

Chikyu DAILY MORNING REPORT

Mission No. : CK18-04 Exp. No. : Exp 358

Report No. : 93

Site Name C0002 Hole Name C0002R Lat. 33° 18.0507'N Long. 136° 38.2029'E Seabed Depth : 1,967.5 mBRT RT-MSL : 28.5 m Report Date : 8/Jan/2019

Depth : @24:00 4,843.0 mBRT 2875.5 mbsf Progress : 9.0 m Drilling/Coring/Underreaming Hrs. : 3.25 hrs Last BOP PT: 1/5/19 Next BOP PT: 1/26/19

Depth : @06:00 5,052.0 mBRT 3084.5 mbsf LAST CASING : 11-3/4" x 2,922.50 mbsf( 4,890.0 mBRT) Last BOP FT: 1/5/19 Next BOP FT: 1/12/19

Summary of Operation on 7-Jan : RIH to 4,744mBRT. Wash/Ream down to 4,841mBRT. Activate Z-Reamer. Drill down from 4,834mBRT to 4,843mBRT. Last Glycol 35gal Inj. 1/11/19

Present Operation @ 06:00 on 8-Jan : Anti-jam procedure for LWD tool. Cont. Drill down to 4,854mBRT. mBRT: meter below rotary table mbsf: meter below sea floor

Time Breakdown ( 00:00 - 24:00 on 7-Jan ) Detail of Operation

0:00 0:15 0:15 RR Continue to troubleshoot for dolly. Conduct function test of dolly. Decide not to use extend/retract function for pipe tripping as much as possible (Use extend/retract function by manual if necessary). Because Dolly which is in "retract" position cannot stop extending by removing the rupture valve when Dolly extends accidentally.

0:15 5:30 5:15 TRIP Resume RIH 8-1/2" x 12-1/4" LWD BHA from 1,932mBRT to 3,953mBRT. Fill up every 15 stands. Tripping speed (RIH) would not be much affected by Dolly issue. Sensor offset from bit. Break circulation and check pressure: 400gpm x 10.9MPa, 450gpm x 14.0MPa, 500gpm x 16.4MPa. Resistivity 4.316 m

5:30 6:15 0:45 TRIP Perform LWD function test at 3,953mBRT. Pump w/Sync mode: 450gpm x 14.4MPa (NG), 500gpm x 17.4MPa (NG), 550gpm x 20.6MPa (NG) GR 4.367 m Try 500gpm, 475gpm and 450gpm again and wait for stabilizing pump: 500gpm (OK), 475MPa (OK), 450gpm (OK). IWOB 8.384 m D+I 11.749 m

6:15 6:30 0:15 OTHER Perform Z-Reamer function check at 3,953mBRT. Rotate string w/5rpm & w/o pumping: Confirm string rotates (5rpm x 5kNm). Rotate string w/5rpm & 600gpm and 700gpm: Confirm string rotates (5rpm x 5.5kNm and 6.0kNm). Confirm Z-Reamer cutter block is not opened.

6:30 9:45 3:15 TRIP Resume RIH 8-1/2" x 12-1/4" LWD BHA from 3,953mBRT to 4,744mBRT. Take SCR. MP#1: 100-150-200gpm x 390-480-550psi, MP#2: 100-150-200gpm x 370-430-550psi. Take parameters: Free rotating torque: 60 - 100 - 120rpm x 15 - 18 - 18.5kNm. Pump pressure: 400 - 450 - 500 - 550 - 600 - 650 - 700gpm x 12.3 - 14.9 - 18.0 - 20.9 - 24.5 - 27.8 - 32.3MPa. PU / SO weight: 2,870kN / 2,720kN (w/o pumping and rotating), 2,890kN / 2,720kN (w/600gpm), 2,820kN / 2,760kN (w/60rpm and 600gpm)

