DEPLOYMENT LOG for IceCube STRING # 48

Deployment Start: *at* 12:39 pm *on* 1/16/07

Deployment End: *at* 9:34 *on* 1/16/07 8 hours

Target depth (DOM60): **2450** m Final depth: ~~2426 ptn~~ 2455.8m

Deployment Crew

Position	First Shift	Second Shift
Shift lead	Tom Ham	A. Karle
DOM install 1 (high)	John Richards D	
DOM install 2 (low)	Greg Sullivan D	
DOM supply 1 / DOM install 3	Sven Lidstrom	
DOM supply 2 / floater		
Winch operator (cable & tower)	Dave Pernick	M. Kleist / Ryan H. / Albrecht K.
Notary (logbook & photos)	Justin Vandenbroucke	}
PTS (monitoring / sensors)	Justin Vandenbroucke	} Justin V. / Michelangelo D.
Support (optional)	Becky (GA)	C. Petterson

Time of shift change: 7 pm

just for drop

Summary/Comments:

1 people 5 people

Hole Handover

☐ Drill data reviewed

- ☐ maximum drift in x:_____ ☐ plot
- ☐ maximum drift in y:_____ ☐ plot
- ☐ maximum depth:_____
- ☐ minimum radius:_____ ☐ plot
- ☐ plot of predicted radius vs depth and time

☐ Hole dimensions verified Time:_____

Drill Lead: _____
name / signature / date

Deployment Lead: _____
name / signature / date

☐ Handover complete

N/A

Hole Logging
(skip if not applicable)

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

☐ Estimated hole lifetime:_____

▶ Must reach target depth by _____ on _____

Deployment Startup

Time: 12:39 pm

- [x] Cable winch anchored and operational
- [x] Tower winch operational
- [x] Tie off verified
- [x] Yellow rope verified

- [x] Deployment monitoring system (PTS) operational DDB# 3
- [x] Pressure sensors on hand: Paro and Keller, with backups
- [x] Laser ranger, tape measure (metric) on hand

- [x] Bleeder string installed (on quad connectors inside cable reel drum)

- [ ] Uphole pressure system on hand: Setra sensor and cable N/A
- [x] DOMs placed in racks
- [x] Weight stack on hand: weights (5) and 2 m cable
- [x] 17 m string extension steel cable on hand

Safety checks complete ([x] 1st shift [ ] 2nd shift)

- [x] [ ] Crew safety briefing
- [x] [ ] E-stop locations identified
- [x] [ ] TOS evacuation procedures reviewed
- [x] [ ] Mustering point identified
- [x] [ ] Snow mobile driver(s): _____
- [x] [ ] CPR trained: Sam, Tom, John
- [x] [ ] Food runners: _____

call galley at 65521

- [x] End of Main Cable brought into TOS and secured

Cable end attachments

- [x] Measure well depth: ~~2550 ft~~ ~774 m
- [x] Weights (5) attached
- [x] Weight cable attached (weight stack complete) Time: 1:00

Photos: DOM ids (☒ long ☒ short); connectors (☒ long ☒ short) 6P1305 Scrum

DOM position 60
(T, Long)

DOM id: TP [illegible] get by eliminating

☒ Bottom sh
☒ Top shac
Photos: ☐ w

Payout: 0

Serial # 17153?

DOM positior
(U, Short)

DOM id: UP 6P1286

ape

☒ Bottom shack
☒ Top shackle cc
☒ Main cable end
Photos: ☒ phi orier view

9-60): 18.5
(use laser ranger)

Breakout 30

Time: 1:42

Depth:

Payout 3.56

- LongDOM
  - ☒ connector O-ring in place and ☒ lubed
  - ~~☒ breakout O-ring in place and ☐ lubed~~
  - ☐ connected we take out the break out o-ring
- ShortDOM
  - ☒ connector O-ring in place and ☒ lubed
  - ~~☐ breakout O-ring in place and ☐ lubed~~
  - ☒ connected

☒ Loose pigtails taped to cable

Paro
Serial #: 104664 Nipple ☒ on ☐ off
☒ Connected ☒ Operational ☒ Air pressure [PSI]: 10.01
☐ Cable mark: NA ☒ Distance to DOM59: 70 cm above DOM 59

☒ All clear to lower cable ☺

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

DOM position 58 DOM id: TP 6P1231

(T, Long) Cable mark: 19M

☒ Bottom shackle connected
~~☐ Top clutch connected at link #~~ 18 Δ(58-59): ~~16.8~~ 16.8
☒ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

load cell 579.71

DOM position 57 DOM id: UP 6Y4376

(U, Short) Cable mark: 35

77092

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(57-58): 17.0
☐ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

74 | 17 =
5·17 = 85
4·17 = 68

So close 55 Paro hits

Breakout 29 Time:

load = 666.67 lbs

Now 2:00 PM
Last b/o
Δt [min]
Depth:
Paro
Payout 52.82

- 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 56 DOM id: TP 6 P1215

(T, Long) Cable mark: 53

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(56-57): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 55 DOM id: UP 6 P1290

(U, Short) Cable mark: 69

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

~~load cell = 171~~

Breakout 28

Time:
Now 2:10
Last b/o
Δt [min]
Depth:
Paro 10.53
Payout 69.96

- 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 load = 754

Antarctic Treaty inspectors: (0 VIs visit ~ 5 min.)
Payout was 15.86 when DOM 60 @ 17.5 → should have been 17.5. ~~so when~~ change

☒ All clear to lower cable ☺

So when DOM 60 was at top, payout was ~~DOM 60 was~~ 15.9 - 17.5 = -1.6 changed.

