DEPLOYMENT LOG for IceCube STRING # 57

Deployment Start: *at* 6:55 am *on* 1/20/07

Deployment End: *at* 6:46pm *on* 1/20/07

Target depth (DOM60): **2450** m Final depth: 2452.3

Deployment Crew

AURA

Position	First Shift	~~Second Shift~~
Shift lead	Tom Ham	Tom Ham, A. Karle
DOM install 1 (high)	Jim Latshaw	Ken Ratzlaff
DOM install 2 (low)	Rod Mattison	Hagar Landsman
DOM supply 1 / DOM install 3	Sven Lidstrom	Darryn Blythe
DOM supply 2 / floater	Greg Sullivan	Keith Beattie
Winch operator (cable & tower)	Dave Pernick	
Notary (logbook & photos)	Justin Vandenbroucke	J. Vandenbroucke
PTS (monitoring / sensors)		
Support (optional) Bubble cam	Michelangelo D'Agostino	M. D'Agostino

Time of shift change:

Summary/Comments:

Day "The Machine" Shift

3 drill 1 drill

2245 – 2295

Hole Handover

☒ Drill data reviewed

- ☐ maximum drift in x: ? ☐ plot
- ☐ maximum drift in y: ? ☐ plot
- ☐ maximum depth: 2480 m
- ☐ minimum radius: ~~2480 m~~ 53 DUT ☐ plot
- ☐ plot of predicted radius vs depth and time

☐ Hole dimensions verified Time: 6:39 AM

Drill Lead: _____
name / signature / date

Deployment Lead: Tom Hurley Tom Hurley 1/19/07
name / signature / date

☐ Handover complete

Hole Logging
(skip if not applicable)

☐ Logger drop started Time:_____ Spee
☐ Logging started Time:_____ Spee
☐ Logging ended Time:_____

☐ Estimated hole lifetime:_____

▶ Must reach target depth by _____

Need trivia for Bubbell + Kalle

4:35 am: hot water flow stopped last night

Deployment Startup

☒ E-stops tested Time: 6:55 am

☒ Cable winch anchored and ☒ operational
☒ Tower winch operational
☒ Tie off verified
☒ Yellow rope verified

☒ Deployment monitoring system (PTS) operational ☒ DDB# 64
☒ Pressure sensors on hand: Paro and Keller, with backups
☒ Laser ranger, tape measure (metric) on hand

☒ Bleeder string installed (on quad connectors inside cable reel drum)

~~☐ Uphole pressure system on hand: Setra sensor and cable~~

☒ DOMs placed in racks
☒ Weight stack on hand: weights (5) and 2 m cable
☒ 17 m string extension steel cable on hand

Safety checks complete (☐ 1st shift ☐ 2nd shift)
☒ ☐ Crew safety briefing
☒ ☐ E-stop locations identified
☒ ☐ TOS evacuation procedures reviewed
☒ ☐ Mustering point identified
☒ ☐ Snow mobile driver(s): _____
☒ ☐ CPR trained: Rod Tom Sven Jim Dave
~~☐ ☐ Food runners:~~ _____
call galley at 65521

☒ End of Main Cable brought into TOS and secured

Cable end attachments

☒ Measure well depth: NA see above
☒ Weights (5) attached
☒ Weight cable attached (weight stack complete) Time: ~7:15

connection of Bubble cams

Bubble Cam attachment went very well thanks to

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 60 excellent work by M. DOM id: TP GP1227
(T, Long) D'Agostino. BC was connected directly to readout before winch placed + cable brought in. 15 min. video recorded inc. *

☒ Bottom shackle connected to weight stack Payout: (17 m cable)
☒ Top shackle connected to 17 m steel cable
Photos: ☒ whole view (Long delay moving winch into place, getting it operational. B

DOM position 59 DOM id: UP 5H0200
(U, Short) Cable mark: -6.82 Station
Payout Zeroed, [illegible], when DOM59 @ floor
☒ ~~Bottom shackle connected to 17 m cable~~
☒ Top shackle connected to Yale grip Δ(59-60): 17.4 (use laser ranger)
☒ Main cable end taped to 17 m steel cable double checked
Photos: ☒ phi orientation ☒ whole view

* Shift head Ham's hat enters hole, 8:50 am.

Breakout 30 Time: 9:17
Observed floating on water surface. Depth:
- LongDOM will be recorded by Bubble cam. Payout
  - ☒ connector O-ring in place and ☒ lubed (1 6 Pack) x (8 observers)
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☒ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

Paro Serial #: 104660 Nipple ☒ on ☐ off
☒ Connected ☒ Operational ☒ Air pressure [PSI]: 9.47
☐ Cable mark: NK ☒ Distance to DOM59: 1.46 + 17.4 = 18.9

☒ All clear to lower cable ☺

* attachment of DOM 60 w/ DV signatures

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short) AP

DOM position 58 DOM id: TP _____

(T, Long) Cable mark: 1 13

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(58-59): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 57 DOM id: UP SH0130

(U, Short) Cable mark: 29

☒ Bottom shackle c
☒ Top clutch co 8 Δ(57-58): 16.9
☒ Bow OK
Photos:

Serial # 12701

Brea Time:

Now 9:31
Last b/o _____
Δt [min] _____

- Longl
  - ☒ coni ed
  - ~~☐ breako ubed~~
  - ☒ connecte

Depth:
Paro 9.79
Payout -31.9

- ShortDOM
  - ☒ connector O-ri g in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

710 lbs load

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 56 DOM id: TP 6Y4281

(T, Long) Cable mark: 46.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(56-57): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 55 DOM id: UP 54022b

(U, Short) Cable mark: 63.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(55-56): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 28

Time:
Now 9:39
Last b/o
Δt [min]

Depth:
Paro 97
Payout −92

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ? ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ? ☒ connected

☒ Loose pigtails taped to cable

c.m's
59 C ~-4
60 C ~-21

67
+17 = 84

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 54

DOM id: TP 5H0221

(T, Long) Cable mark: 80

☒ Bottom shackle connected
☒ Top clutch connected at link #_____
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 53

(U, Short) Cable mark: 97

☒ Bottom shackle connected
☐ Top clutch connected at link #_____
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 27

Time:

Now 9:45
Last b/o _____
Δt [min] _____

Depth:

Paro 129.20
Payout -92

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

775 load

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 52 DOM id: TP ~~[illegible]~~ 6Y4477

(T, Long) Cable mark: 114.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(52-53): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 51 DOM id: UP SH0212

(U, Short) Cable mark: 131

☒ Bottom shackle connected
☒ Top clutch connected at link # 69 Δ(51-52): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 26 Time:

Now 9:53
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☒ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

Depth:
Paro 163.30
Payout -120.2

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

~~796~~
797

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 50 DOM id: TP 5H0217

(T, Long) Cable mark: 148 AP

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(50-51): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view
~~☐ Curved distance around DOM: ☐ Vertical distance:~~ later

DOM position 49 DOM id: UP 5H0182

(U, Short) Cable mark: 165

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(49-50): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view
~~☐ Curved distance around DOM: ☐ Vertical distance:~~

