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MEMORANDUM

To: Andrew Ryder
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Date: 1 April 2005

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Rupi Khanuja
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From: Jim Lovekin

Subject: Comments on Recent Surveys of MC-6 and MC-7

Per your request, GeothermEx has reviewed the temperature and pressure surveys of MC-6 (run on 16 March 2005) and MC-7 (run on 15 March 2005), as reported by Scott Brilz of E. S. Kyle. Attached are downhole summary plots for both wells, to facilitate comparison with earlier surveys on the basis of elevation above sea level as well as measured depth.

MC-6

The MC-6 survey shows a new maximum temperature of 258°C on bottom, with a consistent increase of 3°C to 4°C with respect to the survey of 6 February 2005 across the board below the "shoulder" at 800 meters. There remain two inflections in the temperature profile (one at about 1,800-1,900 meters and a second at 2,500 meters), which suggest some permeability at these intervals. The pressure readings from the recent survey appear to have some quality-control problems, probably with respect to how the pressure chart was read. As reported, the data suggest a liquid level that is 200 meters higher than what was indicated in earlier surveys. This is very unlikely, and may simply reflect a 200-meter error in picking the stops on the chart. Further discussion of quality control issues for both surveys is included below.

MC-7

The MC-7 survey shows a new maximum temperature of 243°C at 2,900 meters. The comment by Scott Brilz indicates that temperatures below about 3,000 meters began to decline, though he did not report the lower readings (instead, he assumed constant temperatures of 243°C from 3,000 meters to total depth). Thus, there is a possibility that there is actually a reversal at the bottom of MC-7 — this needs to be verified as soon as possible by re-checking the actual temperature chart. Above 2,900 meters, and extending as high as the "shoulder" at 800 meters, there has been a consistent increase of about 75°C with respect to the previous survey of 7 February 2005. Inflections at 1,000 meters, 1,500 meters, and 2,100 meters suggest some permeability at these depths. Comparing temperatures below the "shoulder" at equal elevations in MC-6, it appears that MC-7 is consistently about 20°C cooler than MC-6. This indicates that MC-7 still has some heating up to do, as one would not expect the temperatures at the 13-3/8-inch casing shoes to be so different. It is interesting to note that the "shoulder" at about

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800 meters (600 meters above sea level) appears to be present in both wells, not just an artifact of fluid circulation around slotted liner in MC-6. With respect to pressures, the MC-7 survey suggests a liquid level at about 500 meters, which is in reasonable agreement with liquid levels of 525-550 meters from earlier surveys. Here again, there are some quality control issues with respect to pressures, to be discussed below.

