Run 554 log

OK#1:ice I 95.5:4.5 by volume, notes in lab book. Sample was prepared as a twin to sample 553, synthesized 12/3/07. Jacketet, covered with ZrO2 spacer and 0.75" dummy end plug, stored in freezer. Clocks synchronized.

3/10/08	~1600	Arm tight, run P to 10 MPa over a minute or two, then vent and tighten with impact wrench.
	1710	P to 60 MPa. Let's see if intensifier will last all night.
	2238	Change recording in log file to 60-s interval, just in case I want a trace of zero drift.
3/11/08	0702	O'nite drift negligible until a couple of hrs ago. Note Ts are low right at this moment, maybe tank is getting powerful. Raise T setpt to 223.5 K.
	0850	Intensifier looking very good, is only ~1/4 of way raised.
	0955	Dig Heise 60.0 MPa = 59.7 MPa analog
	0956	Unloaded s gage at 60 MPa: -0.006479/-0.006513/6496.
	0959	1st contact at 60 MPa: 2.6640 V.
		Guess at L0: Figure it differs from that of 553 by the amount their bench top lengths differed, thus = 2.862 + 0.040 = 2.902". Note that diff in chart record 1st contact is ~0.04*5*0.172 = 0.034", so maybe not a bad guess.
	1015 (1)	s setpt to 24 mV (30 MPa); 223 K, 60 MPa.
		Notice during loading a few short stress drops above the 1/2 point, hard to see on red trace.
		Green trace turns the corner much more slowly than for sample 553. And sample is shortening more, which is surprising.
	1258	Record interval to 60 s.
3/12/08	0846	(pt. ~8300 on chart) A-ok. Put in 100:1 gearing.
		Swings of s could be more perfect at this low edot. Cut P(11) back to 0.08; effective LN on time is 18 s w/ no recording.
	1915	Fresh LN tank not fully P'ed, Ts slippin upwards a hair. Drop setpt to 223.0 to 223.5 K for a while, cap motor at V0.03 until things recover.
	2225	T set back to 223.5 K, P(11) back to 0.1215. Effective LN on time w no recording is still 18 s; => P(11) 0.1215 -> 0.08 is not a real change when no recording.
3/13/08	0620	(~11350) Motor speed has been pinned against V0.04 cap half the night. Not logical that 0.5 K has this effect on strength, more likely sensitivity of s gage zero to T. s maintained at ~0.4 mV (~0.5 MPa) below setpt, not that much off. Keep the cap in place, expect that s will soon recover.

	0836		Just happened to be sitting here doing nothing when a spike in s came through at point ~17200. It was not just one reading, but several, well above the setpt, starting ~0.5 mV high (i.e. the magnitude of the first high reading), then drifting down to ~ 0.2 mV high, i.e., back in reasonable range.
	1548		Stop. Start to unload—motor takes off in the wrong direction, rises to ~37.5 mV from ~32.2 mV. Turn around at V2 then V
	1556		57 s after unload. Pist contact 3.7473 V. See some self-loading.
	1601		5:40 after unload. Pist contact 3.7367 V.
	1604		Unloaded s gage at 60 MPa: -0.006635/-0.006618/6626.
	1614		19:30 after unload. Pist contact 3.7337 V.
	1642		47:00 after unload. Pist contact 3.7294 V. Like to observe longer, but gotta move on.
	1645	(1b)	s setpt 24 mV (30 MPa), 223 K, 60 MPa; resume step (1).
	1720		100:1 gearing back in. Need it already.
	1804		Record interval to 60 s.
3/14/08	1645		A-ok. Make radical change of P/I from lowest of low 50/0.000003 to even lower 20/0.000001.
3/15/08	0620		P = 2.93 V; looks like intensifier topped out. Put P setpt to 0 to keep it from cycling. No detectable change in P over 5 mins. Set cap of V0.02 (wish I could do 0.015).
	0641		Go back and look at data—int topped out ~4.5 hrs ag, and rate is slow enough it might be ok to continue for a couple of hrs before calling for rescue. Meanwhile, disp reading is getting too noisy to estimate edot from 12-hr readings. Recorded data say currently 1.1e-8/s.
	0900		P below 2.92 V, might be starting to show. Cut prop from 20 to 5 and limit integral value to 0.01 in order to stay at V0.01 a while longer.
	1112		NAD restrokes. P hit min of ~58.4 MPa.
	1135		Some restroking difficulties, P ranges 2.8 – 3.1 V. Was at 3.11 V for 3-5 min. Now sitting near 2.97. Force record shows expected drop as P comes back to normal; keep prop=5 so that motor stays at V0.01.
	1214		Restroking finally finished. Lift 0.01 int limit back up to 0.02, keep P/I at 5/0.000001 for a while until s climbs a bit closer to the setpt.
	1233		10/0.000001.
	1627		(point 17727) Just about recovered, so cut it loose. Limits back to 0.03; 20/0.000001.
	1840		20/0.000003.
	2021		20/0.000001.

