Daily Operational and Science Report
UT-GOM2-2 Coring Expedition
Terrebonne Basin, Gulf of Mexico Outer Continental Slope

1. DATE: 25-August-2023, 0000-2400hr

2. LOCATION:
   2400 hr, 25-August-2023
   Hole: Helix D/V Q4000 was located over Hole UT-GOM2-2-H002
   Last Drill/Core depth: 9222 ft MD RKB
   RKB to Mud line: 6506 ft on Drill pipe measurements
   Water depth: 6454 ft
   Per Datum: 52 ft
   Lat 26°39’44.2229”N, Long 091°40’33.8972”W NAD27 BLM15 Feet

3. DESCRIPTION OF OPERATIONS:

   0000-2400 At Hole UT-GOM2-2-H002
   General Operations/Maintenance: General housekeeping on weather deck and complete daily crane review/report. Offload and backload the M/V Harvey Hermes. Lowered groceries down the galley hatch.
   0000-0055 Continue to POOH (Hole UT-GOM2-2-H002) the PCTB-CS coring tool in order to acquire Core UT-GOM2-2-H002-10CS, which represented the sixth of the planned nine consecutive PCTB-CS pressure core deployments associated with the Orange Sand Coring Campaign.
   0055-0200 Prepare and RIH the PCTB-FB coring tool.
   0200-0300 POOH from depth with PCTB setting tool and RIH the PCTB retrieval tool.
   0300-0330 Acquire Core UT-GOM2-2-H002-11CS, F/9192 - T/9202 ft RKB (2686.0-2696.0 fbsf).
   0330-0830 Attempted to POOH PCTB-CS, unable to pull the PCTB-CS beyond ~200 out of the coring shoe. Recover the PCTB retrieval tool.
   0830-0945 R/D SLB slickline and slip/cut 100 ft wireline. R/U pack off in the TDS and SLB slickline.
   0945-1200 M/U and RIH Geotek Emergency Pulling Tool, at 8826 ft RKB latched into PCTB-CS and attempt to recover tool.
   1200-1300 SLB slickline pulled core barrel free and continued to pull to surface. Placed Core UT-GOM2-2-H002-11CS in ice shuck.
   1300-1700 Prepare and RIH the PCTB-FB coring tool.
   1700-1830 POOH from depth with PCTB setting tool and RIH the PCTB retrieval tool.
   1830-1900 Acquire Core UT-GOM2-2-H002-12CS, F/9202 - T/9212 ft RKB (2696.0-2706.0 fbsf).
   1900-2030 POOH PCTB-CS coring tool and transfer to the Geotek Pressure Core Processing Van.
   2030-2145 Prepare and RIH the PCTB-FB coring tool.
   2145-2300 POOH from depth with PCTB setting tool and RIH the PCTB retrieval tool.
   2300-2330 Acquire Core UT-GOM2-2-H002-13CS, F/9212 - T/9222 ft RKB (2706.0-2716.0 fbsf).
   2330-2400 2030 POOH PCTB-CS coring tool.

4. OPERATIONAL PLAN (Next 24 Hours):

UT-GOM2-2_Daily_Science_Report_08_25_23_Final
After recovering Core UT-GOM2-2-H003-13CS advance the hole by drilling to a depth of 9277 ft RKB and acquire Core UT-GOM2-2-H003-14CS. Next, advance the hole by drilling to a depth of 9322 ft RKB and acquire Cores UT-GOM2-2-H003-15CS and -16CS.

Core UT-GOM2-2-H003-14CS, 2771.0 to 2781.0 fbsf
Core UT-GOM2-2-H003-15CS, 2816 to 2826.0 fbsf
Core UT-GOM2-2-H003-16CS, 2826.0 to 2836.0 fbsf

Orange Sand (and bounding mud) Coring Campaign – End of Program

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<td>H002-11CS End</td>
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<td>2716</td>
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5. DOWNHOLE LOGGING OPERATIONS:
Hole: NA
Wireline Totals (directional): NA

6. CORE OPERATIONS AND DATA:
Hole: Hole UT-GOM2-2-H002
G-APC Coring Totals: NA
G-XCB Coring Totals: NA
PCTB-CS Coring Totals:
Core UT-GOM2-2-H002-11CS: 0.59 ft (5.9% recovery), 4708 psi.
Coring F/ 9192 - T/ 9202 ft RKB at 80 rpm, maintaining 10-12k on bit, CMT pumping 10.5 ppg WBM at 2.0 bpm and 58 psi.
Core UT-GOM2-2-H002-12CS: 8.20 ft (82% recovery), 0 psi.
Coring F/ 9202 - T/ 9212 ft RKB at 80 rpm, maintaining 10-12k on bit, CMT pumping 10.5 ppg WBM at 2.0 bpm and 58 psi.
Core UT-GOM2-2-H002-13CS: NA ft (NA% recovery), 0 psi. (in core receiving)
Coring F/ 9212 - T/ 9222 ft RKB at 80 rpm, maintaining 10-12k on bit, CMT pumping 10.5 ppg WBM at 2.0 bpm and 58 psi.

