

From: [Gary Dilay](#)
To: [Reservoir Containment](#)
Subject: FW: Follow-up on telephone discussion today FIXED TYPOS
Date: Monday, May 11, 2015 3:39:12 PM
Attachments: [image001.png](#)
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From: Mike Carlson [mailto:appliedreservoir@lightspeed.ca]
Sent: Sunday, May 10, 2015 3:12 PM
To: Gary Dilay
Subject: RE: Follow-up on telephone discussion today FIXED TYPOS

Fixed a couple of typos ...

Gary,

Further to our conversation today the AER has provided two main points in the following:



In our discussion I suggested that the outside world might look at this from two perspectives.

For the “sufficiency of energy” there are some dramatic pictures on the web that show:
gramercy



The pipe on the left is 24” schedule 160 pipe and the burst is pretty high at about 3125 psi (21,546 kPa).

The subsequent pipe whip knocked down an extensive area of trees and launched pipe long distances.

The ERCB report on Joslyn places failure at 1800 kPa. So the MEG line failed at 12 times what was required to frac Joslyn.

I think this would pretty much establish serious forces.

With respect to whether CIWH occurs in wells the results from the left are from WAHA for 80m³/day in a 7.5" liner.

The results are on the right are for a valve closure. This work was done by AECL staff.



The results on the left was done with software built by the European (Nuclear) Commission Research Directorate General.

The input is very simple, 7.5" pipe and 80 m³/day of steam. The results on the right was done with Cathena, a program built by Atomic Energy Canada Limited.

It represents a valve closure on a water pipe like the GEFA video. The spikes are over 4,000 kPa, well over frac pressure of 1,800 kPa at Joslyn.

While there are slight differences in conditions and piping for the SAGD wells. These effects are very short and high and do not show on averaging gauges.

Note that the background operating pressures are quite low. Of course, these are only simulations based on generic factors.

However, stating that adequate evidence [does not exist](#) suggests the AER questions the technical capability of Canada's national nuclear laboratory agency and that of the Europeans. The results have been published in KernTechnik and the CHOA journal. The SPEJ article is from the SPE's #1 journal. The results are therefore peer reviewed.

While proof might be more difficult to attribute, the public might consider these sources quite credible. There is a very obvious soil pipe in the ground at Joslyn. It is hard to explain without pressures well over 3300 kPa, which is required for zero effective stress and therefore piping. This is solid evidence of high pressures that are sufficient to support the overburden entirely.



In closing, the AER has asked for industry input. The AER is under no obligation to accept any of it. ARE has offered to provide background explanation on CIWH.

Cheers,
Mike

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