Deployment Start: at 4:13 pm on 1/26/07

DEPLOYMENT LOG for IceCube STRING # 46

Deployment End: at 2:	4 1/m on 1/26/07	2 (/27/07-TILL
Target depth (DOM60): 245	60 m Final depth:	2450,45
	Deployment Crew	
Position	First Shift	Second Shift
Shift lead	Tom Ham	Albrecht Kanle
DOM install 1 (high)	а ч в	Coerekolison
DOM install 2 (low) —	- Cabriel Gourie	Paul Wiswiewshit Selvestein
DOM supply 1 / DOM install 3	Mark Krasberg/	Phil Roth
DOM supply 2 / floater	Phil Roth	Minke Kixobery
Winch operator (ccl.)	Darryn Blyche	Albrecht Engh Over
- 1-41 Not	Justin Vandenbrouch	Mich Olyostono
if surginal list	-)	3
At check of	hift change: 7 09	m
Servi vumber for		4
# 52	V.	1 drill
	Idrill	
	2 m	9.7 hrs



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: 3/22			
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: Speed: ☐ Logging ended Time:			
☐ Estimated hole lifetime:			
▶ Must reach target depth by on			



Deployment Startup		
Time: 4:16		
Cable winch anchored and Department operational Tower winch operational Tie off verified Yellow rope verified		
Deployment monitoring system (PTS) operational DDB#		
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 7 17 m string extension steel cable on hand		
Safety checks complete (1st shift 2nd shift) Crew safety briefing Note: hole much bigger Lan usual - using driller Tos evacuation procedures reviewed Tos evacuation procedures reviewed Mustering point identified Snow mobile driver(s):		
CPR trained: Krashy Kleist, Ham, Gourie, Blythe		
Food runners: call galley at 65521		
☐ End of Main Cable brought into TOS and secured		

	8	
Cable end attachments		
estimak 60 m	hole is narrow and	
Measure well depth:	hale is narrow and snahing a (first indep. drill) Block mass or wooden block measurement	
Weights (5) attached	wooden Block measurement	
Weight cable attached (weight stack com	plete) Time: 4:29	



Photos: DOM ids ()	\(\frac{1}{2}\) long \(\frac{1}{2}\) short); connectors	(□ long □ short)
DOM position 60 (T, Long)	-14	DOM id: TP5P 0909 San Francisco
	onnected to weight stack lected to 17 m steel cable ew	Payout: <u></u>
DOM position 59 (U, Short)	Cable mark: 3	DOM id: UP 674246
Top shackle conn Main cable end to Photos: phi orien	aped to 17 m steel cable tation whole view	Δ(59-60): 16 · 8 (use laser ranger)
- LongDOM	So Paro hids after So Paro hids after Oom 56 ring in place and K lubed	Time: 5:08 pm Depth: Payout
	ng in place and □ lubed.	Zeroed
	ring in place and ⊅ lubed ng in place and □ lubed	
⚠ Loose pigtails tap	ped to cable	
Paro Serial #: 9 Connec	8 247 Nipple on a or ted Operational A Air park: faped Distance to	ff pressure [PSI]: 9 · 7 9 DOM59: <u>1 · 7 · M</u> → 1 δ · 7 · 6 o 0 c M 6 o
	术 All clear to lower cab	



IceCube String Deployment Log

Photos: DOM ids (long m short); connectors	s (□ long □ short)
DOM position 58	DOM id: TP 49 0083
(T, Long) Cable mark: 19.5	broken com.
	se photo
Top clutch connected at link # 19	Δ(58-59): <u>/6. 9</u>
\nearrow Bow OK $\rightarrow \nearrow$ clutch zip tied Photos: \nearrow phi orientation \nearrow whole view	ų.
Thouse A pin offendation / A whole view	Pa
DOM position 57	DOM id: UP 6 4 4 3 80
(U, Short) Cable mark: 36.5	broken con.
Bottom shackle connected Top clutch connected at link #(1	
Bow OK \rightarrow V clutch zip tied	Δ(57-58): (7-0
N Bow OK → V clutch zip tied Photos: N phi orientation X whole view	- 1
Breakout 29	Time:
Dreakout 29	
- LongDOM	Now 5:24 Last b/o 5 0 8
	Δt [min] 16
☐ breakout O-ring in place and ☐ lubed—	Depth:
onnected connected	Paro (0.07 psi Payout -1.62
- ShortDOM	broken I
connector O-ring in place and lubed	
☐ breakout O-ring in place and ☐ lubed☐ ☐ connected	
ga dominocida	
Loose pigtails taped to cable	
8	
e a a	
📈 All clear to lower cat	