9:45 19:45 10:00 W&R 4,841.0 Wash and ream down from 4,744mBRT to 4,841mBRT. (10:00-11:00) Attempt to wash down w/550gpm x 21.0MPa from 4,744mBRT, but observe taking weight of 44kN at 4,762mBRT. Rotate string with 30rpm x 10-13kNm, and attempt to ream down to 4,762mBRT, but observe taking weight of 40kN and string stalled. Increase HPS speed to 60rpm x 12-16kNm and attempt to pass bit, but HPS stalled. Reduce pump rate to 400gpm x 12.2MPa and HPS speed to 5rpm x 7kNm, but fail to pass bit by stalling HPS and increasing WOB to 65kN. Increase HPS speed to 80rpm x 14-17kNm and attempt to pass bit. Bit can pass through the window once HPS almost stalled. Roller cone bit can pass through window w/o any problem at last BHA, but there is an obstacle to catch PDC bit at the bottom of window. Continue to ream down from 4,762mBRT to 4,786mBRT. WOB 0-10kN, 400gpm x 11.7MPa, 30rpm x 10-12kNm. (11:00-11:45) Prepare NSD stand at Aux well. (11:45-12:30) Wash down from 4,783mBRT to 4,796.5mBRT. WOB: 0-80kN, 550gpm x 20.4MPa. Ream down from 4,796.5mBRT to 4,826mBRT. WOB: 0-40kN, 550gpm x 20.8MPa, 30rpm x 11-16kNm. Observe torque fluctuation (30rpm x 10-20kNm) from 4,800mBRT to 4,815mBRT and high torque of 26.5kNm at 4,809.5mBRT. (12:30-13:00) Prepare NSD stand at Aux well. Take survey at 4,822mBRT. (13:00-14:15) Ream down from 4,826mBRT to 4,840mBRT. WOB: 30-60kN, 600gpm x 25.1MPa, 100rpm x 10-20kN. Take weight and HPS torque fluctuate from 4,836mBRT. (14:15-14:45) Take survey at 4,838mBRT and calibrate down hole tool. (14:15-19:45) Ream down from 4,840mBRT to 4,841mBRT. WOB: 0-60kN, 400-600gpm x 12.5-25.0MPa, 15-100rpm x 16-30kN. Attempt to locate original hole, but unable to enter the hole. Take survey at 4,838mBRT again, and confirm inclination was decreasing trend. Make decision to open Z-reamer and ream / drill down 8-1/2"x12-1/4" hole from 4,834mBRT to 4880mBRT (Bit depth)

19:45 20:45 1:00 OTHER 4,841.0 Activate Z-Reamer at 4,834mBRT (Bit Depth) Check PU/SO weight: 2,875kN / 2,820kN, Free rotation torque: 60, 100, 120rpm x 14, 16, 17kNm Drop ball and chase pumping w/ 500gpm x 17.5MPa and 10rpm x 13-17kNm (10min) After chase w/10min, stop pump for 15min. Resume pumping with 100gpm. Then confirm ball landing onto Z-Reamer by pressure increase to 8.9MPa Increase pump rate to 150gpm x 10.5MPa and confirm shear the shear pin by pressure drop to 3.4MPa Pump w/600gpm x 23.2MPa (pressure before activate: 25.5MPa). No clear torque of blade opening indication due to enlarged hole.

20:45 24:00 3:15 DRL 4,843.0 Drill 8-1/2" x 12-1/4" hole from 4,834mBRT to 4,843mBRT. WOB: 20-90kN, HPS: 80-150rpm x 14-16kNm, MP: 600gpm x 23.3MPa. Downhole WOB: 30-130kN, Downhole torque: 0-3.3kNm, ECD: 1.436sg Survey data (Depth: Telescope sensor depth) Depth (mBRT) Inc (deg) Azi (deg) 4,810.46 2.33 160.16 4,827.23 3.01 148.57 4,827.50 2.64 160.63

No losses in last 24 hours. Ditch magnet: 4.5kg (Total 104kg for Kick off hole)

Time Breakdown (00:00 - 06:00 on 8-Jan) \* The data on 00:00 - 06:00 is unofficial. Detail of Operation