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

DOM position 54

DOM id: TP 6P1217

(T, Long) Cable mark: 87

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(54-55): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

DOM position 53

DOM id: UP 644362 75438

(U, Short) Cable mark: 104

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(53-54): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 27

Time:

Now 2:28
Last b/o
Δt [min]

Depth:

Paro 128
Payout 125
(after started drop)

- 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 52

DOM id: TP 6P 1243

(T, Long) Cable mark: 121

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(52-53): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 51

DOM id: UP 6H7510

(U, Short) Cable mark: 140

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(51-52): 17.0
☐ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 26

Time:

Now 2:37
Last b/o
Δt [min]

Depth:

Paro 157
Payout 155

- 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 load = 753.6

☒ All clear to lower cable ☺

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

DOM position 50 DOM id: TP6Y4253

(T, Long) Cable mark: 0155

☒ 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:_____

DOM position 49 DOM id: UP6Y4278

(U, Short) Cable mark: 0171

7549

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 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 2:47
Last b/o _____
Δt [min] _____

Depth:
Paro 192
Payout 190

- 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

Payout seems to be slipping somewhat

☒ All clear to lower cable ☺

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

DOM position 48 DOM id: TP 6H7501

(T, Long) Cable mark: 189

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(48-49): 17.0
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 47 DOM id: UP6P1302

(U, Short) Cable mark: 206

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(47-48): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 24

Time:
Now 2:55
Last b/o
Δt [min]

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

Depth:
Paro 225.9
Payout 223.5

- 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 46 DOM id: TP 6Y4227 77172

(T, Long) Cable mark: 223

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(46-47): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 45 DOM id: UP 6P1270

(U, Short) Cable mark: 239

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(45-46): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 23 Time:

Now 3:04 pm
Last b/o
Δt [min]

Depth:
Paro 260
Payout 257

- 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

load ~~840~~ 913

☐ All clear to lower cable ☺

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

DOM position 44 DOM id: TP 6P1299

(T, Long) Cable mark: 257 (LB)

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(44-45): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 43 DOM id: UP 6P1260

(U, Short) Cable mark: 273

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(43-44): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☐ whole view

This DOM hit the hole collar

Breakout 22 Dip hard before going down. Time:

Now 3:13
Last b/o
Δt [min]

Depth:
Paro 294.0
Payout 290.1

- 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 6Y4473

(T, Long) Cable mark: 291

☒ Bottom shackle connected
☒ Top clutch connected at link # ~~23~~ 20 Δ(42-43): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 41

DOM id: UP 6P1226

(U, Short) Cable mark: 0308

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(41-42): 16.8
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 21

inspected winch

Time:
Now 3:26
Last b/o
Δt [min]

Depth:
Paro 338
Payout 334

- 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

928 Road

☒ All clear to lower cable ☺

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

DOM position 40

DOM id: TP 6P1303

(T, Long) Cable mark: 325

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(40-41): 17.0
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 39

DOM id: UP 6P1250

(U, Short) Cable mark: 341 342

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(39-40): 17.0
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 20

Time:
Now 3:35
Last b/o
Δt [min]

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

Depth:
Paro 369
Payout 366

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

☒ Loose pigtails taped to cable load = 971

☐ All clear to lower cable ☺

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

DOM position 38 DOM id: TP 6P1229

(T, Long) Cable mark: 359

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(38-39): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 37 DOM id: UP 6P1296

(U, Short) Cable mark: 376

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(37-38): 17.0
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 19

Time:
Now 3:44
Last b/o 3:48
Δt [min] 34

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

Depth:
Paro 398
Payout 394

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

☒ Loose pigtails taped to cable

Load= 980 lbs

☐ All clear to lower cable ☺

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

DOM position 36 DOM id: TP 6Y4469 7 7258

(T, Long) Cable mark: 393

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(36-37): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Bow measurement: bow = 2.43
straight = 2.41 → Δ = 2 cm

DOM position 35 DOM id: UP ~~6Y4466~~ 77216

(U, Short) Cable mark: 410

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(35-36): 17.0
☐ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

~~2.43 - 2.41 = 2 cm~~

Breakout 18 Time:

Now 4:00
Last b/o
Δt [min]

Depth:
Paro 441
Payout 436

- 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

970
Load - 1000 16 s

☒ 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 DOM id: TP 6P1249

(T, Long) Cable mark: 427

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(34-35): 16.5
☐ Bow OK → ☒ clutch zip tied triple-checked
Photos: ☒ phi orientation ☒ whole view

DOM position 33 DOM id: UP 6P1294

(U, Short) Cable mark: 444

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(33-34): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 17

Time:
Now 4:09
Last b/o
Δt [min]
Depth:
Paro 465
Payout 462

- 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

1058 load

☒ Loose pigtails taped to cable

☐ All clear to lower cable ☺

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

DOM position 32 DOM id: TP 6P1425

(T, Long) Cable mark: 461

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(32-33): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

slightly ~~slanted~~ slanted because chain link 20 see photo ↑ DOM (<10°) perhaps was not marked → attached too far? decided not to shorten

DOM position 31 DOM id: UP 6P1498

(U, Short) Cable mark: 478

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(31-32): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 16 Time:

Now 4:20
Last b/o
Δt [min]

Depth:
Paro 499
Payout 495

- 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

1036 load

☒ All clear to lower cable ☺

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

DOM position 30 DOM id: TP 6P1261

(T, Long) Cable mark: 495

☒ Bottom shackle connected

☒ Top clutch connected at link # 20 Δ(30-31): 16.9

☒ Bow OK → ☒ clutch zip tied

Photos: ☒ phi orientation ☒ whole view

DOM position 29 DOM id: UP 6P1506

(U, Short) Cable mark: 512

☒ Bottom shackle connected

☒ Top clutch connected at link # 20 Δ(29-30): 16.9

☒ Bow OK → ☒ clutch zip tied

Photos: ☐ phi orientation ☐ whole view

Breakout 15

Keller @ DOM 29
74 m = 4.17 + 6
68
So in wake @ during DOM 25 drop.

