

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

1. DATE: 10-August-2023, 0000-2400hr

2. LOCATION:

2400 hr, 09-August-2023

Hole: *Helix D/V Q4000* was located over the location of Hole UT-GOM2-2-H003

Last Drill/Core depth: 7015 ft RKB

RKB to Mud line: 6506 ft on Drill pipe measurements

Water depth: 6454 ft (updated 05-AUG-2023)

Per Datum: 52 ft

Lat 26°39'46.50488"N, Long 091°40'33.82464"W

3. DESCRIPTION OF OPERATIONS:

0000-2400 At Hole UT-GOM2-2-H003

0000-0030 POOH Core **UT-GOM2-2-H003-22H** (continuation from 10-August-2022)

0030-0100 Transfer core to the Geotek Core Processing Van

0100-0130 Drill out cored section to 449 fbsf

0130-0230 Prepare and RIH the G-APC coring tool

0230-0300 Acquire Core **UT-GOM2-2-H003-23H**, 449.0 to 474.0 fbsf

0300-0400 POOH G-APC coring tool and transfer to the Geotek Core Processing Van

0400-0500 Drill out cored section to 474 fbsf

0500-0730 RIH PCTB-CS

0730-0800 Acquire Core **UT-GOM2-2-H003-24CS**, 474.0 to 484.0 fbsf

0800-0815 POOH PCTB-CS and transfer to the Geotek Pressure Core Processing Van

0815-0900 Prepare and RIH the G-APC coring tool

0900-0905 Acquire Core **UT-GOM2-2-H003-25H**, 484.0 to 509.0 fbsf

0905-0945 POOH G-APC coring tool with APTC-3 and transfer to the Geotek Core Processing Van

0945-1100 Drill out cored section to 509 fbsf

1100-1130 Circulate and condition hole

1130-1200 Trouble Shoot TDS -- shutting down while rotating

1200-1215 Found blower motor not working

1215-1545 Condition hole and remove blower

1545-2400 Monitor well while circulating/conditioning and reciprocating

4. OPERATIONAL PLAN (Next 24 Hours):

Continuing to conduct repairs on the TDS, while circulating/conditioning and reciprocating the drill string.

5. DOWNHOLE LOGGING OPERATIONS:

Hole: NA

Wireline Totals (directional): NA

6. CORE OPERATIONS AND DATA:

Hole: UT-GOM2-2-H003

G-APC Coring Totals:

Core UT-GOM2-2-H003-022H: 23.8 ft recovered core (95% recovery)

Core UT-GOM2-2-H003-023H: 29.0 ft recovered core (116% recovery)

Core UT-GOM2-2-H003-025H: 34.3 ft recovered core (137% recovery)

G-XCB Coring Totals: NA

PCTB-CS Coring Totals:

Core UT-GOM2-2-H003-24CS: 11.4 ft (114% recovery), 3091 psi

Coring F 6980 ft – T 6990 ft (RKB) at 60 rpm w/ 2-4 K torque circulating 8.6 ppg SW at 2 bpm w/ 200 psi standpipe. Maintaining 4-5K on bit.

PCTB-FB Coring Totals: NA

7. DOWNHOLE MEASUREMENTS

Hole: UT-GOM2-2-H003

Pressure and Temperature Tool Deployment (T2P): NA

Temperature Tool Deployment (APCT-3):

Core UT-GOM2-2-H003-025H – 10 min dwell time

8. SCIENCE ACTIVITIES

Scientific coring operations over the last 24-hours focused on advancing Hole UT-GOM2-2-H003 from a depth of 449 fbsf (6955 ft RKB) to a total depth of 509 fbsf (7015 ft RKB) by the deployment of three conventional piston cores (G-APC) and one pressure core (PCTB-CS). This combination of cores targeted a mud-rich section with the goal to further characterize the methane solubility profile within the upper stratigraphic section at the site of Hole UT-GOM2-2-H003.

One of the critical operational concerns associated with coring Hole UT-GOM2-2-H003 was the determination of the depth where the hole could no longer be safely advanced with piston style G-APC cores and the need to switch over to rotary style G-XCB coring operations. The first evidence of significant challenges associated with the G-APC coring operations was observed in Core UT-GOM2-2-H003-022H where the core contained numerous gas voids and a partially collapsed core liner. Core UT-GOM2-2-H003-022H was also expansive in nature with numerous gas voids. Core UT-GOM2-2-H003-025H marked the end of G-APC operations in Hole UT-GOM2-2-H003 where the core was again expansive throughout, exhibiting evidence of possible inflow of sediment debris into the core barrel, and the core liner proved to be very difficult to remove from the inner core barrel. The decision was made to switch from the G-APC to the G-XCB coring systems to further advance the conventional coring operations in Hole UT-GOM2-2-H003.

Repairs to the shipboard Geotek PCATS pressure core analysis system allowed the processing of the Core UT-GOM2-2-H003-19CS that was recovered on 09-AUG-2023. At the time of this report, Core UT-GOM2-2-H003-24CS was being processed through PCATS. Additional PCTB-CS acquired pressure core samples as obtained earlier in the expedition have also been transferred to the Geotek degassing van for quantitatively degassed in order to further define the dissolved methane concentration profile at the site of Hole UT-GOM2-2-H003.

After recovering Core UT-GOM2-2-H003-025H and while drilling the “rathole” section from 6990 ft RKB to 7015 ft RKB, it was discovered by Helix that the Top Drive System (TDS) was showing a “high temperature alarm” for the drill motor. Operations were halted and the crews began troubleshooting. We were able to continue circulating and reciprocating the pipe. The maintenance team discovered that the blower motor (cooling fan motor) for the drill motor had grounded. Helix did not have a spare motor onboard the Q4000. The plan is to take the blower motor to shore and repair it as rapidly as possible. The

Harvey Hermes Supply Vessel departed WR 313 with the blower motor from the Q4000 at 2220 hr, 08-AUG-23, en route HGIM dock, Port Fourchon, with an ETA 1630, 11-AUG-23.

The Q4000 is now on “Vessel, ROV & Tubular Downtime. It is estimated that the repairs to the ship will be completed in 36 to 48 hours (e.g., between 1200 hr and 2400 hr on 12-AUG-23). The SLB wireline has been rigged down and a night cap installed. We laid down a single length of drill pipe to get off bottom and are currently circulating the hole and reciprocating the pipe. We are in a good position regarding well control, at a depth ~500 fbsf below the mud-line and still able to circulate and reciprocate. The Q4000 ROV’s are monitoring wellhead at the seafloor.

This afternoon, two members of the UT-GOM2-2 Science Party and an additional Helix crew member tested positive for COVID; all of the affected individuals have been quarantined where they will remain for the next five days until cleared by the vessel’s medic. The Q4000 has been placed under Helix prescribed COVID protocols that include social distancing requirements and a rotational meal schedule to reduce the possibility of potential exposure.

The Scientific Party continued to work on writing both the “Methods” and “Hole H003” results chapters for the Expedition Report.

9. ACRONYMS

bpm	Barrels per minute
Fish	The object to be recovered from the borehole/BHA
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
RIH	Run in hole
RKB	Depth measured from the rig floor
SLB	Schlumberger
Slickline	Wireline used to deploy and recover core, etc.
TD	Total depth
TDS	Top drive system