PCTB-FB Coring Totals: NA

7. DOWNHOLE MEASUREMENTS
   Hole: NA
   Pressure and Temperature Tool Deployment (T2P): NA
   Temperature Tool Deployment (APCT-3): NA

8. SCIENCE ACTIVITIES
The last 24 hours of operations on the Helix D/V Q4000 has dealt with advancing Hole UT-GOM2-2-H002 from a depth of 2686 fbsf (9192 ft RKB) to a total depth of 2716 fbsf (9222 ft RKB) by the deployment of three PCTB-CS pressure cores, marking the end of the Orange Sand Coring Campaign (Figure 1).

In review, the first core recovered today was Core UT-GOM2-2-H002-11CS, which was recovered at a pressure of 4708 psi, and yielded a core section length of only about 0.59 ft. Cores UT-GOM2-2-H002-12CS and -13CS, which targeted the well log inferred mud-rich section at the base of the Orange Sand, were recovered unsealed and not at pressure. However, both cores were nearly filled with sediment, which appeared to be mostly mud rich and contained gas voids.

For the three PCTB-CS cores recovered today, two of the cores were recovered without pressure (Cores UT-GOM2-2-H002-12CS and -13CS). The coring tool DST recorded temperature and pressure histories for the two cores that failed to maintain pressure were examined to assess any performance issues associated with these two core deployments. This analysis focused on the comparison of the PCTB-CS set boost pressure, which was set at 4500 psi for both of these cores, and the calculation of the likely bottom hole pressure conditions. Assuming a total hole depth of 9222 ft RKB and a mud weight of 10.3 ppg, we would expect a downhole static pressure of about 4434 psi, which is near the pre-deployment set boost pressure for the PCTB-CS. It was suggested that the reason for the tool not sealing may be because of the small difference between the core tool set boost pressure and the downhole measured and calculated static pressure. It has been shown in the past that some differential pressure is required to effectively seal the lower ball valve and other seals in the PCTB core system. Thus, a plan was developed and reviewed to raise the boost pressure for the next PCTB-CS deployment to a targeted pressure of 5200 psi. Because of the operational requirement to drill down to the core depth of 9277 ft RKB (Core UT-GOM2-2-H002-14CS), we do not expect to acquire this core until early on the afternoon of 26-AUG-23.

The Scientific Party is working on finalizing the writing assignments in support of the hole section descriptions in the Expedition Report and processing samples and data that have been collected during the expedition.

There have been no new COVID cases on the Q4000 in the last eleven days.

9. ACRONYMS
   bpm     Barrels per minute
   Fish    The object to be recovered from the borehole/BHA
   gpm     Gallons per minute
   M/U     Make up
   PCATS   Pressure Core Analysis and Transfer System
   PCTB-CS Pressure coring tool with ball-cutting shoe version.
   POOH    Pull out of hole
   psi     Pounds per square inch
<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>P/U</td>
<td>Pick up</td>
</tr>
<tr>
<td>RIH</td>
<td>Run in hole</td>
</tr>
<tr>
<td>RKB</td>
<td>Depth measured from the rig floor</td>
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<tr>
<td>rpm</td>
<td>Revolutions per minute</td>
</tr>
<tr>
<td>R/U</td>
<td>Rig up</td>
</tr>
<tr>
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<td>Schlumberger</td>
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<td>Slickline</td>
<td>Wireline used to deploy and recover core, etc.</td>
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<tr>
<td>TD</td>
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<tr>
<td>TDS</td>
<td>Top drive system</td>
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<tr>
<td>WOB</td>
<td>Weight on bit</td>
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</table>
Figure 1: Core recovery plot for the UT-GOM2-2-H002 well as of 24:00 hr 25-AUG-2023. 'PCTB-FB' records core recovered by the face bit version of the Pressure Coring Tool with Ball (PCTB).