DEPLOYMENT LOG for IceCube STRING # 73

Deployment Start: *at* ~~9~~:30+ *on* 1/1/07

Deployment End: *at* 19:57 *on* 1/1/07

Target depth (DOM60): **2450** m Final depth: 2460*

* see last page for final depth notes

+ [illegible]

Deployment Crew

Position	First Shift	Second Shift
Shift lead	Tom Ham	Albrecht
DOM install 1 (high)	Jim Latshaw	
DOM install 2 (low)	Rod Mathison	
DOM supply 1 / DOM install 3	Sam LeBlanc	
DOM supply 2 / floater		
Winch operator (cable & tower)	[illegible] Fernie	
Notary (logbook & photos)	Freija / [illegible]	Anders / Dave P
PTS (monitoring / sensors)	Freija Descamps	Anders Morey
Support (optional)		

Time of shift change:

Summary/Comments:

12 hrs 15 hrs

- pole probably too deep by 10m
- [illegible] broke [illegible] at ~1700m (brake [illegible] and started [illegible]) [illegible] drop [illegible]
- better [illegible] [illegible]
- dropped knife down hole

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

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: 7 30 am

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

☐ Deployment monitoring system (PTS) operational ☑ DDB# 3
☑ 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: _____
☐ ☐ Food runners: _____
call galley at 65521

☐ End of Main Cable brought into TOS and secured

Cable end attachments

☑ Measure well depth: 70. 357 (measured 3x)
☑ Weights (5) attached
☑ Weight cable attached (weight stack complete) Time: 4 46 pm

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

DOM position 60 DOM id: TP6Y4459
(T, Long)

☑ Bottom shackle connected to weight stack Payout: 1.58
☑ Top shackle connected to 17 m steel cable
Photos: ☑ whole view

DOM position 59 DOM id: UP6Y4458
(U, Short) Cable mark: NA

☑ Bottom shackle connected to 17 m cable
☑ Top shackle connected to Yale grip Δ(59-60): 17.100
(use laser ranger)
☑ Main cable end taped to 17 m steel cable
Photos: ☐ phi orientation ☐ whole view

Breakout 30 Time: 10.05am
Depth:
Payout 22.63

- 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

Paro Serial #: 104656 Nipple ☑ on ☐ off
☑ Connected ☐ Operational ☑ Air pressure [PSI]: 9.16
☑ Cable mark: NA ☑ Distance to DOM59: 0.910

☑ All clear to lower cable ☺

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

DOM position 58 DOM id: ~~TP~~ AP4P0060

(T, Long) Cable mark: 0017

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(58-59): 16.951
☐ Bow OK → ☑ clutch zip tied
Photos: ☐ phi orientation ☑ whole view

DOM position 57 DOM id: UP6P1314

(U, Short) Cable mark: 0033

☑ Bottom shackle connected
☐ Top clutch connected at link # 19 Δ(57-58): 16.900
☑ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☑ whole view

Breakout 29 Time:

Now _____
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

☐ All clear to lower cable ☺

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

DOM position 56 DOM id: TP 5E0695 (marked Damaged Static)

(T, Long) Cable mark: 50

☑ 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 6P1346

(U, Short) Cable mark: 67

☐ Bottom shackle connected
☑ Top clutch connected at link # 18 Δ(55-56): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 28

Time:
Now 1032
Last b/o
Δt [min]

Depth:
Paro 88.1
Payout 3215

- 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 54 DOM id: TP 6P1348

(T, Long) Cable mark: 85

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

DOM position 53 DOM id: UP 6P1376

(U, Short) Cable mark: 101

☑ Bottom shackle connected
☐ Top clutch connected at link # 14 Δ(53-54): 10.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 27 Time:

Now 1043
Last b/o ___
Δt [min] ___

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

Depth:
Paro 122
Payout 120

- 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[illegible]109

(T, Long) Cable mark: 118

☑ Bottom shackle connected
☐ Top clutch connected at link # 19 Δ(52-53): 169
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

DOM position 51 DOM id: UP6P1426

(U, Short) Cable mark: 135

☐ Bottom shackle connected
☑ Top clutch connected at link # 18 Δ(51-52): 169
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 26

Time:
Now 10:55
Last b/o
Δt [min]
Depth:
Paro 156
Payout 154

- 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 50 DOM id: TP 6P1347

(T, Long) Cable mark: 15

☐ Bottom shackle connected
☐ Top clutch connected at link # 1 Δ(50-51): 16.5
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view
☐ ~~Curved distance around DOM:~~ ☐ Vertical distance:

DOM position 49 DOM id: UP 6P4442

(U, Short) Cable mark: 16

☐ 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 11:06
Last b/o
Δt [min]

Depth:
Paro 190
Payout 188

- 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 48 DOM id: TP CP4565

(T, Long) Cable mark: 156

☑ 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 CP1358

(U, Short) Cable mark: tape

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

Breakout 24 Time:

Now 11:17
Last b/o _____
Δt [min] _____
Depth:
Paro 224
Payout 221

- 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 46 DOM id: TP 6P1405

(T, Long) Cable mark: 219

☑ Bottom shackle connected
☐ Top clutch connected at link # 19 Δ(46-47): 17
☐ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

DOM position 45 DOM id: UP 6P1318

(U, Short) Cable mark: 217

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(45-46): 16
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 23 Time:

Now 1128
Last b/o
Δt [min]

Depth:
Paro 259
Payout 255

- 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 44 DOM id: TP 6Y4409

(T, Long) Cable mark: 253

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(44-45): 16.9
☑ Bow OK → ☐ clutch zip tied
Photos: ☑ phi orientation ☑ whole view

DOM position 43 DOM id: UP 6P1360

(U, Short) Cable mark: 270

☑ Bottom shackle connected
☑ Top clutch connected at link # 20 Δ(43-44): 11
☑ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 22

Time:
Now 13 50
Last b/o
Δt [min]

Depth:
Paro 295
Payout 289

- 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

back from lunch 12:40

☑ All clear to lower cable ☺

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

DOM position 42 DOM id: TP 5P0569

(T, Long) Cable mark: 288

☑ Bottom shackle connected
☐ Top clutch connected at link # 19 Δ(42-43): 16.9
☑ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

DOM position 41 DOM id: UP 4P0272

(U, Short) Cable mark: 304

☑ Bottom shackle connected
☐ Top clutch connected at link # 20 Δ(41-42): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 21 Time:

Now 13:03
Last b/o
Δt [min]

Depth:
Paro 329
Payout 323

- 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 6P1409

(T, Long) Cable mark: 321

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(40-41): 16.9
☑ Bow OK → ☐ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

DOM position 39 DOM id: UP 6P1428

(U, Short) Cable mark: 332

☑ Bottom shackle connected
☐ Top clutch connected at link # 18 Δ(39-40): 16.9
☑ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 20 Time:

Now 13:13
Last b/o
Δt [min]

Depth:
Paro 363
Payout 356

- 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 38 DOM id: TP 4Y0035

(T, Long) Cable mark: 355

☑ 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 DOM id: UP SP1016

(U, Short) Cable mark: 371

☑ 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 13:22
Last b/o
Δt [min]

Depth:
Paro 398
Payout 390

- 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 DOM id: TP SP0907

(T, Long) Cable mark: 389

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

DOM position 35 DOM id: UP 4P0306

(U, Short) Cable mark: 405

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(35-36): 17.0
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 18 Time:

Now 13:33
Last b/o _____
Δt [min] _____

Depth:
Paro 432
Payout 424

- 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

☑ 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 5P0709

(T, Long) Cable mark: 423

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(34-35): 17.0
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☑ whole view

DOM position 33 DOM id: UP 5P0526

(U, Short) Cable mark: 439

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(33-34): 17.0
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☑ whole view

Breakout 17

Time:
Now 13:43
Last b/o
Δt [min]

Depth:
Paro 465
Payout 456

- 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 32 DOM id: TP 6P1423

(T, Long) Cable mark: 457

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(32-33): 169
☑ Bow OK → ☐ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

DOM position 31 DOM id: UP SP0790

(U, Short) Cable mark: 473

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(31-32): 169
☑ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 16

Time:
Now 13:53
Last b/o
Δt [min]

Depth:
Paro 500
Payout 491

- 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 6P1739
(T, Long) Cable mark: 490

☑ 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 6Y4444
(U, Short) Cable mark: 507

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(29-30): 16.9
☐ Bow OK → ☐ clutch zip tied
Photos: ☐ phi orientation ☐ whole view

Breakout 15 Time:

Now 14:08
Last b/o
Δt [min]

Depth:
Paro 535
Payout 525

- 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

31
17
014
310
324

Thermistor ☐ Present ☐ Distance to DOM29:
Keller ☑ Connected ☑ Operational ☑ Air pressure [PSI]: 6.68
Ser.#: 0504000 ☑ Cable mark: 507 ☑ Distance to DOM29: 0.69

☐ All clear to lower cable ☺

offset = -937.47573
scale = 232.24390

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

DOM position 28 DOM id: TP 5Y0199
(T, Long) Cable mark: 524

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(28-29): 16.9
☑ Bow OK → ☐ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

DOM position 27 DOM id: UP 5P0524
(U, Short) Cable mark: 541

☑ 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 14:18
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 569
Keller 598
Payout 558

☑ Loose pigtails taped to cable

☑ All clear to lower cable ☺

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

DOM position 26 DOM id: TP 6P1335
(T, Long) Cable mark: 558

☑ 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 5P1052
(U, Short) Cable mark: 575

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(25-26): 16.9
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

Breakout 13 Time:

Now 14:27
Last b/o
Δt [min]

Depth:
Paro 604
Keller 603
Payout 592

- 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 24 DOM id: TP 6Y4347

(T, Long) Cable mark: 592

☑ 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 6P1370

(U, Short) Cable mark: 606

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(23-24): 17.3
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