0:00 1:30 1:30 LOG(N) 4,843.0 Perform Anti-Jam procedure because signal detect the jam at modulator in Telescope. Observe jam count shows "3" in LWD signal, and attempt cycle pump with 300gpm and 600gpm: Jam count does not recover. Perform Anti-Jam procedure. Step up pumping rate from 200-300-400-500-600gpm with 2-4mins interval: Jam count still does not recover and observe weak signal sometimes. Step down pumping rate from 600-550-450-350-250gpm with 3-4mins interval: Same results as above. Attempt to shut off pump with 10sec and start pumping 600gpm and 700gpm: Fail to receive the signal from LWD. Downlink of data acquisition interval from 8bps to 6bps. Receive good signal from LWD: Change DWOB and DTOR data intervals from 5sec to 6.6sec. APWD is from 15sec to 20sec. Resistivity & Gamma ray are 45sec to 60sec. Signal noise level is reduced by changing to 6bps mode

1:30 2:00 0:30 LOG(N) 4,843.0 Drill 8-1/2" x 12-1/4" hole from 4,834mBRT to 4,854mBRT. WOB: 70-90kN, HPS: 150rpm x 15-20kNm, MP: 600gpm x 22.5MPa. Downhole WOB: 100-160kN, Downhole torque: 0-4.5kNm, ECD: 1.433-1.438sg Pump 3m3 of 12ppb Fracseal every 1 hour. Take a survey at 4,852mBRT. Calibrate DWOB and DTOR. Survey data (Depth: Telescope sensor depth) Depth (mBRT) Inc (deg) Azi (deg) 4,839.85 3.18 130.85

2:00 6:00 4:00 DRL 4,854.0

Bit Record @24:00

Table with columns: Bit No., Size (in), MFR, Type, IADC Code, S/No., Nozzles, Depth (mBRT), Meter-age, Hrs., WOB (kN), rpm, Total Rev., ROP (m/hr), Dull Condition (Inner, Outer, Dull, Loc, B, G, O.D., RP)

BHA Record @24:00

Table with columns: Hook Wt. (knt) @24:00, Hook Load, BHA, Below HWDP, below Jar, HPS & Traveling block, Hook + RRT, Hook block, Jar Rotating time 24/S/N: 1760-2111, Today 11.35 Total 81.85 hrs, Cutting skip @24:00, Empty, Full, Total

Mud Properties @24:00

Table with columns: Mud Type, Time, Depth (mBRT), MW, VIS, PV, YV, 6rpm, Gel St. (10", 10'), API, Cake, pH, PF, Cl-, Sand, Oil, Solid, MBC, Temp (In, Out), K+, n, K, LGS, FIT 20/40 (mm) 0 min, 5 min

Mud Pumps - 14-P-220 5.00 gallon/stroke @97%

Table with columns: No., Liner Size, SPM, GPM, Press. (MPa), Ann. Vel. (m/min)

Personnel @24:00

Table with columns: CDEX, MQJ Crew, MWJ, Scientist

Mud Materials on Board @24:00hrs (unit: kg)

Table with columns: Item, Received, Used, Stock

Geologic Information @24:00

Table with columns: From, To, Lithology of cuttings

Shale Shaker / Centrifuge @24:00

Table with columns: No., 30, 170, No.4, 30, 170, #1-#3 Centrifuge running time

Materials Stock on Board @24:00

Table with columns: Item, Unit, Stock, Used, Received

Mud volume @24:00

Table with columns: Mud Volume (m3), KNPP mud (1.39), 326, KNPP (Fracseal), 168, KNPP (BAROLIFT), 50, KNP mud (1.25), 18, KNP mud (1.13), 174, STOPLOSS(1.37), 54, Slug mud, 9, total, 799

Boat Information @24:00

Table with columns: Boat Name, Status, Time @Chikyu (Departed, Arrived)

Weather Information

Table with columns: Time, Weather, Temp. (degC), Barometer, Wind (Air, SW), Speed (m/s), Dir. (deg), Gust (m/s), Height (m), Dir. (deg), Period (s), Current (Speed(knt), Dir. (deg)), Visibility (km)

Today's Schedule: Cont. Drill down 8-1/2"x12-1/4"hole to 4,880mBRT. Ream tight spot @4840mBRT with UR. Try to reenter tight spot at 4840mBRT with Bit.

Reported by : T. Yokoyama / T.Nishiyama Approved by : T.Saruhashi