Time:

Now 4:40

Last b/o ____

Δt [min] ____

Depth:

Paro 545

Payout 541

- 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

actually, we didn't see a thermistor, estimated where it would be beneath tape, but now zero temp. reading

it did change reading when connected

Thermistor ☒ Present ☒ Distance to DOM29: .80 m (who knows?)

Keller ☒ Connected ☐ Operational ☐ Air pressure [PSI]: -12 (-3 to -12 fluctuating)

Ser.#: 0666736 ☒ Cable mark: 513 ☒ Distance to DOM29: 1.55m

slope 229.4766
intercept -931.46847

☒ All clear to lower cable ☺

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

DOM position 28 DOM id: TP 6P1505

(T, Long) Cable mark: 529

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(28-29): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 27 white lines on connector are misaligned, blocked DOM id: UP 6P1456

(U, Short) Cable mark: 54 but fits okay

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(27-28): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 14 Time:

Now
Last b/o
Δt [min]

Depth:
Paro 569
Keller 565 } together
Payout 570 delayed

- 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 1080 load

☐ All clear to lower cable ☺

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

DOM position 26 DOM id: TP 6P 1465

(T, Long) Cable mark: 563

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(26-27): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 25 broken connector DOM id: UP 6P1282

(U, Short) Cable mark: 580

redid taping, 1st time not enough clearance

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(25-26): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

watch for Keller during 25 drop ✓ hit water

Breakout 13 Time:

Now 5:02
Last b/o
Δt [min]

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

Depth:
Paro 616
Keller 90
Payout 612

- 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 24 DOM id: TP 6P1355

(T, Long) Cable mark: 597

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(24-25): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 23 DOM id: UP 6P1508

(U, Short) Cable mark: 614

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(23-24): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 12 Time:

Now 5:14
Last b/o
Δt [min]

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

Depth:
Paro 635
Keller
Payout 631

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

☒ Loose pigtails taped to cable

Keller to DOM 60:
0.8 + 31.17
= 0.8 + 17.30 + 17
= 17.8 + 300 + 210
= 527.8
just added the offset in software

☒ All clear to lower cable ☺

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

DOM position 22

DOM id: TP 6P1517

(T, Long) Cable mark: 631

☒ Bottom shackle connected
☒ Top clutch connected at link # 20 Δ(22-23): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 21

DOM id: UP 6P1516

(U, Short) Cable mark: 648

switching from link 20 to 19: 3 steel cables of DOMs have not been tight enough; DOM angle and bow also

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(21-22): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 11

Time:

Now 5:26
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 670
Keller 676
Payout 665

from now on measuring while stopped, before beginning drop.

☒ Loose pigtails taped to cable 1210 load

☒ All clear to lower cable ☺

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

DOM position 20 DOM id: TP 6P1515

(T, Long) Cable mark: 665

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(20-21): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view
☒ Curved distance around DOM:_____ ☐ Vertical distance:_____

Keller started oscillating more

DOM position 19 DOM id: UP 6P1288

(U, Short) Cable mark: 682

☒ 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 5:36
Last b/o _____
Δt [min] _____

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

Depth:
Paro 704
Keller 703
Payout 700

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

☒ Loose pigtails taped to cable

1239 load
after adding DOM 60 — keller distance, keller has taken ~4 DOMs to relax to be consistent with Paro and payout

☐ All clear to lower cable ☺

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

DOM position 18 DOM id: TP 6P1513

(T, Long) Cable mark: 699

☒ 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 6P1210

(U, Short) Cable mark: 716

☒ Bottom shackle connected
☒ Top clutch connected at link # 17 Δ(17-18): 16.9
☒ Bow OK → ☐ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 9 Time:

Now 5:45
Last b/o
Δt [min]

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

Depth:
Paro 738
Keller 748
Payout 734

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

☒ Loose pigtails taped to cable

1326 load

☒ All clear to lower cable ☺

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

DOM position 16

DOM id: TP 6P1307

(T, Long) Cable mark: 733

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

2.42 = bow length
2.41 = "straight" length

DOM position 15

DOM id: UP 6H7516

(U, Short) Cable mark: 750

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(15-16): 17
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 8

Time:

Now 5:56
Last b/o
Δt [min]

Depth:

Paro 772
Keller 780
Payout 767

- 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

1300 load

☒ Loose pigtails taped to cable

☒ All clear to lower cable ☺

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

DOM position 14 DOM id: TP 6P1435

(T, Long) Cable mark: 767

☒ 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 6P 1460

(U, Short) Cable mark: 784

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(13-14): 16.9
☐ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 7 Time:

Now 6:09
Last b/o
Δt [min]

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

Depth:
Paro 807
Keller ~~813~~ 815
Payout 802

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

☒ Loose pigtails taped to cable 1340 load

changed DOM60 – Paro dist. from 17.7 to 19.2 after realizing actual Δ60-59 = 18.5 not 17

also added 1.5 to Keller – DOM60 dist.

☒ All clear to lower cable ☺

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

DOM position 12

DOM id: TP 6P1467

(T, Long) Cable mark: 801

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(12-13): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 11

DOM id: UP 6P1474

(U, Short) Cable mark: 818

☒ 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 6:20 pm
Last b/o
Δt [min]

Depth:

Paro 842
Keller 848
Payout 835

- 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 1399 load

☐ All clear to lower cable ☺

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

DOM position 10

DOM id: TP 6P1213

(T, Long) Cable mark: 835

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(10-11): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 9

DOM id: UP 6P1344

(U, Short) Cable mark: 852

☒ 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 6:33
Last b/o
Δt [min]

Depth:

Paro 876
Keller 880
Payout 869

- 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

~~used 0.8 should have been~~ 1430 load 1.6

☒ All clear to lower cable ☺

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

DOM position 8 DOM id: TP 6 P 1429

(T, Long) Cable mark: 869

☒ 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 6 P 1436

(U, Short) Cable mark: 886

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

3 wire cables in wrong order → fixed

Breakout 4 Time:

Now 6:47
Last b/o
Δt [min]

Depth:
Paro 910
Keller 919
Payout 904

- 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

1428 load

☒ Loose pigtails taped to cable

changed keller offset by a couple meters reflecting
① 18.5 actual Δ60-59
② used Paro-DOM instead of keller-DOM by mistake

☐ All clear to lower cable ☺

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

DOM position 6 DOM id: TP 6P1273

(T, Long) Cable mark: 903

☒ 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 6H7518

(U, Short) Cable mark: 920

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(5-6): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 3

Time:
Now 6:58 pm
Last b/o
Δt [min]

Depth:
Paro 944.3
Keller 952.0
Payout 938.0

- 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

1427 load ?