Breakout 12 Time:

Now 14:37
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 638
Keller 682
Payout 626

☑ Loose pigtails taped to cable

☑ All clear to lower cable ☺

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

DOM position 22 DOM id: TP 6Y4303

(T, Long) Cable mark: 626

☑ 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 6Y4228

(U, Short) Cable mark: 642

☑ 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 14:47
Last b/o
Δt [min]

Depth:
Paro 673
Keller 729
Payout 660

- 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 20 DOM id: TP 6P1325

(T, Long) Cable mark: 659

☑ 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 6Y4268

(U, Short) Cable mark: 676

☑ 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 14:57
Last b/o _____
Δt [min] _____

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

Depth:
Paro 706
Keller 806
Payout 693

- 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 5P0887

(T, Long) Cable mark: 693

☑ 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 6Y4412

(U, Short) Cable mark: 710

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(17-18): 16.9
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

Breakout 9 Time:

Now 15:07
Last b/o
Δt [min]

Depth:
Paro 741
Keller 837
Payout 727

- 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 16 DOM id: TP 6P1749

(T, Long) Cable mark: 727

☑ 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 6Y4478

(U, Short) Cable mark: 744

☑ 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 15:17
Last b/o
Δt [min]

Depth:
Paro 775
Keller 549
Payout 761

- 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 6Y4433
(T, Long) Cable mark: 761

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(14-15): 16.9
☑ Bow OK → ☐ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

DOM position 13 DOM id: UP 6P1322
(U, Short) Cable mark: 778

☑ 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 15:26
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 810
Keller 881
Payout 796

☑ Loose pigtails taped to cable

☑ All clear to lower cable ☺

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

DOM position 12 DOM id: TP SP0981
(T, Long) Cable mark: 795

☑ 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 6Y4430
(U, Short) Cable mark: 811

☑ Bottom shackle connected
☑ Top clutch connected at link # 20 Δ(11-12): 16.5
☑ Bow OK → ☑ clutch zip tied
Photos: ☐ phi orientation ☑ whole view

Breakout 6

Time:
Now 15:45
Last b/o
Δt [min]

Depth:
Paro 844
Keller 936
Payout 830

- 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 10 DOM id: TP 6P1327

(T, Long) Cable mark: 828

☑ 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 6Y4274

(U, Short) Cable mark: 845

☑ 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 6

Time:
Now 16:00
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 880
Keller 966
Payout 864

☑ Loose pigtails taped to cable

☑ All clear to lower cable ☺

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

DOM position 8 DOM id: TP 6P1751

(T, Long) Cable mark: 863

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(8-9): 16.9
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☑ whole view

DOM position 7 DOM id: UP 5P0794

(U, Short) Cable mark: 879

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(7-8): 16.9
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☐ whole view

Breakout 4 Time:

Now 16:12
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 914
Keller 1016
Payout 898

☑ Loose pigtails taped to cable

☑ All clear to lower cable ☺

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

DOM position 6 DOM id: TP 6P1351

(T, Long) Cable mark: 896

☑ 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 6P1336

(U, Short) Cable mark: 913

☑ 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 16:25
Last b/o
Δt [min]

Depth:
Paro 948
Keller 1055
Payout 931

- 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 4 DOM id: TP 6Y4277
(T, Long) Cable mark: 931

☑ 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 6Y4272
(U, Short) Cable mark: 947

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

*BROKEN CONNECTOR

Breakout 2 Time:

Now 16:40
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 982
Keller 1102.76
Payout 965

☑ Loose pigtails taped to cable

☑ All clear to lower cable ☺

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

DOM position 2 DOM id: TP 6P1329

(T, Long) Cable mark: 964

☑ Bottom shackle connected
☑ Top clutch connected at link # 19 Δ(2-3): 17.0
☑ Bow OK → ☑ clutch zip tied
Photos: ☑ phi orientation ☑ whole view

DOM position 1 DOM id: UP 6P1334

(U, Short) Cable mark: 180

☑ 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 16:54
Last b/o
Δt [min]

Depth:
Paro 1017
Keller 1455
Payout 999

- 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

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: 17:01

☐ 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: 55.74

If the two well depth measurements agree:

☐ Switch to Setra well depth in monitoring system

Time: 17:04

poro #0727 1092.64
1078.17
1069
cable

Now the String Drop begins

String Drop

The target depth is 2450 m

☐ Switch cable winch to computer control

☐ Speed:_____ Time:_____ Depth:_____
☐ Speed:_____ Time:_____ Depth:_____
☐ Speed:_____ Time:_____ Depth:_____
☐ Speed:_____ Time:_____ Depth:_____
☐ Speed:_____ Time:_____ Depth:_____
☐ Speed:_____ Time:_____ Depth:_____

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					
1500 m					
2000 m					
2100 m					
2200 m					
2300 m					
~~2400 m~~ 2416.2 2409.3	18:51	52.2	2379	2403	

[1]Read off monitoring screen
[2]Cable mark offset = _____ (at DOM59) – 17 m = _____ (at DOM60)
(from p.4)