Breakout 25

Time:
Now 10:02
Last b/o
Δt [min]
Depth:
Paro 198
Payout -149.5

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

840 load

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 48 DOM id: TP 6Y4309

(T, Long) Cable mark: 182

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(48-49): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 47 DOM id: UP 6H7512

(U, Short) Cable mark: 199

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(47-48): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 24 Time:

Now 10:11
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 232
Payout ~~192.5~~

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

913 load

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 46 DOM id: TP 5H0205

(T, Long) Cable mark: 246

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(46-47): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 45 DOM id: UP 5H0208

(U, Short) Cable mark: 233

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(45-46): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

added 18.9 (was 0) as Δ(DOM60 − Paro)

Breakout 23

Time:
Now 10:18
Last b/o
Δt [min]

Depth:
Paro 285.32
Payout −205.66

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

884 load

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 44 DOM id: TP 6Y4243

(T, Long) Cable mark: 250

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(44-45): 16.8
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 43 DOM id: UP 5H0246

(U, Short) Cable mark: 266

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(43-44): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 22

Time:
Now 10:26
Last b/o
Δt [min]
Depth:
Paro 319.6
Payout -92.51?

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place~~ and ☐ lubed
  - ☐ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and~~ ☐ lubed
  - ☐ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 42 DOM id: TP 5H0153

(T, Long) Cable mark: 284

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(42-43): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 41 DOM id: UP 5H0152

(U, Short) Cable mark: 300

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(41-42): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 21

Time:
Now 10:35
Last b/o
Δt [min]
Depth:
Paro 354
Payout -264

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 40 DOM id: TP 6Y4237

(T, Long) Cable mark: 318

☒ Bottom shackle connected
☒ Top clutch connected at link # 7 Δ(40-41): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 39 DOM id: UP 5H0126

(U, Short) Cable mark: 334

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(39-40): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☐ whole view

Breakout 20

Time:
Now 10:43
Last b/o
Δt [min]
Depth:
Paro 390
Payout -293

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

☒ Loose pigtails taped to cable

☑ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 36 ~~36~~ 38 DOM id: TP ~~[illegible]~~ 5H0105
(T, Long) Cable mark: 352

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(36-37): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☐ whole view

DOM position 35 ~~35~~ 37 DOM id: UP 5H0194
(U, Short) Cable mark: 368

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(35-36): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 18 ~~18~~ 19 Time:

Now 10:50
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

Depth:
Paro 424
Payout ~~[illegible]~~ 324

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

☒ Loose pigtails taped to cable

☒ Put two Kellers (one is for backup) in bucket of water/ice mix

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position ~~34~~ 36 DOM id: TP 6Y4421
(T, Long) Cable mark: 385

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(34-35): ~~16.9~~ 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position ~~33~~ 35 DOM id: UP 5H0114
(U, Short) Cable mark: 402.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(33-34): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout ~~17~~ 18 Time:

Now 10:59
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 474
Payout −370

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position ~~32~~ 34 DOM id: TP 6Y9251

(T, Long) Cable mark: 419

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(32-33): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☒ whole view

DOM position ~~31~~ 33 DOM id: UP 6P1262

(U, Short) Cable mark: 436

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(31-32): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☐ whole view

Breakout ~~16~~ 17 31: broken connector taped no photo

Time:

Now 11:04
Last b/o
Δt [min]

Depth:

Paro 491.6
Payout ~~-357.98~~

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

1130 load

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 38 32 DOM id: TP 6P1472

(T, Long) Cable mark: 453

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(38-39): 16.9
☒ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 37 31 DOM id: UP 6Y4232

(U, Short) Cable mark: 476

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(37-38): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 19

Time:
Now 11:17
Last b/o
Δt [min]
Depth:
Paro 528
Payout -420

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 30 DOM id: TP 6Y4347

(T, Long) Cable mark: 487 6Y4349

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(30-31): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 29 DOM id: UP 6Y4424

(U, Short) Cable mark: 504

☒ Bottom shackle connected
☐ Top clutch connected at link # 19 Δ(29-30): 17.0
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 15 Time:

Now 11:26
Last b/o
Δt [min]
Depth:
Paro
Payout

- LongDOM
  - ☐ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☐ connected
- ShortDOM
  - ☐ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☐ connected

☐ Loose pigtails taped to cable

Thermistor ☒ Present ☒ Distance to DOM29: ≈50 cm −4.19

Keller ☒ Connected ☒ Operational ☐ Air pressure [PSI]: 660 psi ?!
Ser.#: 0606737 ☒ Cable mark: ☒ Distance to DOM29: 1.7

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 28 DOM id: TP 6Y4401

(T, Long) Cable mark: 521

☒ Bottom shackle connected
☒ Top clutch connected at link # ? Δ(28-29): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☒ whole view

DOM position 27 DOM id: UP 6Y4244

(U, Short) Cable mark: 538

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(27-28): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 14 Time:

Now 11:36
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 598
Keller -376
Payout -478

☒ Loose pigtails taped to cable

lunch break

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 26 DOM id: TP 6H7515

(T, Long) Cable mark: 554.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(26-27): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 25 DOM id: UP 6Y4396

(U, Short) Cable mark: 571.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(25-26): 16.5
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 13 Time:

Now 1:02
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 630.18
Keller −365.88
Payout −505

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☐ short); connectors (☐ long ☐ short)

DOM position 24 DOM id: TP 5H0103

(T, Long) Cable mark: 589

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(24-25): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 23 DOM id: UP 6P1206

(U, Short) Cable mark: 0605

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(23-24): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 12

Time:
Now 1:11
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 664
Keller 198
Payout -532

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 22 DOM id: TP 5H0129

(T, Long) Cable mark: 623

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(22-23): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 21 DOM id: UP 6Y4416

(U, Short) Cable mark: 639

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(21-22): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 11 Time:

Now 1:17
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 698
Keller 232
Payout −558

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 20 DOM id: TP 6Y4271

(T, Long) Cable mark: 656

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(20-21): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view
~~☒ Curved distance around DOM: ☐ Vertical distance:~~

DOM position 19 DOM id: UP 6Y4284

(U, Short) Cable mark: 673.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(19-20): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view
~~☒ Curved distance around DOM: ☐ Vertical distance:~~

Breakout 10 Time:

Now 1:24
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 733.14
fixed offset → Keller 733.24
Payout −584

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 18 DOM id: TP 5H0185

(T, Long) Cable mark: 690

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(18-19): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 17 DOM id: UP 6Y4422

(U, Short) Cable mark: 707

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(17-18): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

white markings don't line up — see photo

Breakout 9 Time:

Now 1:32
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

Depth:
Paro 767
Keller 768
Payout −609

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

1159 load

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 16 DOM id: TP 6Y4377

(T, Long) Cable mark: 724

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(16-17): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 15 DOM id: ~~UP~~ 6Y4482

(U, Short) Cable mark: 741

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(15-16): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 8

Time:
Now 1:41
Last b/o
Δt [min]