☒ All clear to lower cable ☺

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

DOM position 4

DOM id: TP 6P1473

(T, Long) Cable mark: 937

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(4-5): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

DOM position 3

DOM id: UP 6P1468

(U, Short) Cable mark: 954

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(3-4): 17.0
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 2

Time:

Now 7:07
Last b/o
Δt [min]

Depth:

Paro 979
Keller 995
Payout 972

- 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 GH7513

(T, Long) Cable mark: 971

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

DOM position 1 DOM id: UP GP1248

(U, Short) Cable mark: 988

☒ Bottom shackle connected
☒ Top clutch connected at link # 19 Δ(1-2): 16.9
☒ Bow OK → ☒ clutch zip tied
Photos: ☒ phi orientation ☒ whole view

Breakout 1

Time:
Now 7:18
Last b/o
Δt [min]

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

Depth:
Paro 1013
Keller 1020
Payout 1006

- 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

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

xPTS Guru can stop on a dime. However, shift lead Karle requested a deeper string ≈2455 m due to "better ice."

~~☐ Switch cable winch to computer control~~

☒ Speed: 0.39	Time: 7:43	Depth: 1118
☒ Speed: .37	Time: 7:58	Depth: 1445
☒ Speed: .23	Time: 8:53	Depth: 2356
☒ Speed: .21	Time: 8:59	Depth: 2420
☐ Speed:	Time:	Depth:
☐ Speed:	Time:	Depth:

actually we're doing fewer points but with a stop at each Paro value exactly → syncing

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

stretch

Depth by Paro[1]	Time	Well depth[1]	Depth by cable marks[2]	Depth by Payout[1]	Δdepth P-K[1]	
1000 m	7:22 7:34	65.6	992+16.5	1011	←	not synced
1500 m	8:01	65.5	=1008.5 1483+16.5	1501.8	−20	0.5
2000 m	8:29	65.2	1499.5 1978+16.5 1995.5	2000.9	−12	4.5
2100 m						
2200 m	8:42	65.2	2178+16.5= 2194.5	2200	−16	5.5
2300 m						
2400 m	8:57	65.0	2376.5+16.5 =2393	2399	−16	7.0

[1]Read off monitoring screen

[2]Cable mark offset = 2 m (at DOM59) − ~~17~~ 18.5 m = −16.5 (at DOM60)
(from p.4)

☒ Switch to manual control @ 2400 m

stopped at 2425.5 m +16.5 = 2442

☐ Well depth
@ 2420: _____
@ 2440: _____

2449.5 } by Paro 2
stretch = 7.5

now anchoring

☒ Position string at target depth of **2450** m Time: 9:26

☒ String secured with Yale grip and anchor chain Time: 9:26

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

☒ Distance from Paro to DOM60:

$d_{Paro\text{-}DOM59}$ = 0.7 (from p. 4)

$d_{Paro\text{-}DOM60}$ = ($d_{Paro\text{-}DOM59}$ + ~~17~~ 18.5) m = 19.2 ← 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	3405 PSI	2670 PSI	2453.2 m	2431.6 m
Offset	10.53 PSI	−11.4 PSI	−1.6 m	−16.5 m
Well depth	64.9 m		This space is intentionally left blank	
Dist. to DOM60	19.2 m	530.1 m		
DEPTH (DOM60)	2455.8 *	2470	2454.8	2448.1

Δ(payout − Paro) = ±1m

Time: 9:26 pm

stretch = 2455.8 − 2448.1

stretch = 7.7 m

Final depth (DOM60): 2455.8 * (see prev. page)

Deployment Closeout

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

Time: 9:34 Date: 1/16/06

Shift Lead: Tom Ham
name / signature

Logger: _____
name / signature

PTS Lead: J Vdb / Justin Vandenbroucke
name / signature

Deployment Manager: Tom Ham / Tom Ham
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