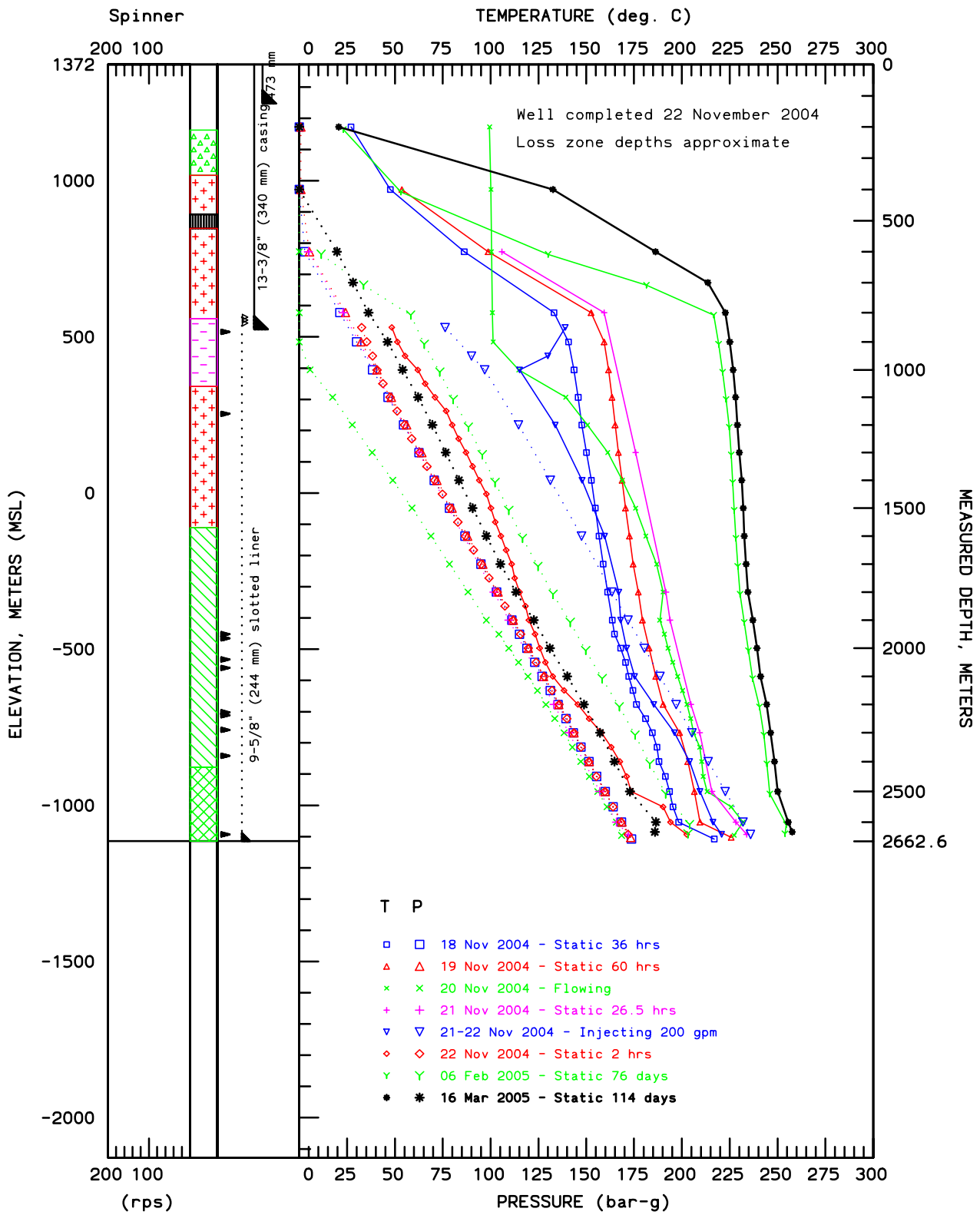
Quality Control

These surveys have provided useful data, but there are several aspects of the reporting that are suspect or just plain wrong. To begin with, the report from Scott Brilz mislabeled the dates of the surveys for MC-7 and MC-6 as the 15th and 16th of May, respectively (instead of March). The pressure readings for MC-6 appear 200 meters off, as discussed above, and most likely reflect confusion over picking the depths of stops on the charts. Moreover, the pressure gradients for both surveys are not as linear as one would expect for a hydrostatic gradient in single-phase liquid, especially below about 2,000 meters in MC-7. The description of decreasing temperatures below 3,000 meters in MC-7 was honest enough, but it would have been much more useful to know the actual recorded temperatures. Also, the temperatures at 400 meters depth in both wells (132.6°C in MC-6 and 119.1°C in MC-7) are unreasonably high for measurements above the liquid level. Even if the high liquid level in MC-6 is real, the reading at 400 meters would be just at the top of the liquid level, where the temperature of boiling water at atmospheric pressure should be more or less 100°C. The anomalous readings at 400 meters in both wells do not inspire confidence in the readings further down in the wells, though the most likely explanation is some misinterpretation of the stabilized point at 400 meters on the chart. Note that if the error were due to not letting the tool equilibrate long enough at 400 meters, one would have expected the reading to be too low (not too high), since the data points were taken running into the hole.

As you and I have discussed by phone, the best way to remove uncertainty in the reported readings for these surveys is to independently look at the original charts using the chart reader that GeothermEx has left at the site. My understanding is that the charts are being sent to you from Challenger Wireline, and that you intend to look at them yourself. That's the most cost-effective and timely solution, since we do not have a second chart reader here. I'd also suggest that you get Challenger to send you the original data-logging sheets for each survey, showing the beginning and ending times for each stop (the E. S. Kyle reports include just a single time per stop and don't say explicitly how long the tool was at each depth). If needed, either Roger, Eduardo, or myself can take another look at the charts when we are next on site, if you want another pair of eyes to see them. Western Geopower may want to consider whether to pay full price for these surveys (or at least for E. S. Kyle's portion of the reporting). It will be easier to make a determination on this point when a re-interpretation of the charts has been done.