Photos: DOM ids ()	X long X short); connectors	(□ long □ short)
DOM position 56		DOM id: TP <u>5 P 0 7 97</u>
(T, Long)	Cable mark: 53.5	
\nearrow Bow OK $\rightarrow \nearrow$ cl	ected at link # <u>(9</u>	16.9 $\Delta(56-57)$: 888 1000 = 905
DOM position 55 (U, Short)	Cable mark: 70.5	DOM id: UP 6 44262
⊠ Bow OK → X cl	ected at link # 19	Δ(55-56):
Breakout 28		Time:
/ · ·	ring in place and ☑ lubed ing in place and ☐ lubed	Now $5^{2}35^{2}$ pm Last b/o $5^{2}24^{2}$ $\Delta t [min]$ // Depth: Paro 10^{2} 60^{2} Payout -3^{2} m
the state of the s	ring in place and □ lubed ing in place and □ lubed	
Loose pigtails tap	ped to cable ro hit water ju lowering Doms	ist after beginning
		n y
	☐ All clear to lower cab	le ☺



Photos: DOM ids (long short); connectors (long short) DOM position 54 (T, Long) Cable mark:	The state of the s	
DOM position 54 (T, Long) Cable mark:	Photos: DOM ids (long short); connectors	s (□ long □ short)
Bottom shackle connected Top clutch connected at link # (9 A(54-55): 16.9 Bow OK → M clutch zip tied Photos: phi orientation whole view DOM position 53 (U, Short) Cable mark: take over (est 104.5) + 14=118.5 lefth by c.m. Bottom shackle connected Top clutch connected at link # 19 Bow OK → B clutch zip tied Photos: phi orientation whole view Breakout 27 Time: Now 5.47 Last b/o 5.35 At [min] 12 Depth: Paro 120. 8 Payout -4.3 Also pigails taped to cable A connected Conn	DOM position 54	DOM id: TP5 P0773
Bottom shackle connected at link # (9 A(54-55): 16.9 Bow OK A clutch zip tied Photos: A phi orientation whole view DOM position 53 (U, Short) Cable mark: tark over (est 104.5) + 14 = 118.5 deeth by c.m. Bottom shackle connected Top clutch connected at link # 1 9 Bow OK A connected at link # 1 9 Bow OK A clutch zip tied Photos: A phi orientation whole view Breakout 27 Time: Now 5.47 Last b/o 5.35 At [min] 12 Depth: Paro 120.8 Payout A 3 Payout A 3 Connected Loose pigtails taped to cable Should be 6.17 = 104 So add 31 for well of the sign of th	(T, Long) Cable mark: \$\forall 1\forall 5	
Top clutch connected at link # (9 Most	■ Bottom shackle connected	depth by c.m.
Bow OK → Clutch zip tied Photos: phi orientation whole view DOM position 53 (U, Short) Cable mark: take over (est loy.5) + 14 = 118.5 depth by c.m. Bottom shackle connected Top clutch connected at link # 19 Bow OK → Clutch zip tied Photos: phi orientation whole view Breakout 27 Time: Now 5 . 17 Last b/o 5 . 35 At [min] 12 Depth: Paro 120. 8 Payout - 4.3 ShortDOM Connected breakout O-ring in place and lubed Connected to ring in pl	Top clutch connected at link #(9	Δ(54-55): 16.7
DOM position 53 (U, Short) Cable mark: tand over (est 104.5) + 14 = 118.5 depth by c.m. Bottom shackle connected at link # 19 Bow OK → B clutch zip tied Photos: P phi orientation whole view Breakout 27 Time: Now 5 .47 Last b/o 5 .35 At [min] 12 Depth: Paro 120.8 Payout ~4.3 - ShortDOM Connected Pring in place and blubed breakout O-ring in place and blubed Connected Pring in place and blubed Connec	\boxtimes Bow OK $\rightarrow \bigvee$ clutch zip tied	5 E
(U, Short) Cable mark:	Photos: phi orientation whole view	ii
(U, Short) Cable mark:	DOM position 53	DOM id: UP 5 80952
M Bottom shackle connected M Top clutch connected at link # 1 9 M Bow OK → M clutch zip tied Photos: M phi orientation M whole view Breakout 27 Time: Now 5 · 47 Last b/o 5 · 35 At [min] 12 Depth: Paro 120. 8 Payout -4.3 - ShortDOM M connected Coring in place and M lubed Depth: Paro 120. 8 Payout -4.3 - ShortDOM M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M connected M conn	(U, Short) Cable mark: taped over	a d. b. cm