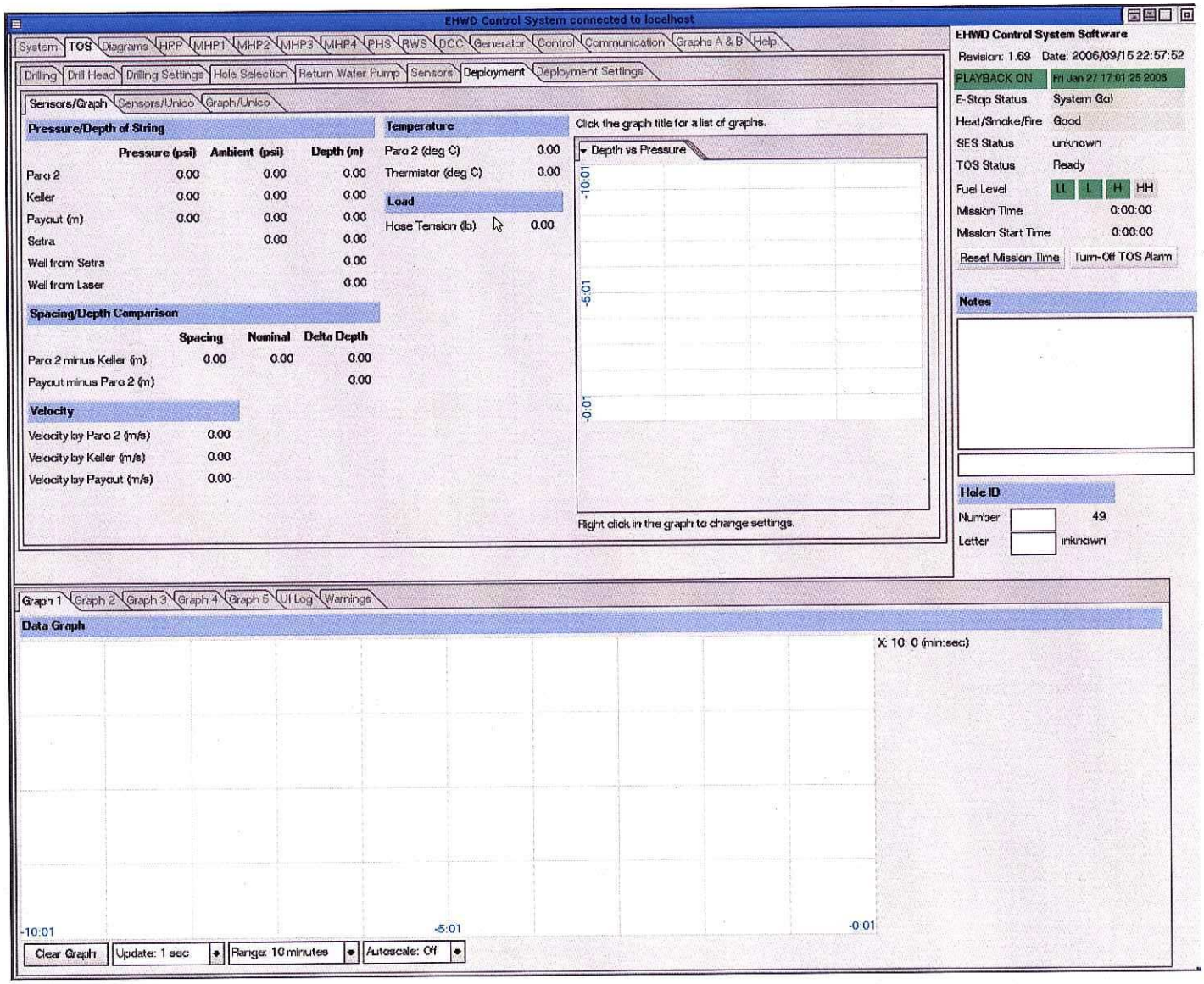
- All vertical measurements are relative to the floor of the tower (not the lip of the kick board).
  - Measure well depth from this level.
  - Take cable mark readings at this level.
- The location of a DOM on a string (for distance measurements) is defined as the position of the center of the sphere (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.

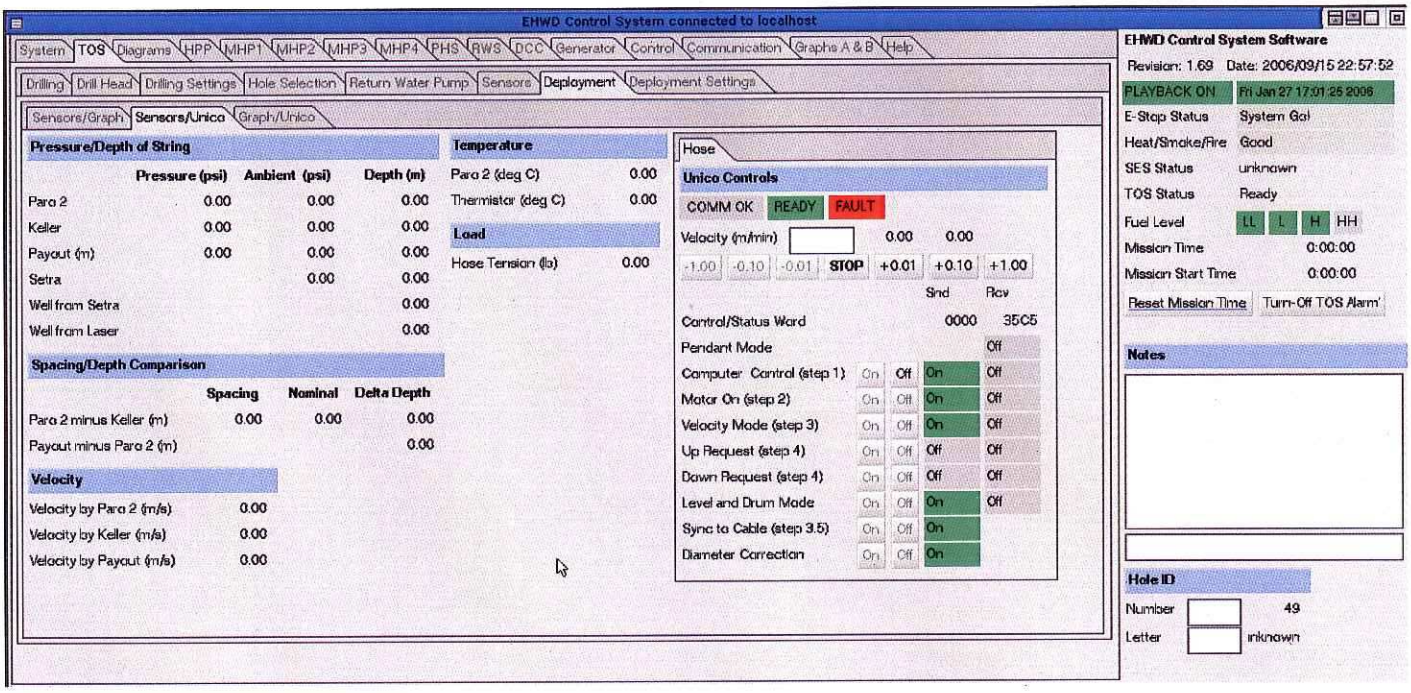
Pressure/Depth of String Current and ambient (air) pressures, and the corrected depths at DOM60.
Spacing/Depth Comparison Difference in depth from pressure data. *Should be stable during deployment!*
Velocity The deployment velocity calculated from recent pressure/payout readings.
Temperature Temperature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