Please feel free to call if you want to discuss these surveys further. Best regards.

Downhole summary plot, South Meager well MC-6



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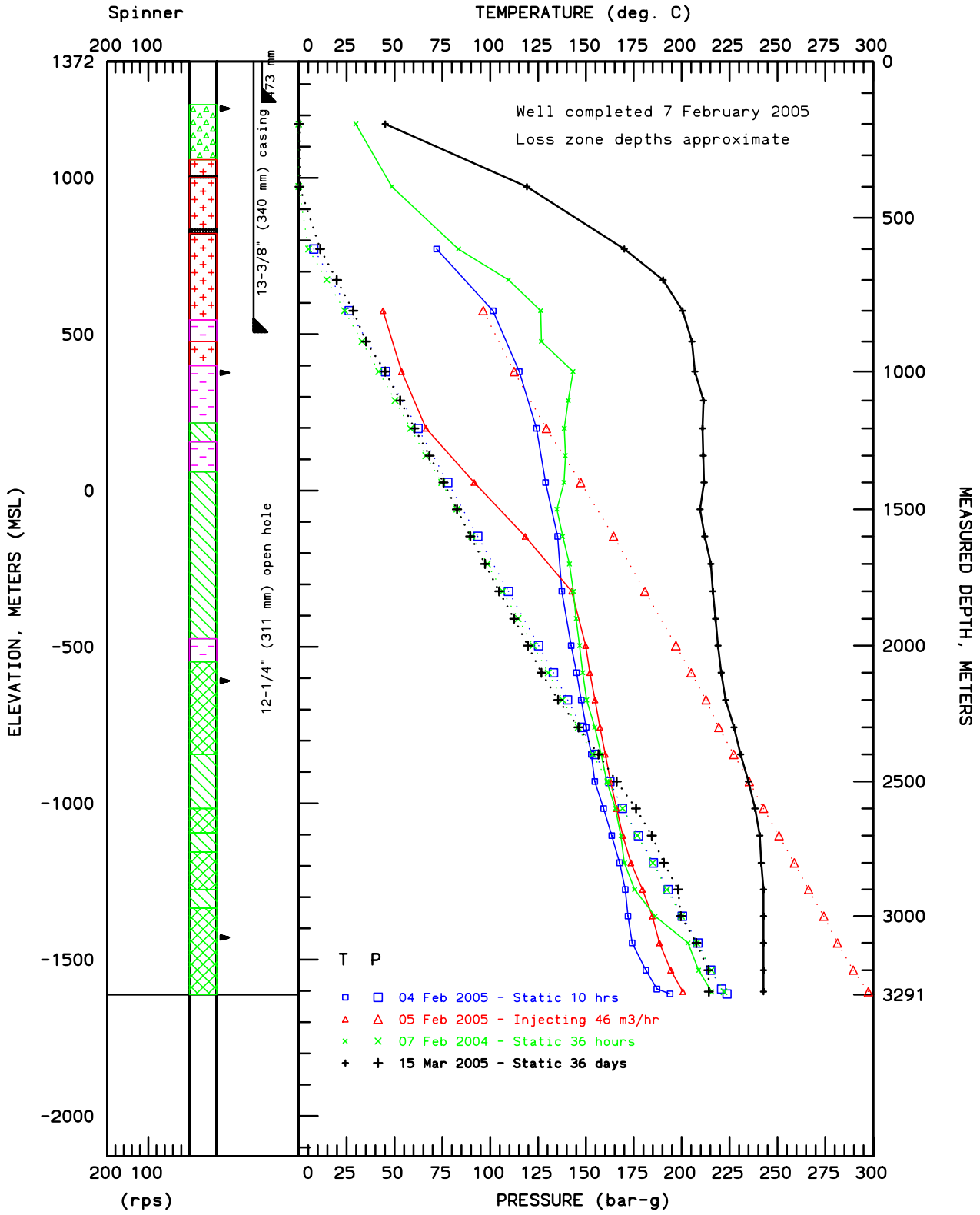
Downhole summary plot, South Meager well MC-7



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