Depth:
Paro 802
Keller 801
Payout −635

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 14 DOM id: TP 6H 7519

(T, Long) Cable mark: 758

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(14-15): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☐ whole view

DOM position 13 DOM id: UP 6Y4236

(U, Short) Cable mark: 775

☒ Bottom shackle connected
☒ Top clutch connected at link # Δ(13-14): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 7 Time:

Now 1:49
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

Depth:
Paro 836
Keller 835
Payout -665

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☒ long ☐ short)

DOM position 12 DOM id: TP 6Y4355

(T, Long) Cable mark: 792

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(12-13): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 11 DOM id: UP 6Y4480

(U, Short) Cable mark: 809

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(11-12): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 6

Time:
Now 1:55
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring~~ in place and ☐ lubed
  - ☒ connected

Depth:
Paro 870
Keller 870
Payout −694

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring~~ in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 10 DOM id: TP 5H0195

(T, Long) Cable mark: 826

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(10-11): 17.0
☒ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 9 DOM id: UP 6Y4476

(U, Short) Cable mark: covered in tape

☒ Bottom shackle connected
☐ Top clutch connected at link # 19 Δ(9-10): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 5

Time:
Now 2:04
Last b/o
Δt [min]

Depth:
Paro 905
Keller 905
Payout -722

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 8 DOM id: TP 6Y4409

(T, Long) Cable mark: 859.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(8-9): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 7 DOM id: UP 6Y4300

(U, Short) Cable mark: taped over --6

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(7-8): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 4 broken, no tape See photo

Time:
Now 2:12
Last b/o
Δt [min]

Depth:
Paro 939
Keller 939
Payout -751

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

slow down while drillers = Red, Dave, Jim gone

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 6 DOM id: TP 6H7511

(T, Long) Cable mark: 893.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(6-7): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 5 DOM id: UP 6Y4322

(U, Short) Cable mark: 910.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(5-6): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☒ whole view

Breakout 3

Time:
Now 2:28
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

Depth:
Paro 974
Keller 975
Payout -778

- ShortDOM
  - ☒ connector O-ring in place and ☒ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

☒ Loose pigtails taped to cable 1471 load

☐ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 4 DOM id: TP 6Y4465

(T, Long) Cable mark: 927.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(4-5): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☐ whole view

DOM position 3 DOM id: UP 6Y4260

(U, Short) Cable mark: 944

☒ Bottom shackle connected
☒ Top clutch connected at link # 18 Δ(3-4): 17.0
☒ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 2 bow measurement 2.40 - 2.37

Time:
Now 2:44
Last b/o
Δt [min]

Depth:
Paro 1008
Keller 1009
Payout -800

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected
- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ☐ breakout O-ring in place and ☐ lubed
  - ☒ connected

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)

DOM position 2 DOM id: TP 5H0229

(T, Long) Cable mark: 961.5

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(2-3): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

bow = 2.43 − 2.40

DOM position 1 DOM id: UP 5H0224

(U, Short) Cable mark: 978

☒ Bottom shackle connected
☒ Top clutch connected at link # 18 Δ(1-2): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 1 Time:

Now 2:52
Last b/o
Δt [min]

- LongDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

Depth:
Paro 1042
Keller 1042
Payout − 823.1

- ShortDOM
  - ☒ connector O-ring in place and ☐ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

☒ Loose pigtails taped to cable

No second Paro no more…

☐ Group photo

☐ All clear to lower cable ☺

Uphole Pressure Sensor (Setra)

After DOM1 is safely under the surface (> 50 m)

Time:_____

☐ Stop the cable winch

☐ Lower Setra pressure sensor into hole

☐ Distance to Setra from floor:_____

☐ Setra readout verified with monitoring system

☐ Well depth from Setra: _____

☐ Well depth from laser: _____

If the two well depth measurements agree:

☐ Switch to Setra well depth in monitoring system

Time:_____

Now the String Drop begins

String Drop

see back of prev. page for AURA notes

~~The target depth is **2450** m~~

(~250 m) shallow deployment on their own cable taped to IceCube.

~~☐ Switch cable winch to computer control~~ by Paro

				load (lbs)
☒	Speed: 0.2 m/s	Time: 3:15	Depth: 1240	1500
☒	Speed: 0.37	Time: 3:25	Depth: 1456	1833
☒	Speed: 0.33	Time: 3:44	Depth: 1779	
☒	Speed: 0.30	Time: 3:54	Depth: 1962	
☒	Speed: 0.26	Time: 4:09	Depth: 2130	
☐	Speed:	Time:	Depth:	

stop and sync all of them.

Paro - c.m = (stretch)

Depth Monitoring ~~(log on the fly – do not stop for this)~~

Depth by Paro[1]	Time	Well depth[1]	Depth by cable marks[2]	Depth by Payout[1]	Δdepth P-K[1]	
~~1000 m~~	3:06	51.2	1057.4+21.4	-(something)	≈ -1	5.4
~~1500 m~~ 1498.3	3:27	~~50.2~~	=1078.8 1469.5+21.4	-1284.9	-2.7	8.4
~~2000 m~~ 1998.8	3:58	48.8	=1490.9 1964.8+21.4	fucked	-3.9	12.6
~~2100 m~~ 2154.8	4:16	48.2	=1986.2 2154.0+21.4	"	-5.3	14.4
~~2200 m~~ 2287.3	6:00 pm	45.8	=2175.4 2260.1+21.4	"	-6.0	15.8
~~2300 m~~	2400.0	45.3	=2281.5 2361.7+21.4	"		16.9
2400 m	6:14 pm	~~45.5~~	=2383.1			

1123 with 90 well or 1084.2 with new well.

[1]Read off monitoring screen

[2]Cable mark offset = _____ (from p.4) (at DOM59) – 17 m = -21.4 (at DOM60)

13058 → -4059

before AURA

~~☐ Switch to manual control @ 2400 m~~ → -21060, [-21.4]

after AURA

using actual 4(60-59) = 17.4

~~☐ Well depth~~

~~@ 2420:~~ _____

~~@ 2440:~~ _____

☒ Position string at target depth of **2450** m Time: 6:25

☒ String secured with Yale grip and anchor chain Time: 6:38

Absolute depth with bottom Paro
(depth in *meters* and pressure in *PSI*)

☐ Distance from Paro to DOM60:

$d_{Paro\text{-}DOM59}$ = _____ (from p. 4)

$d_{Paro\text{-}DOM60}$ = ($d_{Paro\text{-}DOM59}$ + 17) m = _____ ← insert below

☐ Convert Paro pressure to string depth:

$K = 3.78151 \cdot 10^{-6}$ /PSI (compressibility of aerated water)

(use 6 decimals for exp's)

Ambient pressure (from p. 4): P_0 = _____ PSI → $\exp(-KP_0)$ = _____

Pressure reading (from screen): P = _____ PSI → $\exp(-KP)$ = _____

Subtract exponentials → = _____

× $1.85947 \cdot 10^5$

Paro depth in water → = _____ m

Add distance to DOM60 (above) → + _____ m

Add well depth → + _____ m

Depth of bottom DOM → = _____ m

Final depth estimates

◀---------- read off deployment screen ---------▶

Time:	Paro	Keller	Payout	Cable marks
Reading	3429.04 PSI	2691.0 PSI	m	2413.2 m
Offset	9.79 PSI	−4.19 PSI	m	21.4 m
Well depth	44.5	m final	This space is intentionally left blank	
Dist. to DOM60	m	m		
DEPTH (DOM60)	2452.3	2460.0		2434.4

