

# Appendix T: Leaking Chiller Communications Summary

Signs of a potential curling chiller leak were first recorded in the maintenance log book on April 13, 2017 as a *strong ammonia smell in the curling rink [brine] filter*. The presence of ammonia in the brine was later confirmed through two separate brine analysis samples taken May 11, 2017 and August 4, 2017 indicating the chiller was leaking ammonia into the brine.

Technical Safety BC examined email communications involving the City of Fernie employees relating to the arena during the period from April 13, 2017 through October 17, 2017 and conducted interviews with those in communication regarding the associated brine analysis tests.

The email and communication evidence reviewed indicates that:

- Communication regarding the leaking chiller remained between the maintenance contractor employees dealing directly with the City of Fernie, the Director of Leisure Services and the Refrigeration Operator
- other City of Fernie employees or persons interviewed due to involvement with the Fernie Memorial Arena / Curling Rink were not informed of a leak in the chiller or a potential loss of service at the curling rink for the upcoming season
- no communications regarding the leaking chiller is evident to have occurred between September 1 and October 16, 2017
- interview statement from Cimco of a recommendation to *keep monitoring* was provided following the communicated results of the second brine test on August 30, 2017.
- no communications expressed an awareness of a safety hazard associated with the leaking chiller or ammonia leaking into the brine

<b>From:</b>	[REDACTED]
<b>Sent:</b>	August-01-17 11:57 AM
<b>To:</b>	[REDACTED]
<b>Subject:</b>	Fernie
<b>Attachments:</b>	Fernie Mem Arena - Cold Brine May-2017.doc; Fernie Curling Club - Cold Brine May-2017.doc

**Figure T-1:** email within Cimco – transmission of first brine analysis results from sample of May 11 to be sent to City of Fernie.

On Aug 1, 2017, at 12:47 PM, [REDACTED] <[REDACTED]@TOROMONT.com> wrote:

Gentlemen:

Recommend further filtering – upgrade filters to 5 microns, I believe we’ve been on 10 microns thus far, iron & suspended reading HIGH – brine needs to be strengthened, S.G. needs to be 1.20 minimum – pH is OK – curling brine shows ammonia – need to monitor – take another sample & advise - [REDACTED]

**Figure T-2:** Email from Cimco to City of Fernie dated August 1, 2017 in response to Brine Analysis Report of June 6, 2017.

**From:** { [REDACTED]@fernie.ca} [mailto:[REDACTED]@fernie.ca]  
**Sent:** Tuesday, August 01, 2017 1:54 PM  
**To:** [REDACTED]  
**Subject:** Re: Brine Samples - Arena & Curling


Hi [REDACTED]

Who is going to take the sample? Is there anything else you want us to do before you arrive next Thu?

[REDACTED]

Sent from my iPad

**Figure T-3:** Email from Cimco to City of Fernie coordinating second brine sample

 [REDACTED] <[REDACTED]@TOROMONT.com>  
Tue 8/1/2017 1:55 PM

**To:** [REDACTED]

We'll take it – not that I can think - [REDACTED]

**Figure T-4:** email from Cimco to City of Fernie in relation to second brine sample to be taken

**From:** [REDACTED]  
**Sent:** August-18-17 10:53 AM  
**To:** [REDACTED]  
**Subject:** Fernie FYI

Good Morning

Just to keep you in the loop I had [REDACTED] do another sample of the curling cold brine at Fernie as some ammonia showed up in the sample we are awaiting the result however you can smell it in this sample and not before.

[REDACTED]

**Figure T-5:** Email between Cimco employees regarding second brine sample and analysis for the curling system.

**From:** [REDACTED]  
**Sent:** August-30-17 10:49 AM  
**To:** [REDACTED]@fernie.ca [REDACTED] ([REDACTED]@fernie.ca)  
**Subject:** FW: Fernie Curling Club Brine Report  
**Attachments:** Fernie Curling Club - Cold Brine Aug-2017.doc

[REDACTED]:

See attached – again – do you have any pre-Cimco history on your brine or did Startec not do sampling & analysis - [REDACTED]

**Figure T-6:** Email from Cimco to City of Fernie – attachment reference to result of second brine sample analysis report for the curling system dated August 29, 2017.

**From:** [REDACTED]@fernie.ca [REDACTED] <[REDACTED]@fernie.ca>  
**Sent:** August-30-17 4:36 PM  
**To:** [REDACTED]  
**Subject:** Re: Brine Analysis Reports

Hi [REDACTED]. They did do some tests in the past, not sure where the info is now. I will take a look and get back to you. The curling club test looks bad! That brine line is also really corroded and leaking. [REDACTED]  
Sent from my iPad

On Aug 30, 2017, at 8:42 AM, [REDACTED] <[REDACTED]@TOROMONT.com> wrote:

[REDACTED]:

Do you have a history of brine analysis reports – pre-Cimco – please advise - [REDACTED]

**Figure T-7:** Email from City of Fernie operator to Cimco dated August 30, 2017 in response to Brine Analysis Report of August 29, 2017.

**From:** ([REDACTED]) Call Centre <[REDACTED]>  
**Sent:** Tuesday, October 17, 2017 8:30 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]; [REDACTED]  
**Subject:** Cimco Message Summary

Message Summary for Cimco

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Call ID: 775451  
Call taken at 4:33 AM on 10/17/2017  
MESSAGE:

For: [REDACTED]  
From: [REDACTED]  
Company: City of Fernie  
Phone #: [REDACTED]  
Message: Fire Dept is here, issue in plant room, have ammonia leak, the chiller may have split, please call ASAP

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**Figure T-8:** Message taken by the Cimco call center from the Director of Leisure Services at 4:33AM on October 17, 2017 in relation to the ammonia alarm.



Documents requested under order – Technical Safety BC letter dated November 6, 2017

Item #7 – Instructions or recommendations provided by CIMCO to Fernie associated with the Brine Analysis.

- Brine test results emailed by [redacted] Cimco to [redacted] City and [redacted] [redacted] on August 1/2017. Brine tests were dated June 6/2017 (sampled May 11/2017)
- Telephone call between [redacted] Cimco and [redacted] City in early August
  - Cimco recalls City asking “will the chiller make it for the season?” in which Cimco responded “I don’t know if it will last 5 minutes or 5 months”
- Proposal emailed from [redacted] to [redacted] on August 24/2017 for a single chiller to replace the existing curling and arena chillers
- Brine test results emailed by [redacted] to [redacted] on August 30/2017. Brine tests were dated August 29/2017 (sampled August 4/2017).

**Figure T-9:** Cimco response to Technical Safety BC regarding instructions or recommendations to City of Fernie associated with the brine analysis.



Documents requested under order – Technical Safety BC letter dated November 6, 2017

Item #11 – CIMCO policies and procedure for responding to brine analysis reports with results that are outside of recommended ranges.

CIMCO does not have a written policy and procedure document that identifies how we respond to brine analysis reports with results that are outside of recommended ranges. However, we do have a process we follow:

- Advise end-user / owner of equipment of the brine results
- Recommend a solution – repair or replace

**Figure T-10:** Cimco response to Technical Safety BC regarding policies and procedures for responding to brine analysis reports that are outside of recommended ranges.