Top clutch connected at link # 19 Bow OK → Include the photos: It phi orientation In whole view Breakout 27 Time: Now 5 . 47 Last b/o 5 . 35 At [min] 12 Depth: Paro 120. 8 Payout -4.3 - ShortDOM Connector O-ring in place and I lubed breakout O-ring in place and I lubed Connector O-ring in place and I lubed breakout O-ring in place and I lubed Connector O-ring in place and I lubed Connected Loose pigtails taped to cable The connector O-ring in place and I lubed Should be 6 7 = 104 So add 31 to well depth? At [min] 12 Depth: Paro 120. 8 Payout -4.3 Paro 2. Should be 6 7 = 104 So add 31 to well depth?	(est. 104.5) + 19 M Rottom shackle connected	4= 118.5 depen 7
Bow OK Photos: Phi orientation whole view Breakout 27 Time: Now 5 . 47 Last b/o 5 . 35 At [min] [2 Depth: Paro 120. 8 Payout -4.3 Payout -4.3 Loose pigtails taped to cable Paro 2, should be 6 . 17 = 104 Should be 6 . 17 = 104 Should be 18 Should be 18 Should be 19 Should be 19 Should		Δ(53-54): 16 9
Breakout 27 Time: Now 5 . 47 Last b/o 5 . 35 At [min] 12 Depth: Paro 120. 8 Payout -4.3 - ShortDOM Connected Lubed Lubed Breakout O-ring in place and Lubed Connected Paro 120. 8 Payout -4.3 - ShortDOM Connected Lubed Breakout O-ring in place and Lubed Connected Loose pigtails taped to cable Loose pigtails taped to cable Amount of the proof of the place and and any lubed Should be 6.17 = 1.04 So add 31 to well lefth?		
Now S.47 Last b/o 5.35 At [min] 12 Depth: Paro 120.8 Payout -4.3 - ShortDOM Connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected ** Oom 54 Last b/o 5.35 At [min] 12 Depth: Paro 120.8 Payout -4.3 - Hoorie Appendix App	Photos: A phi orientation M whole view	*
Now S.47 Last b/o 5.35 At [min] 12 Depth: Paro 120.8 Payout -4.3 - ShortDOM Connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected ** Oom 54 Last b/o 5.35 At [min] 12 Depth: Paro 120.8 Payout -4.3 - Hoorie Appendix App	Breakout 27	Time
- LongDOM	Dieakout 27	
Connector O-ring in place and lubed Depth: Connected Paro 120.8 Payout -4.3 ShortDOM Connector O-ring in place and lubed breakout O-ring in place and lubed breakout O-ring in place and lubed Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected Connected	LanaDOM	
Depth: Connected Paro 120.8 Payout -4.3 Payout -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Paro 120. 8 Payout -4.3 - ShortDOM connector O-ring in place and lubed lubed lubed lubed connected		
- ShortDOM Connector O-ring in place and I lubed I breakout O-ring in place and I lubed Connected **Com 54 **Com 5		Paro 120. 8
Connector O-ring in place and lubed lubed well depth?		Payout ~4.3
breakout O-ring in place and lubed Connected Com sy Connected Com sy Connected Com sy Connected		
Loose pigtails taped to cable **Dom 54 Par C floor: Dom 54 Par C floor: Should be 6.17 = 104 So add 31 to well depth? All m well?	I have brook O win a in a land and I lubod	#
well depth? If m vell?	✓ connected ★ / \ \	SY Pa C Floor:
well depth? If m vell?		22 - dooth
well depth? If m vell?	Loose pigtails taped to cable	by Paro 2
well depth? If m vell?	\ sh	ould be 6.17 = 104
9/ m ve/1?		so add 31 to
All close to lower cable @ 6kg using it		N COMPANY OF STREET
All clear to lower cable (3)	☐ All clear to lower cat	ole o 6kg, using it