Time: 6:43 pm

+ ≈17 m stretch

Final depth (DOM60): 2452.3 m

Deployment Closeout

- [x] Log entries complete
- [x] String safely secured
- [x] Hole covered and secured
- [x] Equipment safely shutdown and secured
- [x] Deployment data OK (in database)
- [x] Site cleanup
- [x] Deployment crew dismissed
- [x] String deployment complete

Time: 6:46 pm Date: 1/20/07

Shift Lead: _____
name / signature

Logger: _____
name / signature

PTS Lead: _____
name / signature

Deployment Manager: _____
name / signature

Safety Officer: _____
name / signature

IceCube On-ice Lead: _____
name / signature

IceCube Deployment Monitoring Check Sheet (IDMCS)

Version 4.0
December 12, 2006

Kurt Woschnagg, UCB

General instructions

- Read through this entire document before deployment starts.
- Deployment monitoring is done with a computer (housed in the TOS) running drill/deployment monitoring software (by Chuck Rentmeesters) with a GUI for readout and manual inputs. All deployment sensor data and manual inputs are logged and saved on disk by this system.
- For each manual entry into the monitoring interface (marked **ENTER** below), also make a note in the logbook (marked *Logbook* below).
- For each entry in the logbook, include time and name (initials).
- Write down as much useful information you can think of (it *will* all be needed sooner or later).

Measurement instructions

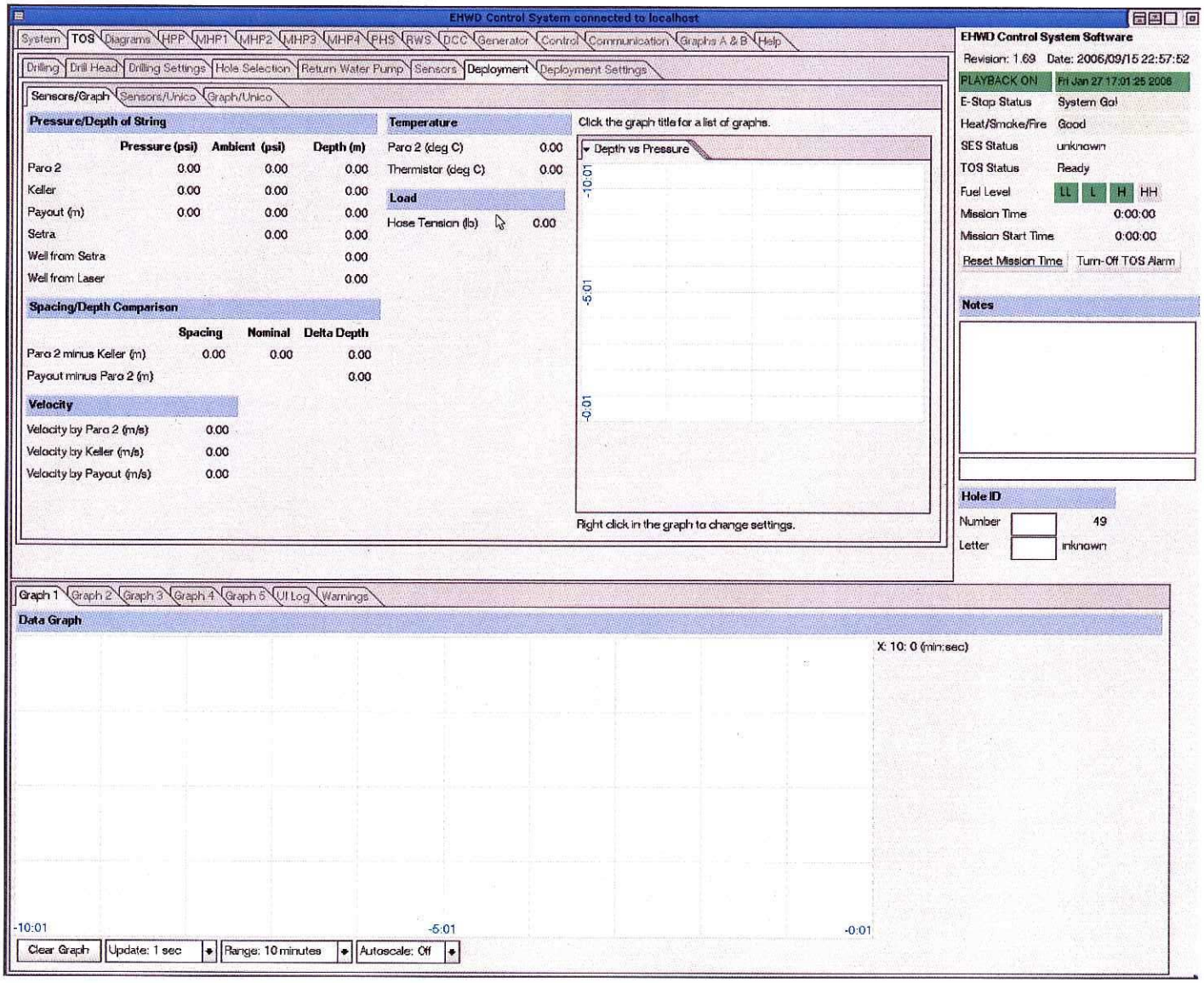
- All vertical measurements are relative to the floor of the tower (not the lip of the kick board).
  - Measure well depth from this level.
  - Take cable mark readings at this level.
- The location of a DOM on a string (for distance measurements) is defined as the position of the center of the sphere (at the equator defined by the harness).
- When taking a cable mark reading, estimate the location to nearest cm (0.01 m) with closest cable marks and tape measure.
- The location of a Paro is defined at the bottom of its body (at the little hole with the nipple).
- The location of a Keller is defined at the row of holes in the black plastic nose cap.
- The distance between a pressure sensor and the nearest DOM is positive/negative if the unit is above/below the DOM.
- Well depth is measured with a laser ranger (if possible), or with a tape measure (if not).
- The unit used for all distances and depths during deployment is **meters**.

Screen Tab: TOS ► Deployment

► Sensors/Graph

This is the main tab used during deployment monitoring. No input required on this tab.