☐ Switch to manual control @ 2400 m

☐ Well depth
@ 2420: 52.2
@ 2440:_____

☑ Position string at target depth of **2450** m Time: 19:00

☑ String secured with Yale grip and anchor chain Time: 19:43

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: 19:43	Paro	Keller	Payout	Cable marks
Reading	3430.86 PSI	3283 PSI	2446 m	2421 m
Offset	9.67 PSI	6.68 PSI	4 m	17 m
Well depth	52.2 m		This space is intentionally left blank	
Dist. to DOM60	18.10 m	527.69 m		
DEPTH (DOM60)	2460.43	2906.7	2446	2438

Time: 1954

Final depth (DOM60): 2460 *

* If Paro reading is accurate then there was 30m of cable stretch. Based on previous holes this should be more like 10-12m so we stored at Paro depth 2460 rather than 2450

Deployment Closeout

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

Time: 19:37 Date: 1-1-07

Shift Lead: Gary Hill
name / signature

Logger: Andrea Morey
name / signature

PTS Lead: Andrea Morey
name / signature

Deployment Manager:
name / signature

Safety Officer:
name / signature

IceCube On-ice Lead: Bob Morse
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

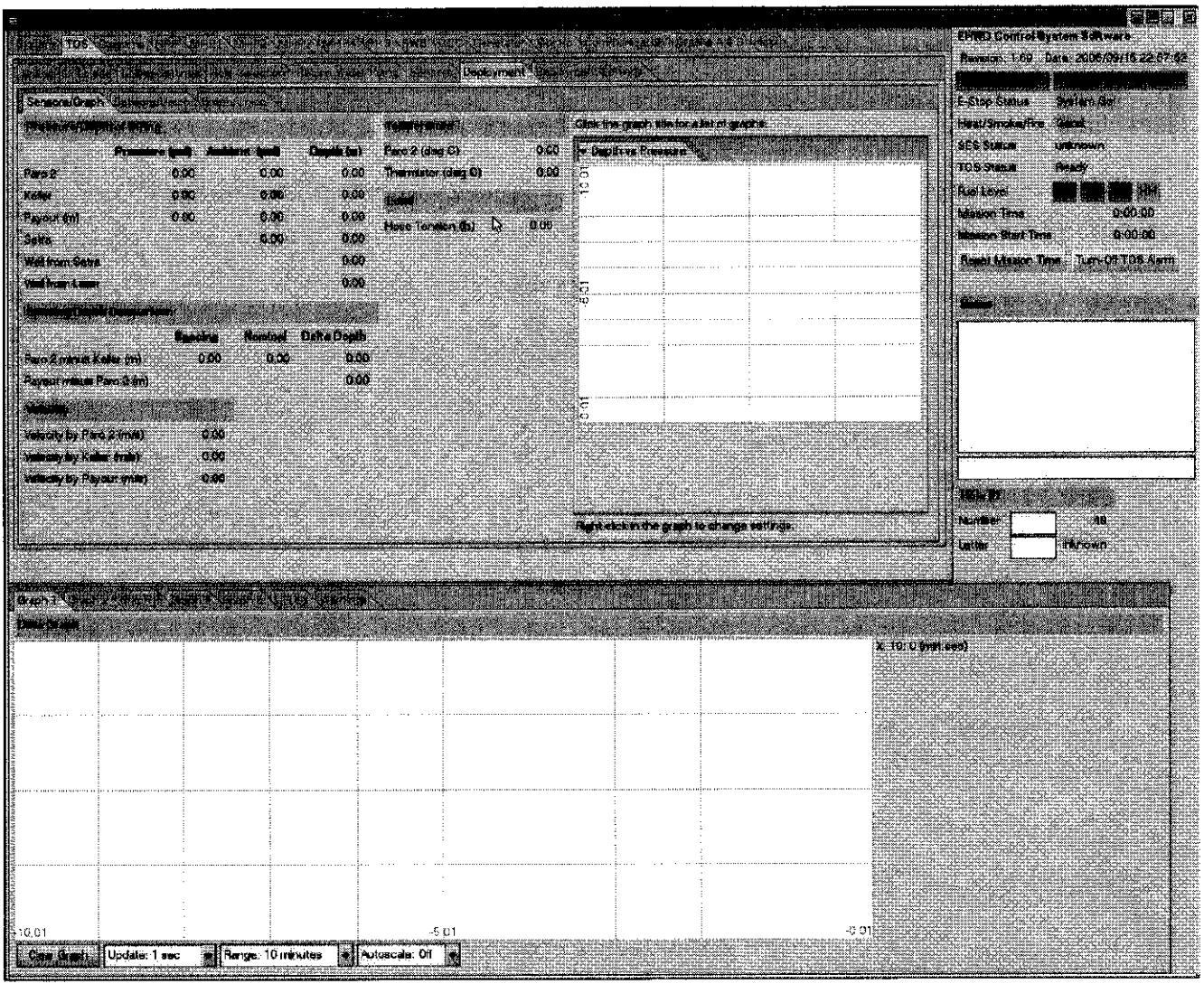
- All vertical measurements are relative to the floor of the tower (not the lip of the kick board).
  - Measure well depth from this level.
  - Take cable mark readings at this level.
- The location of a DOM on a string (for distance measurements) is defined as the position of the center of the sphere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