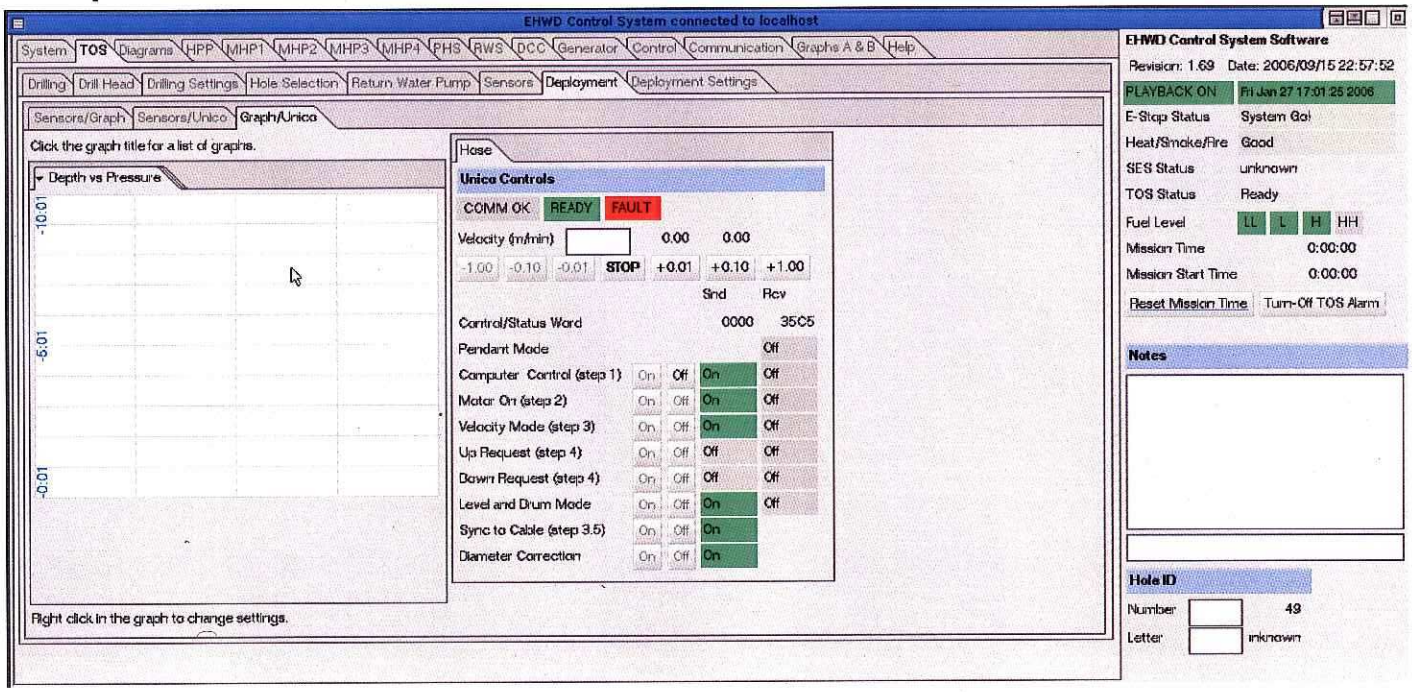
Screen Tab: TOS ► Deployment

► 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

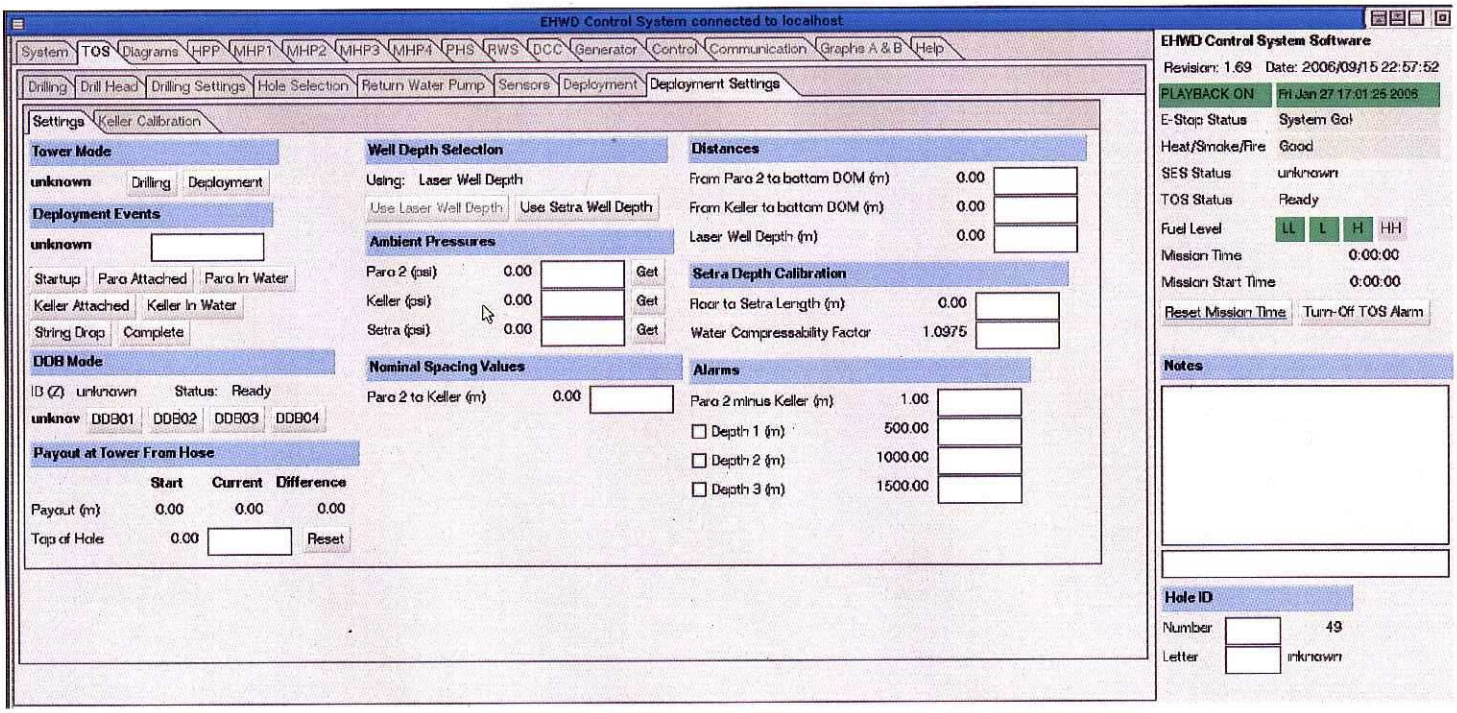


Screen Tab: TOS ► Deployment Settings

► 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).