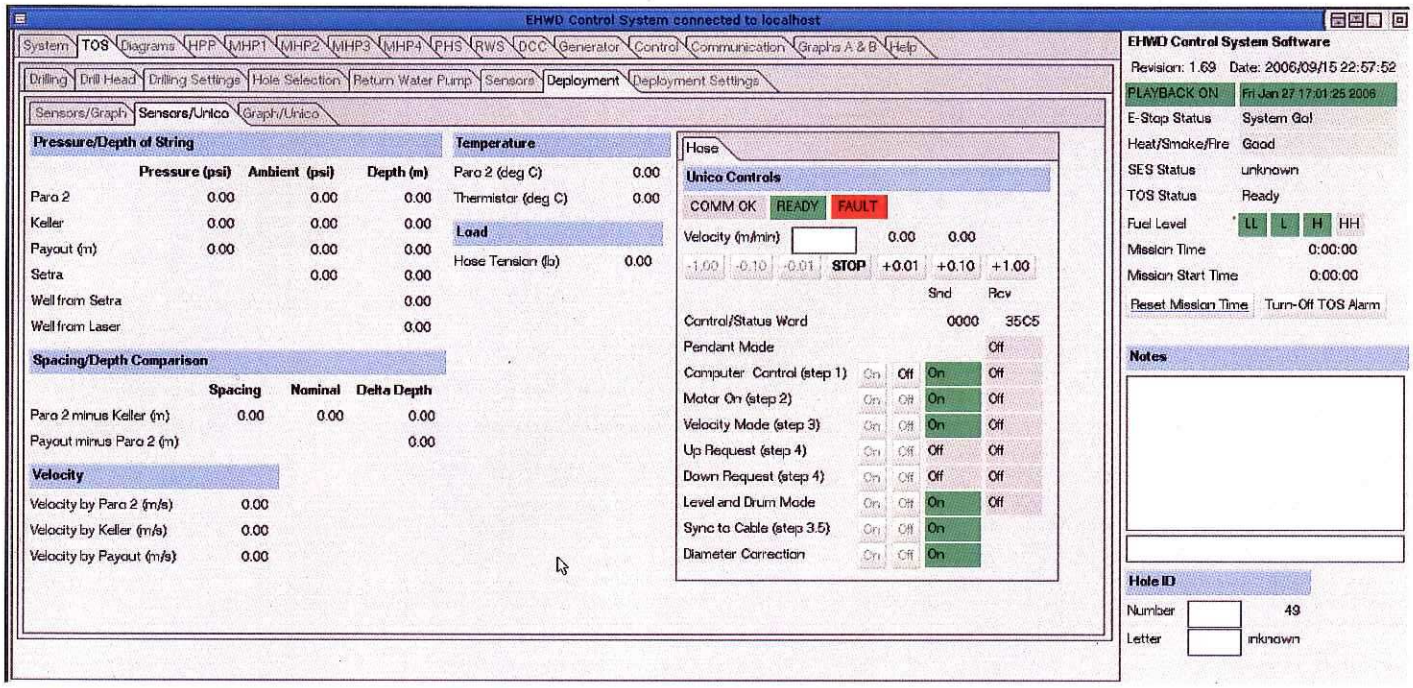
Pressure/Depth of String Current and ambient (air) pressures, and the corrected depths at DOM60.
Spacing/Depth Comparison Difference in depth from pressure data. *Should be stable during deployment!*
Velocity The deployment velocity calculated from recent pressure/payout readings.
Temperature Temperature readings.
Load Cable tension from load cell data.



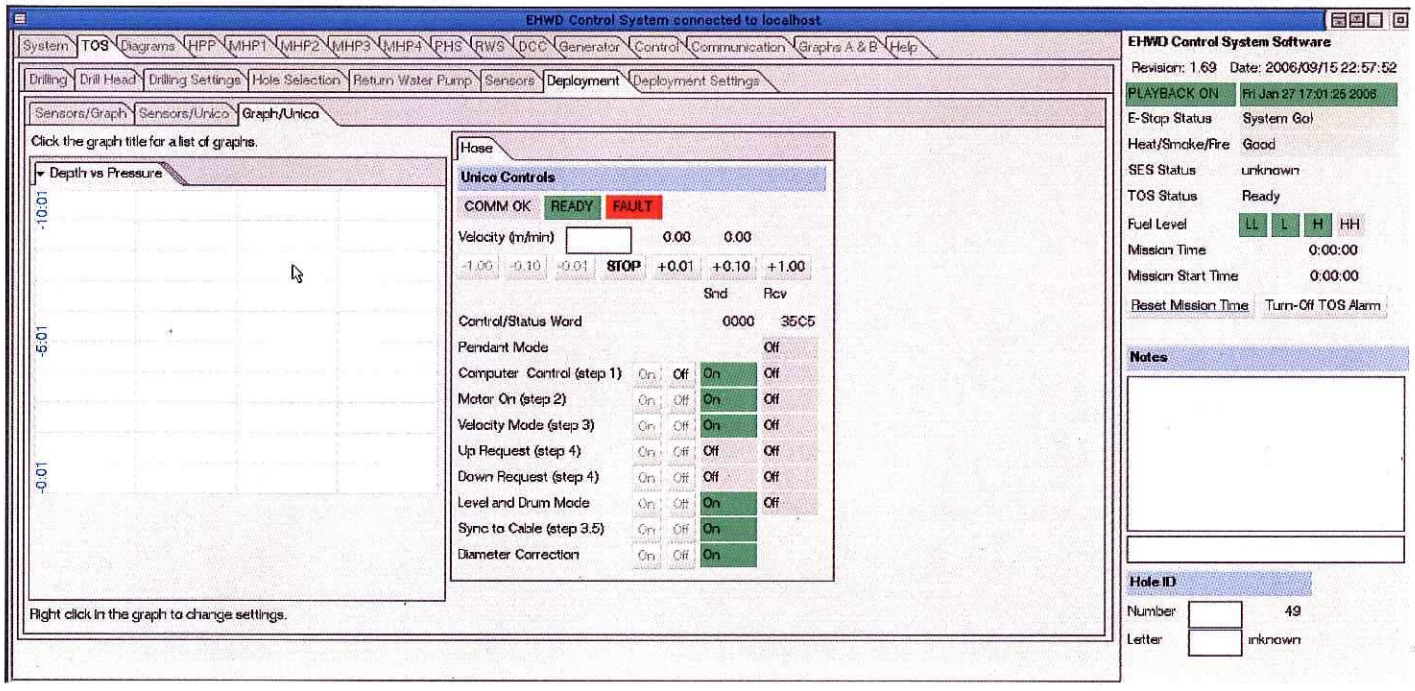
Screen Tab: TOS ► Deployment

► Sensors/Unico

This tab has the same data display as the main Sensors/Graph tab above, but instead of the graph window this tab has the controls for the Unico drive which controls the winch.



