the Strata Council and by individual persons in positions of authority with the defendant. The Strata Council determined in May 2009 that the water quality issues were serious and resolved that all reasonable steps would be taken to find a solution. Mr. Ullathorne said in August 2011 that the Building Committee would make Mr. Shields' complaints a "top priority". The same month, Mr. Cyr said that the Strata Council would "do its utmost". I also note that Mr. Mueller, of the building's property management company, acknowledged in his examination for discovery that the plaintiffs' expectation of lead-free, clear water was not unreasonable. Mr. Shields' complaints, beginning with his written complaint of 2009, called for a reasonable response by the defendant pursuant to its repair obligation - specifically to ascertain the nature and scope of the water quality issues, to identify possible causes and solutions, and to implement those solutions.

[168] The reasonableness of the defendant's repair efforts since these issues came to its attention has to be measured in light of the reasonable expectations of its unit owners.

[169] Until recently, the defendant's response has not met the standard of reasonableness. It is quite evident from the above recitation of the facts that the defendant's attempts to address the plaintiffs' complaints between 2009 and 2015 were a mixture of inadequate investigation, half-measures in implementing recommendations, inadequate follow-up to determine the efficacy of the steps that were taken, and a lack of continuity in retaining qualified outside help.

[170] I find, on the evidence, that the defendant has been taking reasonable steps to address water quality issues in the building, including the issues experienced by the plaintiff, since obtaining Pro Star's recommendations in September 2015. The evidence demonstrates that the defendant has since then been engaged in a systematic process of identifying the causes of the water quality issues, and implementing upgrades and improvements to its equipment and procedures in an ordered, logical manner, so as to determine the impact of the changes being made.

[171] The plaintiffs submit that even recently the defendant has not moved quickly enough. It is submitted that steps ought to have been taken to remove the ductile iron pipe found recently in the cold water system; to inspect the Y-strainers, long runs of pipe, and other areas identified by Pro Star as possible areas of accumulation of debris; and to hire a professional engineer. It is also submitted that the defendant did not move quickly enough to install the new building filter and upgrade the soda ash injection system, given that ample monies were available in the defendant's operating account and capital fund.

[172] I do not accept these submissions. In my view, hiring an engineer, and inspecting (or even possibly flushing) other components of the plumbing system may eventually be reasonably required, if the other improvements recently made and underway do not alleviate the water quality issues. It is simply too soon to tell.

[173] I have no basis for finding that the ductile iron pipe on the building's cold water system is deteriorating and requires replacement. No issues with the building's cold water system have been identified.

[174] With respect to the defendant's expenditures, the plaintiffs have not identified an imminent threat to health and safety requiring immediate measures to be taken and allowing the Strata Council to use the contingency fund without prior authorization. It has not been demonstrated that the expenditures were handled unreasonably, relative to the defendant's other budgeting considerations, or that any delay in upgrading the soda ash injection system or installing the filter was due to unreasonable conduct on the defendant's part.

[175] Predominantly, the defendant's recent efforts in implementing Pro Star's recommendations have been directed at possible approaches to the contamination issue, through controlling corrosion and the effects of corrosion. Given Mr. Vogel's conclusions, which I have accepted, as to the cause of the discolouration issue – i.e. accumulation of precipitates due to low flow conditions – it appears that the only initiative suggested by Pro Star that might possibly impact that issue is the frequent flushing of the tanks, lines and risers. I do note that this recommendation seems to have been premised on the discolouration being caused by the accumulation of debris, as opposed to precipitation of iron and manganese.

[176] If more frequent flushing does not significantly mitigate the discolouration issue, it may reasonably be expected that the defendant will move quickly to address the low flow condition in the hot water lines through other means. If that is the case, any remedy that might be achieved at a reasonable cost – reasonable in relation to the defendant's means, and the severity of the discolouration – will have to be considered. But as of the date of trial, the defendant had not reached that point.

[177] It cannot be said with any certainty when the discolouration issue will finally be substantially mitigated, or what steps that might entail. What I am able to find, on the evidence, is that eventual amelioration is likely, and that the defendant's conduct

up to 2015 unreasonably delayed the amelioration of the plaintiffs' water quality by about six or seven years.

