From: William Burch
Sent: Thursday, April 22, 2010 12:13 AM
To: Christopher J. Murphy; Roland Gomez; C Scott Jonner; David W Moody; Kerry L. Girlinghouse; Dicky J. Robichaux
Cc: Engineering; Joe Dean Thompsen; Freddy L. Gebhardt; Pat Campbell
Subject: 042110 - Notes from BP Reservoir/Geology Group (WWCI 2010-116)

Here's the synopsis of the meeting today with Kurt Mix and Reservoir/Geology Group:

Kurt has used the DrillBench Kick module and has looked into blowout flow modeling – in particular for Kasikda riser scenarios. They have looked into several applications and were using something from Sandia National Labs. Since Kurt was familiar with SPT Group and had looked at the OLGA-ABC model as an option, BP bought a license today from SPT Group and Lei Zhou, one of their technicians, came to BP to install on Kurt's laptop. Once in BP, he had Lei help him

Here's what's known at the moment (from a R/G group perspective):

- 2 main sand packages at TD – "a dual lobe model" from 18,066-18,090 ft and 18,120-18,190 ft
- Roughly speaking there's an 11 ft difference between MD and TVD (subtract -11 ft for TVD value.)
- Water depth is 4,992 ft (2,232 psi hydrostatic equivalent) and 75 ft air gap
- Pore pressure measured at 18,086 ft (wireline depth) was 11,841 psi (12.85 ppg EMW) and 18,180 ft (wireline depth) was 11,862 psi. Believed to be in pressure communication and following the same gradient.
- Several small sands identified by TC log from csg shoe to TD:
  - 17,700-17,708: 3 GeoTap pressures taken with pore pressures of 14.15 ppg, 14.16 ppg, and 14.15 ppg
  - 17,802-17,808: MDT pore pressure was 12,308 psi (13.01 ppg EMW)
  - Indicates a pressure regression from csg shoe to TD.
- PI = 50 bbl/d/psi and possibly 55 bbl/d/psi (but the first number is the one there is more faith in and what is used for modeling purposes.)
- GOR = 3000 scf/stb; 3 MDT sample tests showed 3017, 2920, and 2845 scf/stb.
- API crude is reported as 35 deg which seems low for such high GORs.
- TC log shows extremely high resistivity at the sand packages – in fact off scale (>2000 ohm-m) at the bottom sand lobe.

indicating gigantic gaping hole fracture.

- 18,232-18,248 ft – sand package on bottom – considered minor and not analyzed being so close to TD at 18,360 ft.

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