3/16/08	1611	Rats, LN ran dry and hour or so ago, Ts 227-229 and will rise much more before help arrives. P up to 3.00 V. Cap motor at V0.00 to compensate for running V0.03 for too long.
	1648	New LN tank on. Ts 229-231.5 K.
	1746	Superb recovery. Ts coming back. Allow V0.01.
	2115	Pretty well back to normal. Back to regular motor control.
3/17/08	1542	Same deal. LN runs dry. Ts 223-225.5 K. New tank on. Motor speed has been 0 for past ~8 hrs, just rose to 0.03, limit it back to 0.00.
	2225	T long since recovered from that crisis, motor params back to normal. Now T is struggling again with new LN tank, unfortunately. P(11) to .2, hope it doesn't overcool come morning. Decrease limits to V0.01. Somewhat later raise them to 0.02.
3/18/08	0607	P(11) to 0.1215. s finally now way to high, motor dropped to 0, expect it to stay here for a very long time. Set int minimum at 0.003.
	0930	Shake a full 180 L tank so hard it shakes the building, kicks the s gage zero a bit, and also raises the motor contact problem. Hit kill switch.
	1048	s chart record suggests maybe I kicked s gage zero ~0.2 – 0.3 mV higher.
	1554	Stop.
	1607 hrs	Unload. Turn and touch. Piston contact 50 s after unload 3.8345 V. Some self loading.
	1616 hrs	10:15 after unloading. Pist contact: 3.8214 V.
	1622	Unnloaded s gage at 60 MPa; -0.005740/-0.005700/5720.
	1655	48:40 after unloading. Pist contact: 3.8170 V.
	1753	1:47:45 after unloading. Pist contact 3.8253 V. Hold T, let P drift o'nite.
3/19/08	0925	Pisto contact: 3.8169 V. P = 60.0 MPa still, o'nite with V11 closed.

3/11/08 1049 hrs 0.171683"/0.059160 (1)
3/11/08 1118 hrs 0.176384"/0.060780
3/11/08 1213 hrs 0.180265"/0.062117
3/11/08 1756 hrs 0.190079"/0.065499
3/11/08 2037 hrs 0.192618"/0.066375 9.1e-8/s
3/12/08 0618 hrs 0.197154"/0.067937 5e-8/s
3/12/08 1743 hrs 0.200673"/0.069150 3e-8/s
3/13/08 0626 hrs 0.202984"/0.069946

3/13/08 1745 hrs 0.205346"/0.070760 (1b)
3/13/08 2205 hrs 0.208844"/0.071965
3/14/08 0609 hrs 0.211204"/0.072779
3/14/08 1825 hrs 0.213206"/0.073468 1.5e-8/s
3/15/08 0640 1.1e-8/s from record
3/16/08 1200 1.0e-8/s from record