[178] On that basis I find the defendant liable.

Remedy

[179] The plaintiffs have sought a mandatory injunction requiring the defendant to immediately provide a steady supply of bottled water for cooking and drinking; to install new copper lines feeding water to their unit from Phase II of the building; to install new piping in the unit itself; to put the plaintiffs up in a first class hotel while repair work is underway, with all expenses paid; to report back to the court weekly as to what steps are being taken to resolve the issues; and, failing a quick resolution, to have an Administrator appointed to manage the defendant's affairs.

[180] This proposed injunctive relief was predicated on a finding that the plaintiffs face and have faced serious health risks. On the findings I have made, I see no basis for a mandatory injunction of any sort. Serious efforts towards mitigating water quality issues through upgrading the building's plumbing are underway. The evidence does not support a finding that there are any particular remedies that can be definitely identified, as of the date of trial, as sufficient or necessary to address the discolouration and contamination issues. The court cannot simply order the defendant to "fix the problem", because the defendant's duty of repair is not absolute. It is bounded by considerations of reasonableness, and what additional steps if any may reasonably be required cannot be determined at present.

[181] Furthermore, no injunctive relief is available because damages will be an adequate remedy.

[182] The plaintiffs submitted that general damages ought to be awarded for Mr. Shields in the amount of $120,000, and for Ms. Baker in the amount of $80,000. Again, these submissions were premised on the expectation that I would find serious risks to the plaintiffs' health and well-being as a result of the defendant's failure to adequately address the water quality issues.

[183] The water quality issues are essentially matters of aesthetics. The badly discoloured water that initially emerges from the hot water taps after a period of disuse is disgusting. There is also the issue of heavy metal contamination but, as I have found, it is only present in hot water lines that are not flushed, and for that reason poses no health risks. The plaintiffs are able to help themselves by flushing their hot water lines and using the hot water frequently enough to prevent a low-flow related buildup of particulates or contaminants. They are entitled to damages for the loss of enjoyment of their unit, and the inconvenience of having to conduct flushes of the hot water lines. I also take into account the frustration Mr. Shields has experienced in trying to get his complaints addressed. The damages award will be modest.

[184] Two authorities in particular among those cited in the parties' closing submissions provide some guidance as to the amount of damages. The plaintiffs cite *Miller v. Brian Ross Motorsports Corp*., 2015 BCSC 1381, in which Dardi J. awarded $15,000 against the defendant automotive dealership for occasional loss of use of the plaintiff's Ferrari F430 F1 automobile. The loss of use arose out of the car being physically damaged while in the defendant's possession, and then remaining unavailable to the plaintiff for nearly seven months while the parties tried to reach an agreement over repairs; and then unavailable for a further seven weeks while it was repaired at another facility. Taking into consideration the fact that the vehicle would only have been driven a few days each month during the period of loss, and that the plaintiff relied on a different car he owned for regular daily transportation, damages were assessed at $15,000.

[185] The defendants cite *Denis v. Bertrand & Frère Construction Co.*, [2008] O.J. No. 1284 (S.C.J.). Defective concrete building foundations in the plaintiffs' homes were so severely damaged that the properties were virtually unsaleable unless major repairs were done. This was found to have caused stress and worry. The plaintiffs' basements, as a consequence of the foundation problems, were damp and malodorous, and contained mildew. Some gave up the use of their basements;

some put up with the inconvenience. In respect of the loss of enjoyment, stress and inconvenience, each homeowner was awarded $1,500 per year over nine years.

[186] I note that the plaintiffs' home is more integral to their lives than a luxury sports car. On the other hand, their home has been far from completely unusable. The objective impact of the water quality issues on their lives has been minimal.

[187] The liability of the defendant, as I have said, is not strict. The damages, as I have found, are to be based on the loss of enjoyment and inconvenience arising out of a delay of six to seven years in the reasonable amelioration of the plaintiffs' water quality complaints. I award the plaintiffs jointly the sum of $15,000.

[188] Unless there are issues that require a further hearing, the plaintiffs will be entitled to costs at Scale B. If the parties wish to make submissions as to costs, arrangements for a hearing may be made through Supreme Court Scheduling – Vancouver.

"A. Saunders J."