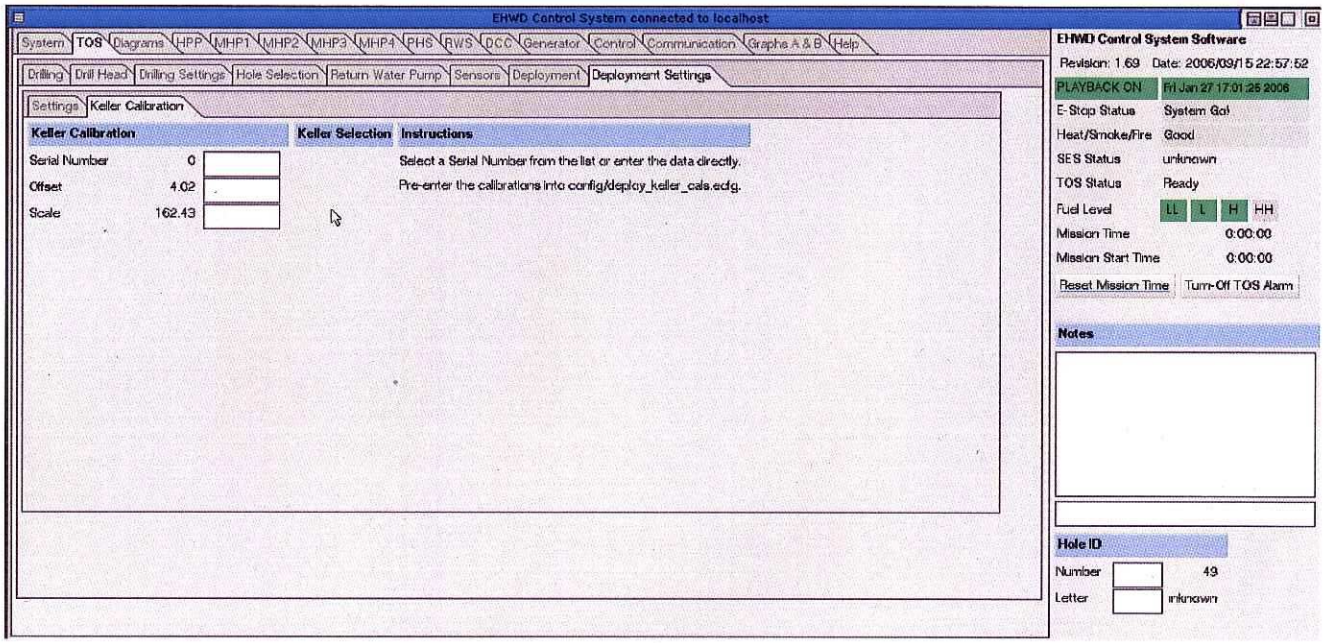
Deployment Events

☐ **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

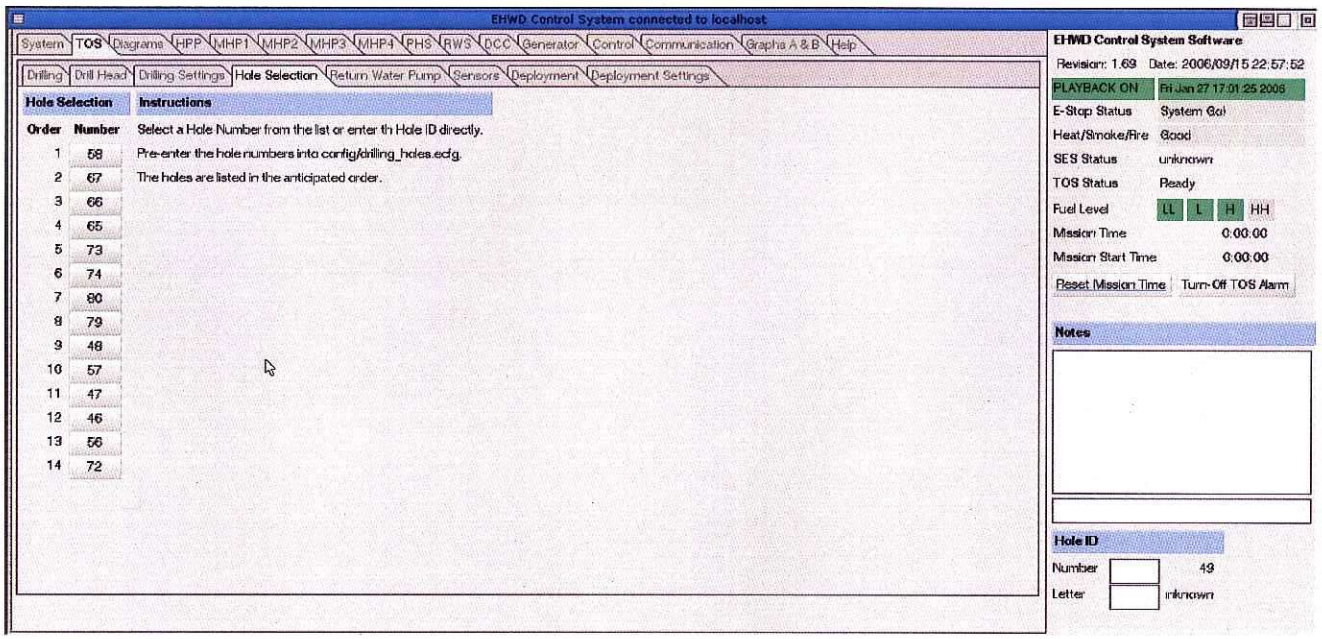
► Keller Calibration

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: $0.7 + 17 = 17.7$ nominal
$0.7 + 18.5 = 19.2$ actual