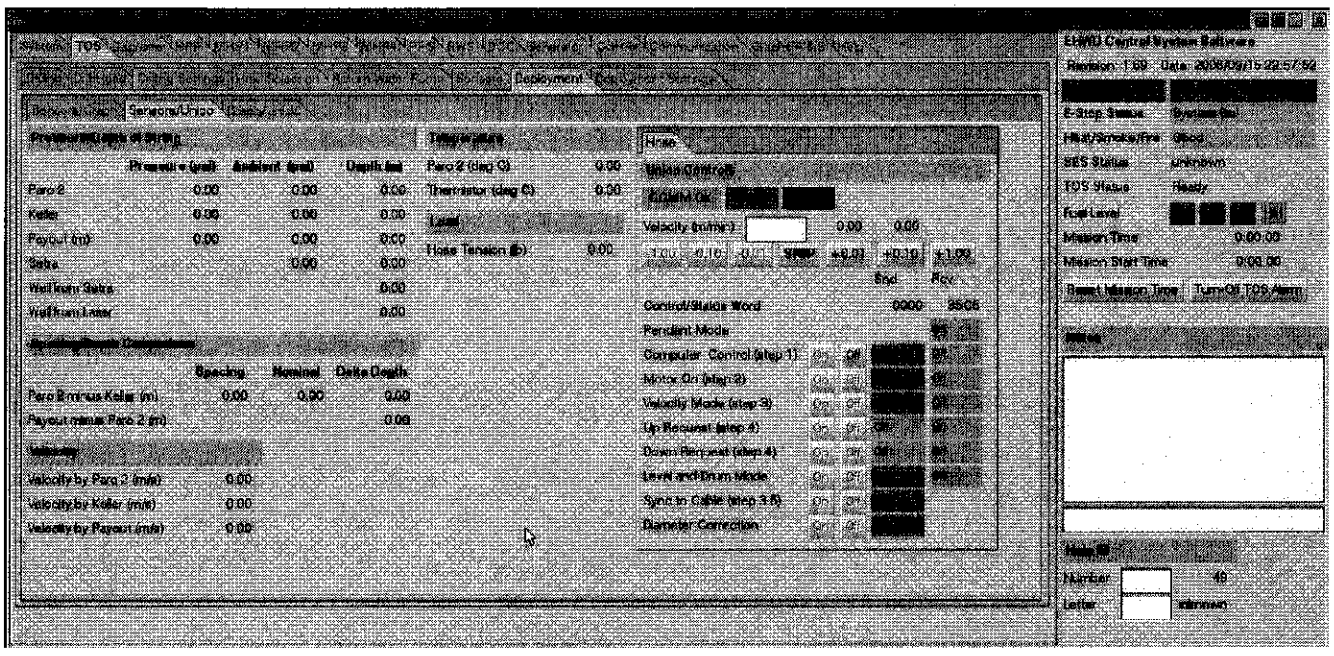
Pressure/Depth of String Current and ambient (air) pressures, and the corrected depths at DOM60.
Spacing/Depth Comparison Difference in depth from pressure data. *Should be stable during deployment!*
Velocity The deployment velocity calculated from recent pressure/payout readings.
Temperature Temperature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