► Graph/Unico

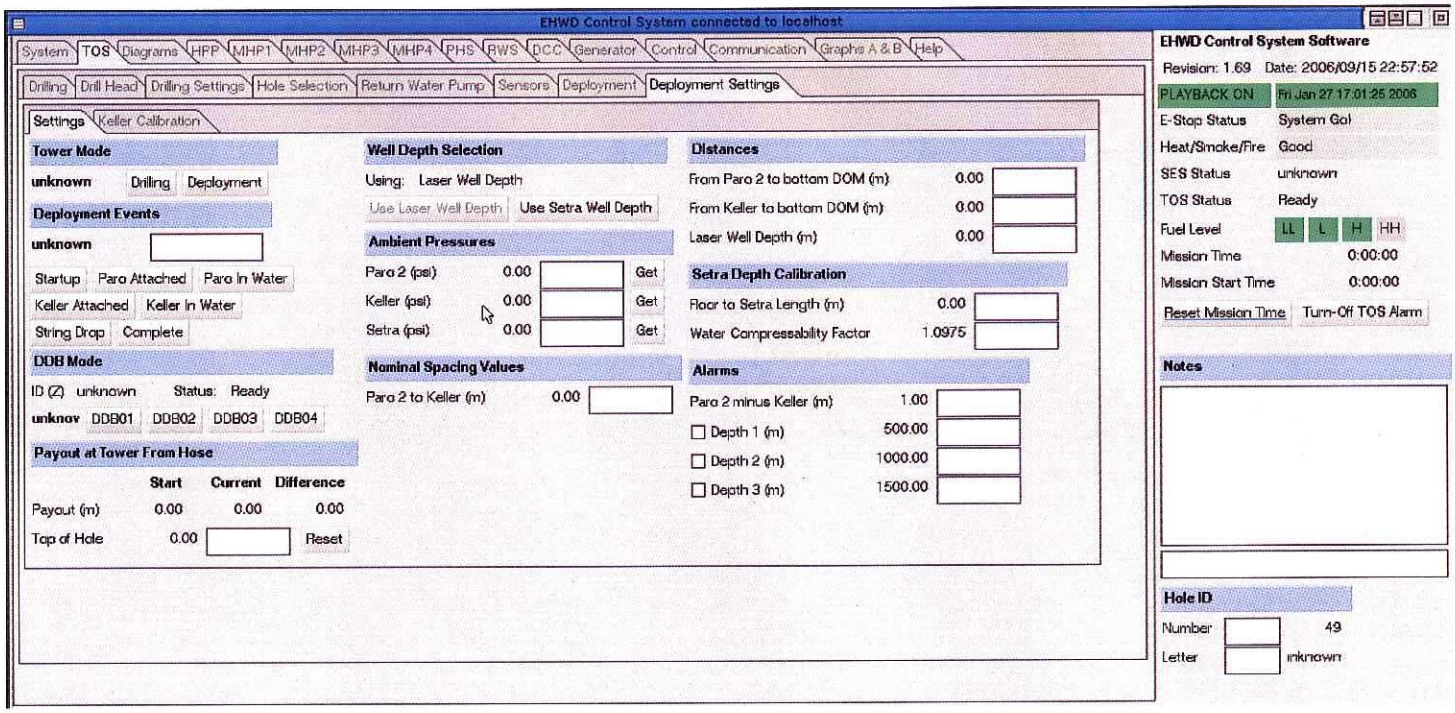


Screen Tab: TOS ► Deployment Settings

► Settings

This is the main tab for entering information that is needed for a correct depth calibration of the pressure data. Make sure you understand what all the entries mean before deployment starts.

Tower Mode	Click on "Deployment".
Deployment Events	Click the appropriate button when one of the predefined events occurs (see list below).
DDB Mode	Select the correct DDB ID before deployment startup (needed for Keller calibration).
Payout at Tower	Reset payout when bottom DOM is at tower floor level.
Well Depth Selection	Select source of well depth used in depth calculation.
Ambient Pressures	Press "Get" when pressure sensor is attached to cable, or enter reading at that time.
Nominal Spacing	Enter calculated distance between Paro and Keller.
Distances	Enter calculated distances between Paro/Keller and DOM60, and well depth.
Setra Depth Calib.	Enter measured length of Setra cable, from floor to sensor.
Alarms	Set values for which alarm is to be sounded (optional).



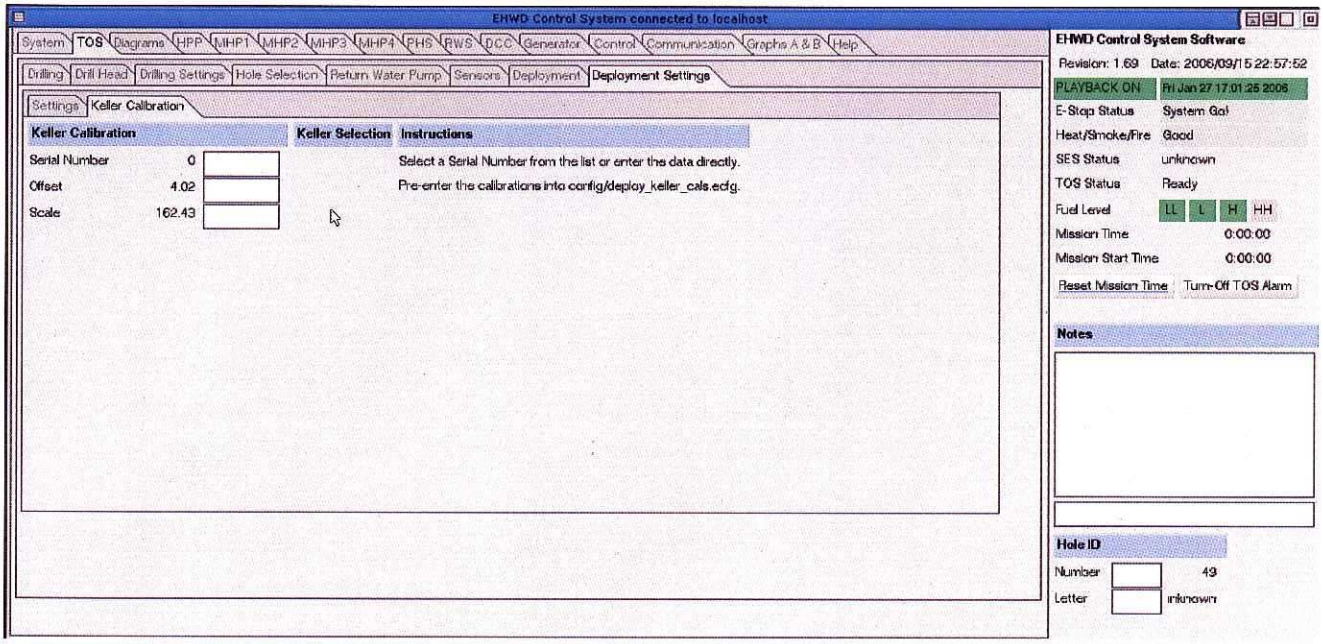
Deployment Events

☐ **Startup**	Click when the deployment begins.
☐ **Paro Attached**	Click when the Paro is attached to the breakout and starts sending data.
☐ **Paro In Water**	Click when the Paro reaches the water.
☐ **Keller Attached**	Click when the Keller is attached to the breakout and starts sending data.
☐ **Keller In Water**	Click when the Keller reaches the water.
☐ **String Drop**	Click when the String Drop phase begins, after all DOMs have been attached.
☐ **Complete**	Click when the deployment ends (string is secured, etc).