Distance between Keller and DOM60: $1.6 + 31 \cdot 17 + 1.5 = 530.1$ actual

Distance between Paro and Keller: $530.1 - 17.7 = 510.9$

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 # 48

DATE: 1/16/07

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.
- [ ] NA **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. 12:39 pm

  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). 17,5+ 15. 86

ENTER: DDB# (select button)

Logbook: DDB#

☐ **Action**: Take a well depth measurement with the laser ranger.

ENTER: Well depth [m]

Logbook: Well depth

Problem: shelf @ ~35 m depth, well @ is very deep, maybe 70–80 m. Cannot get reading on any of 3 rangers. Did rope + wood trick, few m resolution, well depth > 60 m.

☒ **Action**: Reset Payout when DOM60 breaks the plane of the floor.

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

entering ~~78 m for now~~ 74 m for now.

Logbook: Payout Start value

laser ranger with DOM 60 17.5 m below floor: 17.5 m, payout is 15.86 → reset

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

Logbook: Cable mark [m]

NA

☒ **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).

17 + 0.7 = 17.7

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.

No

Logbook: Cable mark [m] covered in tape

☒ **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.

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.

Logbook: Cable mark [m] 7.

☒ **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

☐ NA **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).

NA

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] 65.6 m (laser

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

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). 2431.6

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.

STRING 48

NAME	DOMID	REMARK	DEPLOYED POSITION
Scream	TP6P1305		60
Childs_Play	UP6P1286		59
Mums	TP6P1231		58
Di_kang_Wang	UP6Y4376		57
Chinese_Fir	TP6P1215		56
Captain_Spaulding	UP6P1290		55
Pampas	TP6P1217		54
Patecatl	UP6Y4362		53
	TP6P1243		52
Babordsgatan	UP6H7510		51
Lei_Ku	TP6Y4253		50
Li_Ning_Yang	UP6Y4278		49
Roslagstullsbacken	TP6H7501		48
	UP6P1302		47
Pauahtun	TP6Y4227		46
Dark_Water	UP6P1270		45
Blair_Witch	TP6P1299		44
Bellflower	UP6P1260		43
Fuxing	TP6Y4473		42
Flowering_Crab_Appl	UP6P1226		41
American_Psycho	TP6P1303		40
Freddy_Krueger	UP6P1250		39
Daisy	TP6P1229		38
Hannibal_Lecter	UP6P1296		37
Shennong	TP6Y4469		36
Nu_Wa	UP6Y4466		35
Carnation	TP6P1249		34
The_Thing	UP6P1294		33
Karluk_River	TP6P1425		32
Kiwalik_River	UP6P1498		31
	TP6P1261		30
Mulchatna	UP6P1506		29
Killik_River	TP6P1505		28
Kantishna_River	UP6P1456		27
Klutina_River	TP6P1465		26
	UP6P1282		25
	TP6P1355		24
Mendenhall_River	UP6P1508		23
	TP6P1517	GOLDEN POS 24	22
	UP6P1516	GOLDEN POS 23	21
	TP6P1515	GOLDEN POS 20	20
	UP6P1288		19
	TP6P1513	GOLDEN POS 18	18
	UP6P1210		17
	TP6P1307		16
Batteriparken	UP6H7516		15
Nenana_River	TP6P1435		14
Meade_River	UP6P1460		13
Noatak_River	TP6P1467		12
Nabesna_River	UP6P1474		11
	TP6P1213		10
	UP6P1344		9
Melozitna_River	TP6P1429		8
KingSalmon_River	UP6P1436		7
	TP6P1273		6
Bergsgatan	UP6H7518		5
Innoko_River	TP6P1473		4
Itkillik_River	UP6P1468		3
Banergatan	TP6H7513		2
	UP6P1248		1
Matanuska_River	TP6P1477		
	TP6Y4447		
	UP6H7506		
	UP6P1262		

String Installation Traveler

Surface Cable# : 48 **Length (m) :** 599	**Start date:** 05-06 season / /
Surface to DOM Cable# : 17	**Start date:** 1/14/07

	Process Step	Doc. no. reference	Tech initials	Date Completed	Comments
1	Visual Inspection of Cables at Pole	9400-0006-QLP	MK	1/14/07	

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	MK	1/14/07	
5	Complete IceTop FCU Power and Data Installation Procedure	9400-005-QLP			
6	Verify Connectivity of IceTop DOMs with Quad Connectivity Tester (QCT)		MK	1/10/07	
7	Pre-deployment Inspection Procedure		MK	1/14/07	
8	S2D Cable into SJB installation	9400-0007-QLP	MK	1/16/07	
9	Wet Connector Testing of Quads		MK	1/16/07	
10	QCT Testing of Quads		MK	1/16/07	
11	SJB Final Inspection Complete (Ok to Bury)	9400-0007-FRM	MK	1/21/07	
12	Handoff to IceCube C &V Team		MK	1/16/07	

String Installation Traveler

String QCT and Wet Connector Test Form

String # 48 Name of Tester: Mike Klerst

	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	P						
ITQ2	1	1	P						

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