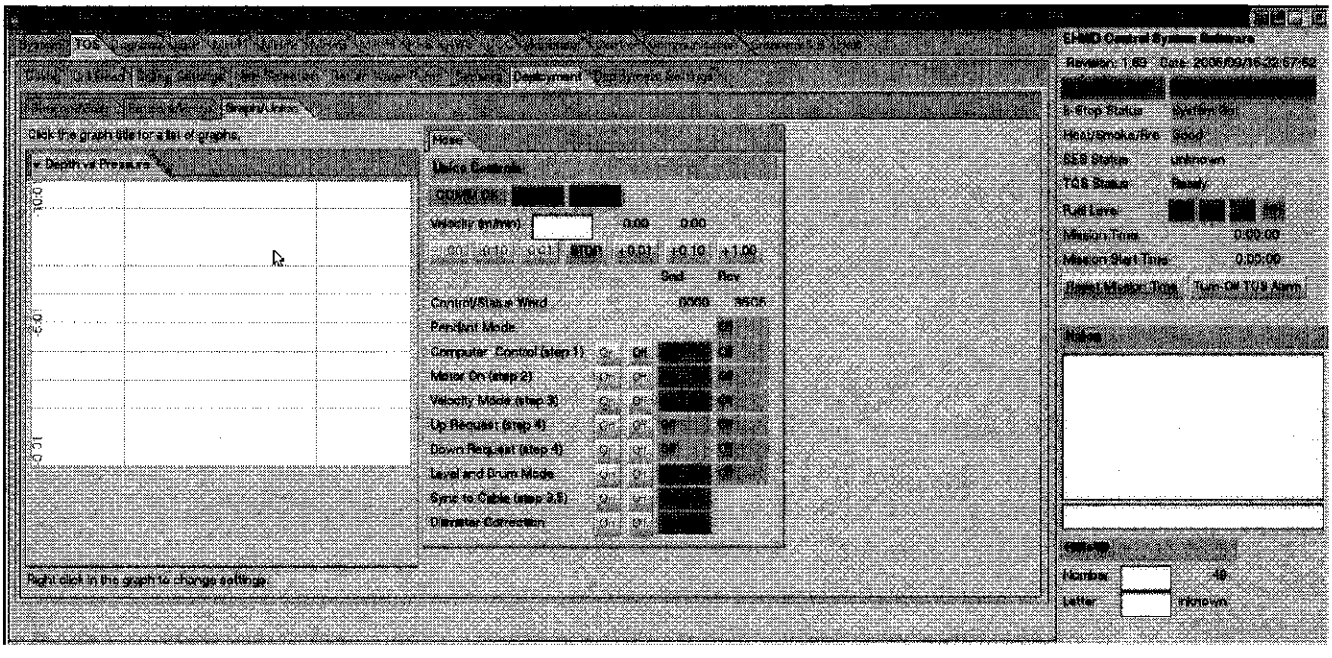
Screen Tab: TOS ▶ Deployment

▶ 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

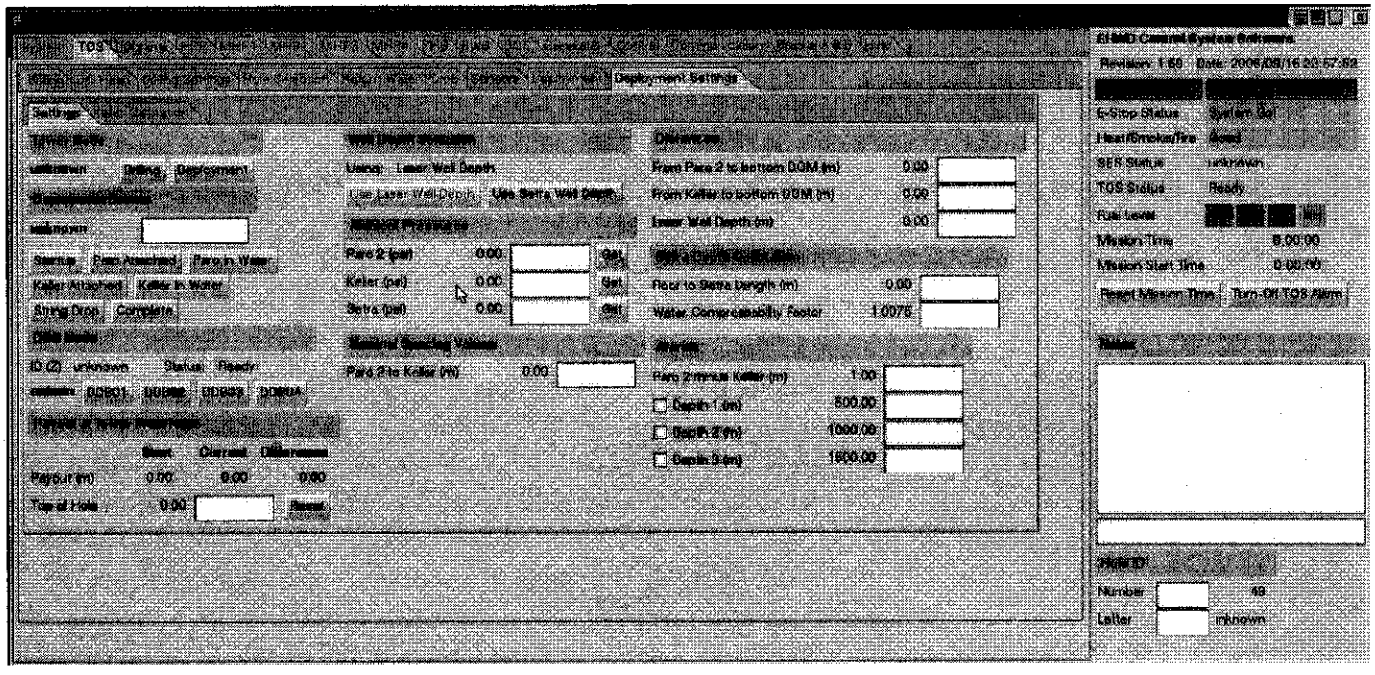


Screen Tab: TOS ▶ Deployment Settings

▶ 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).



