

So historically, the ONLY time we've ever seen earth leakage trips has been when the magnet has been at an elevated temperature. The insulation was already tested years ago and deemed OK. In June I set a temperature limit within which the magnets were happy; this was with the flow reduced from 30 to ~17 l/min.

The test of the flushed Q4 before Christmas was inconclusive, as in the meantime the water flow through all the magnets has been improved to 22 l/min and so even at maximum current it still doesn't quite reach the temperature at which it tripped in June. At least flushing hasn't made things worse (though it did temporarily block the flowmeter with debris). And it may stress the elderly rubber hoses - see Q6.

What it tells us is that we might be able run all the magnets with the water flow that we've got now, assuming that the chiller can cope with the total load AND that the cryocompressors won't need more water in summertime (which they shouldn't as the Hall A/C should regulate the temperature).

What would be useful is a decision about what current we actually need from the magnets; the June waterflow limits us to 300 MeV muons or 340 MeV which I'm already not sure is genuinely a physics impact. Do we actually need 400 MeV pions? That's what I was trying to get from the CM...