Screen Tab: TOS ► Deployment Settings

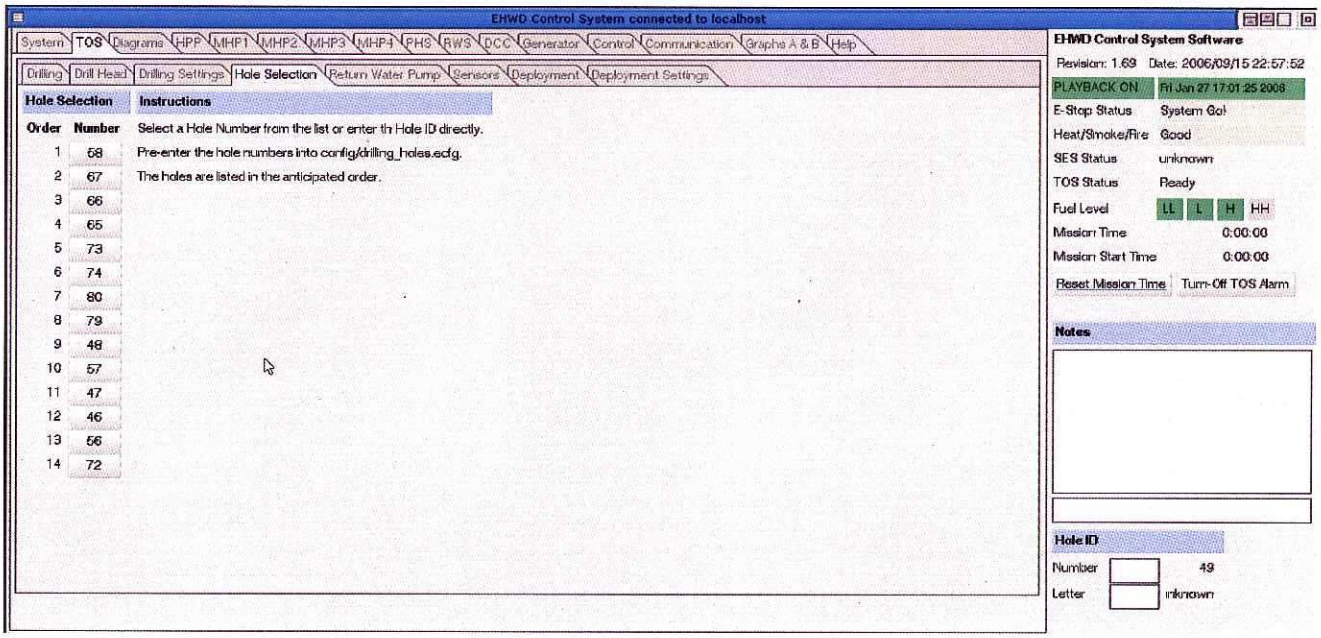
► Keller Calibration

On this tab you select the Keller ID by clicking on the appropriate button. The correct (pre-programmed) calibration constants will then be used for the Keller pressure reading.



Screen Tab: TOS ► Hole Selection

On this tab you select the hole/string number, *either* by clicking on the numbered button on the left *or* by entering it in the "Hole ID" field in the lower right hand corner.



Distances between devices

calculate manually and enter on Deployment Settings tab

Distance between Paro and DOM60: 1.5 + 17.4 = 18.9

Distance between Keller and DOM60: 1.7 to 29 plus 31.17 + 0.4 ← 59 to 60 is 17.4 = ~~528.7~~ 529.1

Distance between Paro and Keller: 529.1 − 18.9 = 510.2

Notes:

There are 60 DOMs on every string.

The nominal spacing between DOMs is 17 m.

The nominal spacing between breakouts is 34 m.

Breakouts (1-30) and DOMs (1-60) are counted from the top.

The Keller is at breakout 15, just above DOM29.

The Paro is at breakout 30, just above DOM59.

(Fun Fact: There used to be a second Paro at breakout 1 on the first four strings)

Pressure conversions

	PSI	mH_2O	Atm
1 PSI =	1	0.70	0.07
1 mH_2O =	1.4	1	0.1
1 atm =	14.7	10.3	1

Check Sheet

STRING # 57

DATE: 7:20

Before Deployment

- [X] **Action**: Locate laser ranger for well depth measurements.
- [X] **Action**: Locate metric tape measure.
- [X] **Action**: Locate one Paro and one Keller, *plus spares* of each.
- [X] **Action**: Locate bucket (for cooling of Keller sensor with water/ice mix).
- [X] **Action**: Fill bucket with snow and place in heated area to make slush.
- [ ] ~~**Action**: Locate Setra uphole pressure assembly (sensor + cable~~).

Deployment Startup

- [X] **Action**: Click "Deployment" button under "Tower Mode" on Deployment Settings tab.
- [X] **Action**: Select string (=hole) number on Hole Selection tab.
- [X] **Action**: Note deployment start time. restarted software 7:57

  Logbook: Time
- [X] **Action**: Click "Reset Mission Time" on the right panel on the deployment screen.
- [X] **Action**: Click "Startup" under Deployment Events.

☒ **Action**: Note DDB id number (1, 2, 3, or 4).

ENTER: DDB# (select button) 4

Logbook: DDB#

☒ **Action**: Take a well depth measurement with the laser ranger. Out of range → Error.

ENTER: Well depth [m] Drillers estimate 90m. This is the hole where the drill hose sprung a leak and they lost a lot of water. Using 90m, will try to improve from cable marks when Paro hits water

Logbook: Well depth

☒ **Action**: Reset Payout when DOM60 breaks the plane of the floor. 59 because of 17m extension

CLICK: "Reset" button (Top of Hole Reset) on Deployment Settings ▶ Settings tab.

Logbook: Payout Start value

☒ **Action**: Get cable mark reading at DOM59.

Logbook: Cable mark [m]

☒ **Action**: Attach Paro at breakout #30. (This is called "Paro2" on the monitoring screen).

Logbook: Paro serial number

☒ **Action**: Click "Paro Attached" under Deployment Events.

☒ **Action**: Measure distance between Paro location and nearest DOM.

Estimate distance to *bottom* DOM by adding *n* 17-meter segments
(*n* should be 1 for the Paro since nearest DOM is #59).

ENTER: Distance [m] from Paro to *bottom* DOM (#60)

Logbook: Distance to nearest DOM, nearest DOM#, estimated distance to DOM60

☐ **Action**: Get cable mark reading at Paro.

Logbook: Cable mark [m] missed, but measured to DOM 59

☒ **Action**: Take Paro air pressure reading just before it breaks the water surface.

ENTER: Ambient pressure [PSI] for Paro

Logbook: Paro2 air pressure

During Deployment

☒ **Action**: Click "Paro In Water" under Deployment Events.

☒ **Action**: Measure curved distance of main cable going around DOM (for at least two DOMs).

Logbook: Straight (vertical) distance for DOM segment, curved cable distance

☒ **Action**: Measure real distance between neighboring DOMs (for every pair) with laser ranger.

Logbook: DOM#'s, distance

☒ **Action**: Put Keller (and one spare) in bucket of water (at near freezing temperature) at least one hour before breakout #15 is reached.