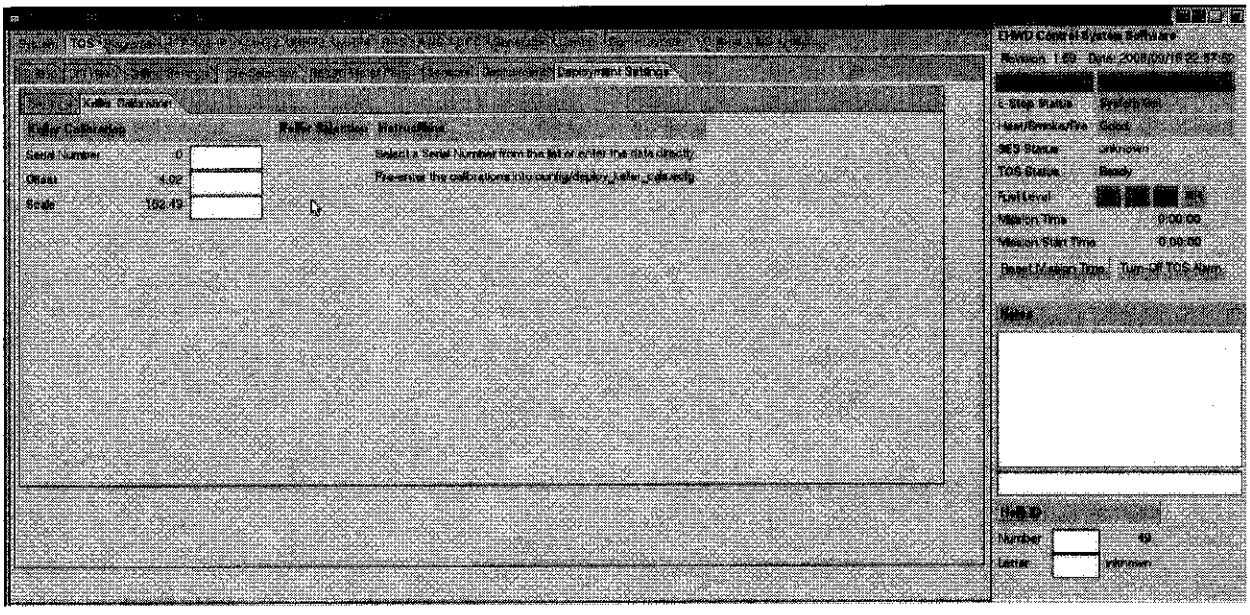
Deployment Events

☐ **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

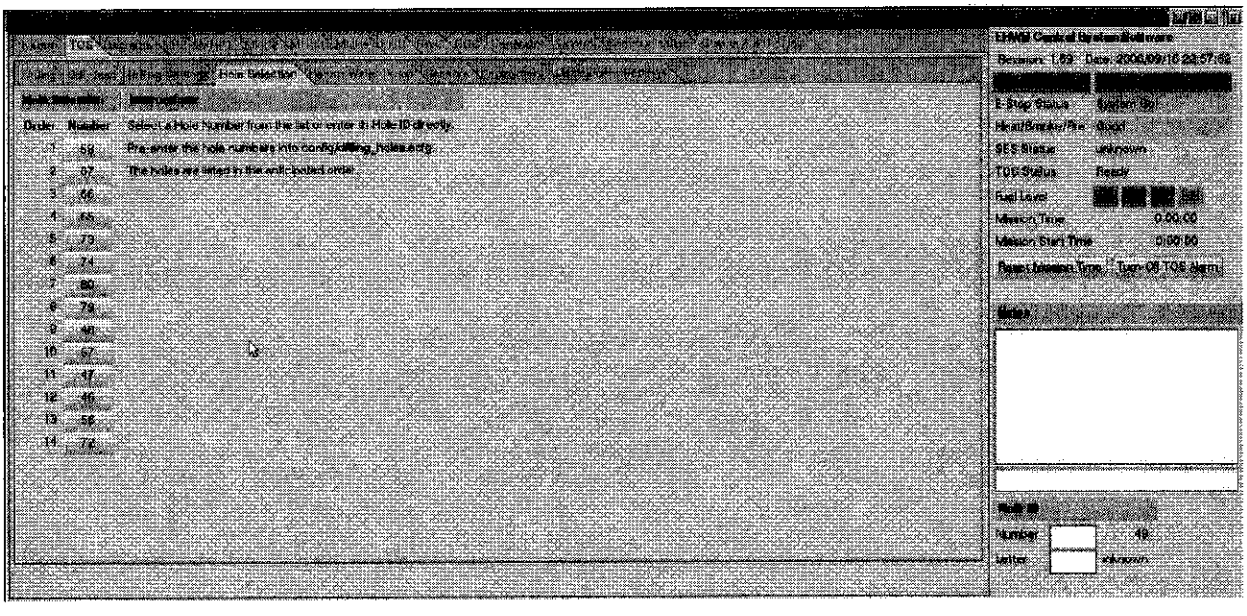
▶ Keller Calibration

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: _____ = _____

Distance between Keller and DOM60: _____ = _____

Distance between Paro and Keller: _____ = _____

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 # 73

DATE: 3

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.
- [x] **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. ~ 7:30 am

  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)

Logbook: DDB# 3

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

ENTER: Well depth [m] 70 357

Logbook: Well depth

☐ **Action**: Reset Payout when DOM60 breaks the plane of the floor. a little bit below (1 m)

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] 107

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

Logbook: Paro serial number 109165

☐ **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.