Note: The Keller is not temperature corrected and must therefore be brought to the temperature of the water in the hole (0-2°C) before the air pressure offset is determined.

☒ **Action**: Attach Keller at breakout #15.

ENTER: Keller serial number

Logbook: Keller serial number

☒ **Action**: Click "Keller Attached" under Deployment Events.

☒ **Action**: Measure distance between Keller and nearest DOM. 1.7 m

Estimate distance to *bottom* DOM by adding *n* 17-meter segments (*n* should be 31 for Keller since nearest DOM is #29).

ENTER: Distance [m] from Keller to *bottom* DOM (#60)

Logbook: Distance to nearest DOM, nearest DOM#, estimated distance to DOM60

☐ **Action**: Get cable mark reading at Keller.

Logbook: Cable mark [m] for Keller

☐ **Action**: Determine Keller air pressure offset before (or just as) Keller hits water.

ENTER: Ambient pressure [PSI] for Keller

Logbook: Ambient Keller pressure

☒ **Action**: Click "Keller In Water" under Deployment Events.

☒ **Action**: Get cable mark reading at top DOM. 1040 to 1120

Logbook: Cable mark [m]

☒ **Action**: Measure well depth as soon as top DOM is under water.

ENTER: Well depth [m]

Logbook: Well depth [m], measurement method (laser/tape)

Between DOM attachment and String Drop

☐ ~~**Action**: Lower Setra assembly into hole (after top DOM is at least 50 m under the surface).~~

☐ **Action**: Measure distance between Setra sensor and floor of tower (distance marked on cable).

ENTER: Distance Setra to floor [m]

Logbook: Distance Setra to floor

☐ **Action**: Measure well depth with Setra system and laser ranger and compare.

Logbook: Well depth from Setra [m], well depth from laser [m]

☒ **Action**: If the two well depth meaurements agree, switch from laser to Setra in monitoring system.

laser

During String Drop

☒ **Action**: Click "String Drop" under Deployment Events.

☒ **Action**: Measure well depth manually (with laser ranger and/or tape measure).

(if shift lead allows: repeat several times during drop)

ENTER: Well depth [m]

Logbook: Well depth, measurement method (laser/tape)

☒ **Action**: Read cable marks at regular intervals.

Logbook: Cable mark [m]; depth readings [m] (Paro, Keller); time

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End of Deployment

☐ **Action**: Get final pressure readings from Paro and Keller when final depth has been reached.

Logbook: Pressure readings [PSI]; corrected depths [m] (from screen)

☐ **Action**: Get final well depth reading (laser and/or Setra).

HAS TO BE SIMULTANEOUS WITH FINAL PRESSURE READINGS!

Logbook: Well depth [m] (laser); well depth [m] (Setra)

☐ **Action**: Note deployment end time.

Logbook: Time

☐ **Action**: Click "Complete" under Deployment Events.

DOM List for String #57 (10)

Name	DOM ID	Position
Golden_Bell	TP6P1227	60
Stadion	UP5H0200	59
Tippen	AP5H0237	58?
Svan	UP5H0130	57
Janaka	TP6Y4281	56
Finnkobben	UP5H0226	55
Storkrake	AP5H0221	54
Enkelbeckasin	UP5H0136	53
Guandi	TP6Y4477	52
Tottby	UP5H0212	51
Sommargylling	AP5H0217	50
Bagarmossen	UP5H0182	49
Orischa	TP6Y4309	48
Baldersgatan	UP6H7512	47
Struts	AP5H0205	46
Fridhemsplan	UP5H0208	45
Pembele	TP6Y4243	44
Sickla	UP5H0246	43
Lira	TP5H0153	42
Ripa	UP5H0152	41
Nyama	TP6Y4237	40
Roskarl	UP5H0126	39
Kaja	TP5H0105	38
Vaktel	UP5H0194	37
Kek	TP6Y4421	36
Husby	UP5H0114	35
Mafdet	TP6Y4251	34
	UP6P1262	33
	TP6P1477	32
Chnubis	UP6Y4232	31
Tecciztecatl	TP6Y4349	30
Hap	UP6Y4424	29
Canobus	TP6Y4401	28
Odudua	UP6Y4244	27
Bastugatan	TP6H7515	26
Bes	UP6Y4396	25
Fasan	TP5H0103	24
	UP61206	23
Stork	TP5H0129	22
Kadru	UP6Y4416	21
Manezet	TP6Y4271	20
Maat	UP6Y4284	19
Thorildsplan	TP5H0185	18
Mesektet	UP6Y4422	17

String Installation Traveler

Surface Cable# : 57 **Length (m) :** 514 m	**Start date:** 05-06 season / /
Surface to DOM Cable# : 34	**Start date:** 1 / 22 / 2007

	Process Step	Doc. no. reference	Tech initials	Date Completed	Comments
1	Visual Inspection of Cables at Pole	9400-0006-QLP	MK	1/22/07	

Surface Cable Assembly Inspection **Pass** ☑ **Fail** ☐ **By:** MK

Surface to DOM Cable Assembly Inspection **Pass** ☑ **Fail** ☐ **By:** MK

2	Trench Surface Cable Assembly (SCA)	9400-0006-QLP	MK		05-06 season
3	Install SCA into Surface Junction Box (SJB)	9400-0006-QLP	MK		05-06 season
4	Install SCA into ICL	9400-0075-PLN			
5	Complete IceTop FCU Power and Data Installation Procedure	9400-005-QLP			
6	Verify Connectivity of IceTop DOMs with Quad Connectivity Tester (QCT)		MK	1/15/07	
7	Pre-deployment Inspection Procedure		MK	1/22/07	
8	S2D Cable into SJB installation	9400-0007-QLP	MK	1/25/07	
9	Wet Connector Testing of Quads		MK	1/25/07	
10	QCT Testing of Quads		MK	1/25/07	
11	SJB Final Inspection Complete (Ok to Bury)	9400-0007-FRM	MK	1/26/07	
12	Handoff to IceCube C &V Team		MK	1/26/07	

String Installation Traveler

String QCT and Wet Connector Test Form

String # 57 Name of Tester: Mike Kleist

	QCT Results # of DOMs (0, 1, 2)			Wet Connector Test Results (micro Amps)					
Quad name	# of DOMs WP0	# of DOMs WP1	Pass/ Fail	J	L	M	K	Pass/ Fail	Recheck Pass/ Fail
Q2	2	2	P					P	
Q3	2	2	P					P	
Q4	2	2	P					P	
Q5	2	2	P					P	
Q6	2	2	P					P	
Q7	2	2	P					P	
Q8	2	2	P					P	
Q9	2	2	P					P	
Q10	2	2	P					P	
Q11	2	2	P					P	
Q12	2	2	P					P	
Q13	2	2	P					P	
Q14	2	2	P					P	
Q15	2	2	P					P	
Q16	2	2	P					P	
IceTop Quads									
ITQ1	1	1							
ITQ2	1	1							

Service Quads	Device Connected	Verified on	Tech Initials	Comments
Q1				
Q17				
Q18				
Q19				
Q20				