N/A

Logbook: Cable mark [m]

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

ENTER: Ambient pressure [PSI] for Paro

Logbook: Paro2 air pressure 9.67

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]

☐ **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.

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.

String 73

Name	DOMID	Comments	Position
Schultheiss	TP4Y0035	Droopy	38
Mamur	TP5P0569	Droopy	42
	TP5P0695	Instead of TP6Y4439	56
Radiophobiaish	TP5P0709	Droopy	34
Great_Rift	TP5P0887	Droopy	18
Baton_Rouge	TP5P0907	Droopy	36
West_Nile_Virusish	TP5P0975	Droopy	
Anthrax	TP5P0981	Droopy	12
Meningitis	TP5P1005	Droopy	
Grunewald	TP5Y0109	Droopy	52
	TP5Y0199	Instead of TP6P1379	28
Gum	TP6P1325		20
Papillon	TP6P1327		10
Stingray	TP6P1329		2
Eagle	TP6P1335		26
Trifid	TP6P1347		50
Eight_burst	TP6P1349		54
Witch_Head	TP6P1351		6
Seven_Spades	TP6P1403		46
Pasur_Card	TP6P1409		40
Russian_Bank	TP6P1423		32
Bonnie_And_Clyde	TP6P1739		30
Cool_Hand_Luke	TP6P1743		
Great_Escape	TP6P1749		16
From_Russia_With_Lov	TP6P1751		8
Rudra	TP6Y4277		4
Han_Xiangzi	TP6Y4303		22
Devaki	TP6Y4347		24
Dung_Wang_Kung	TP6Y4365		48
Girischa	TP6Y4433		14
Mu_Kung	TP6Y4449		44
Chiyou	TP6Y4459		60
Camel	UP4P0272	Droopy	41
Elephant	UP4P0306	Droopy	35
Borasco	UP5P0524	Droopy	27
Hurricane	UP5P0526	Droopy	33
Climatology	UP5P0790	Droopy	31
Japonophilia	UP5P0988	Droopy	
Nebraska	UP5P1016	Droopy	37

Cryptosporidiosis	UP5P1052	Droopy	25
The_Exorcist	UP6P1278		
North_America	UP6P1314		57
Hourglass	UP6P1318		45
Tarantula	UP6P1322		13
Pleiades	UP6P1334	Deploy at top of string	1
Crab	UP6P1336	Deploy at top of string	5
Little_Gem	UP6P1358		47
Little_Ghost	UP6P1360		43
Running_Man	UP6P1366		55
Pinochle	UP6P1370		23
Bridge_Card	UP6P1376		53
Nertz	UP6P1426		51
Klondike	UP6P1428		39
Putuoshan	UP6Y4228		21
Narayana	UP6Y4268		19
Laozi	UP6Y4272	Deploy at top of string	3
Kung_Kung	UP6Y4274		9
Vischnu	UP6Y4412		17
Pandavas	UP6Y4430		11
Durga	UP6Y4442		49
	UP6Y4444	Instead of UP6P1266	29
Ho_Tai	UP6Y4458		59
	UP6Y4478	Instead of UP4P0296	15

Remus	AP4P0060		58
	UP5P0794		7

X

String Installation Traveler

Surface Cable# : 73 **Length (m) :** 583 m	**Start date:** 12/21/06
Surface to DOM Cable# : C14	**Start date:** 1/1/07

	Process Step	Doc. no. reference	Tech initials	Date Completed	Comments
1	Visual Inspection of Cables at Pole	9400-0006-QLP	MC		not present

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

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

2	Trench Surface Cable Assembly (SCA)	9400-0006-QLP	MK		not present
3	Install SCA into Surface Junction Box (SJB)	9400-0006-QLP	MK		not present
4	Install SCA into ICL	9400-0075-PLN	MC	1/4/07	
5	Complete IceTop FCU Power and Data Installation Procedure	9400-005-QLP	JM	12/31/06	
6	Verify Connectivity of IceTop DOMs with Quad Connectivity Tester (QCT)		MC	1/8/07	
7	Pre-deployment Inspection Procedure		MC	1/1/07	
8	S2D Cable into SJB installation	9400-0007-QLP	MC	1/3/07	
9	Wet Connector Testing of Quads		RH	1/9/07	1 wet conn - Q 14
10	QCT Testing of Quads		RH	1/9/07	
11	SJB Final Inspection Complete (Ok to Bury)	9400-0007-FRM	MK	1/9/07	
12	Handoff to IceCube C &V Team		MC	1/9/07	

String Installation Traveler

String QCT and Wet Connector Test Form

String # 73 Name of Tester: Ryan Hammetter

	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			>180μA	>180μA	F	
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				