Photos: DOM ids (long > short); connectors	s (□ long □ short)
DOM position 52	DOM id: TP 5 HO29
(T, Long) Cable mark: $\frac{121}{114 = 135}$ de	opth by c.m
Bottom shackle connected ☐ Top clutch connected at link #	
DOM position 51	
(U, Short) Cable mark: 138	
Bottom shackle connected ☐ Top clutch connected at link # () ☐ Bow OK → ☐ clutch zip tied ☐ Photos: ☐ phi orientation ☐ whole view	
Breakout 26	Time:
- LongDOM connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected	Now 5 6:02 Last b/o 5:47 Δt [min] 15 Depth: Paro 155.5 Payout 56.74
- ShortDOM □ connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed ⋈ connected	
∆ Loose pigtails taped to cable	@ forgot & (Paro-Dom60). 91-18.7 = [72.3 m w/l] extin
	Fixed •
□ All clear to lower cab	ole ⊙



Photos: DOM ids (long short); connector	rs (□ long □ short)
DOM position 50	DOM id: TP 5 H 0 253
(T, Long) Cable mark: 155	
Bottom shackle connected Top clutch connected at link #	
DOM position 49	DOM id: UP
(U, Short) Cable mark: 72	40314
TK=186	DOM id: UP 4 P 0 3 14 depth by c.m.
Top clutch connected at link # $/9$ Bow OK $\rightarrow \%$ clutch zip tied	Δ(49-50): 16.9
Photos: phi orientation whole view Curved distance around DOM:	Vertical distance:
Curved distance around DOW	Vertical distance.
Breakout 25	Time:
	Now 6:09
- LongDOM	Last b/o 6:02
connector O-ring in place and Vlubed	$\Delta t [min] \mathcal{F}$
☐ breakout O-ring in place and ☐ lubed	Depth:
	Paro 89.5
C1 - DOM	Payout
- ShortDOM	g.
☐ connector O-ring in place and ☐ lubed☐ breakout O-ring in place and ☐ lubed☐	
connected in place and in rasea	*
Loose pigtails taped to cable	
All clear to lower ca	ıble 😊



Photos: DOM ids (long # short); connector	s (□ long □ short)
DOM position 48		DOM id: TP 5 P 0975
(T, Long)	Cable mark: 🔑 189	
Bow OK $\rightarrow \mathbb{Z}$ c	ected at link #	Δ(48-49): 16.9 Load =
DOM position 47		DOM id: UP 5 P0 864
(U, Short)	Cable mark: 206	×
Bottom shackle Bottom shackle Bottom shackle S	connected	2 T
Top clutch conne	ected at link # 🙆 (9	Δ(47-48): 17.0
Note:	ntation \(\mathbb{T} \) whole view	
Breakout 24	R	Time:
2"		Now 6:20
- LongDOM		Last b/o 6:09
	ring in place and □ lubed	∆t [min]/ Depth:
d connected	ring in place and □ lubed	Paro 224.0
Za connected		Payout
- ShortDOM		
<i>f</i>	ring in place and □ lubed	
	ring in place and □ lubed	
Connected		
Loose pigtails ta	aped to cable	5. de
		à.
a a		
e	*	
n	ฬ All clear to lower ca	ble ⊙





Photos: DOM ids (☒ long ☒ short); connectors (☐ long ☐ short)	
DOM position 46 DOM id: TP 5 PO 86	
(T, Long) Cable mark: 123	
Bottom shackle connected Top clutch connected at link #(9	
DOM position 45 (U, Short) Cable mark: Laped over	
Bottom shackle connected Top clutch connected at link # $\frac{19}{2}$ Bow OK \rightarrow Clutch zip tied Photos: Photos: Photos whole view	
Breakout 23 Time:	
- LongDOM Connector O-ring in place and □ lubed Depth: Connected Paro 25 8.0 Payout -13.9 Connected Payout -13.9 Last b/o Depth: Paro 25 8.0 Payout -13.9 Payout -13.9 Payout -13.9 Connected Payout -13.9 Payout -13.9	
Ճ All clear to lower cable ☺	





Photos: DOM ids (♥long □ short); connectors (□ long □ short)		
DOM position 44	DOM id: TP 5 90 993	
(T, Long) Cable mark: 256.5		
Bottom shackle connected Top clutch connected at link #/9 Bow OK → In clutch zip tied Photos: In phi orientation In whole view	Δ(44-45): 16.9 5/4/	
DOM position 43 (U, Short) Cable mark: 4 are cove	DOM id: UP 54016	
☐ Bottom shackle connected ☐ Top clutch connected at link #/8 ☐ Bow OK → ☐ clutch zip tied ☐ Photos: ☐ phi orientation ☐ whole view	Δ(43-44): MAN UM 16,924	
Breakout 22	Time:	
- LongDOM □ connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected	Now 6:55 Last b/ο Δt [min] Depth: Paro 293.03 Payout	
- ShortDOM □ connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected	Tayout	
☐ Loose pigtails taped to cable	e e	
±		
□ All clear to lower ca	ble 😊	





Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 42	DOM id: TP 68/235	
(T, Long) Cable mark: 290		
Bottom shackle connected Top clutch connected at link # Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view	Δ(42-43): // _ρ , 90/	
DOM position 41	DOM id: UP 5 / 0/30	
(U, Short) Cable mark: 307		
Bottom shackle connected Top clutch connected at link # Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view	Δ(41-42): /6, 938	
Breakout 21	Time:	
 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 	Now 7:/4 Last b/o Δt [min] Depth: Paro 327. 50 Payout -23. 49	
Connected		
☐ Loose pigtails taped to cable		
* ·		
□ All clear to lower cal	ole ©	



Photos: DOM ide (□ long □ short): connector.	s (long short)
Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 40	- 0 N	DOM id: TP6/127/
(T, Long) Bøttom shackle	Cable mark: 324 connected	
☐ Top clutch conn	ected at link #	Δ(40-41): 16.938
Bow OK → Bc	lutch zip tied	
Photos: phi orier	ntation whole view	
DOM position 20		DOMIALID EDATA
DOM position 39	Cable mark: 34	DOM id: UP <u>59077</u> 9
(U, Short)	Cable mark: / / /	
Bottom shackle	connected ected at link #_/7	Λ(39-40): //α.948
\square Bow OK $\rightarrow \square$ c		2(00.10).
	ntation untation whole view	
p 51.00	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Breakout 20		Time:
		Now_7:29
- LongDOM	s	Last b/o
□ connector O-	ring in place and □ lubed	Δt [min]
☐ breakout O-r	ring in place and □ lubed	Depth:
□ connected		Paro 362.11
		Payout25.53
- ShortDOM		
☐ connector O-	-ring in place and \Box lubed	
	ing in place and □ lubed	
□ connected		
# F		
☐ Loose pigtails ta	ped to cable	
7.		
5		
v v	□ All clear to lower cab	ole 😊





Photos: DOM ide (\Box long \Box short); connectors	s (long short)
DOM position 38	in long in shorty, confidences	DOM id: TP 4P02/5
(T, Long)	Cable mark: 358	D G W G G G G G G G G G G
Bow OK → ©c	connected ected at link #	Δ(38-39): 16,902 BROKEN CONNECTOR
DOM position 37 (U, Short)	Cable mark: 375	DOM id: UP <u>59086</u> 2
Bow OK → ©c	ected at link #	Δ(37-38): /6,955
Breakout 19		Time:
	ring in place and □ lubed ing in place and □ lubed	Now 7:45 Last b/o Δt [min] Depth: Paro 3%, 49 Payout
l .	ring in place and □ lubed ing in place and □ lubed	
☐ Loose pigtails ta	ped to cable	
8	□ All clear to lower call	ole 🐷





Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 36	DOM id: TP <u>59 0943</u>	
(T, Long) Cable mark: 3%		
Bottom shackle connected □ Top clutch connected at link # Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view	Δ(36-37): 000 P5. 11 (on The phone)	
DOM position 35	DOM id: UP_69 1236	
(U, Short) Cable mark: 409		
 □ Bottom shackle connected □ Top clutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(35-36): / <i>l</i> , 938	
Breakout 18	Time:	
- LongDOM □ connector O-ring in place and □ lub □ breakout O-ring in place and □ lube □ connected		
- ShortDOM □ connector O-ring in place and □ lub □ breakout O-ring in place and □ lube □ connected		
☐ Loose pigtails taped to cable	to the second of	
☐ Put two Kellers (one is for backup) in bu	acket of water/ice mix	
□ All clear to lower	cable ©	



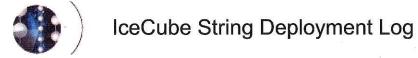
Photos: DOM ids (☐ long ☐ short); connector	rs (long short)
DOM position 34	DOM id: TP_5P0827
(T, Long) Cable mark: 426	
□ Bottom shackle connected	9
☐ Top clutch connected at link #	Δ(34-35): 16,938
Bow OK \rightarrow Clutch zip tied	<u> </u>
Photos: □ phi orientation □ whole view	
2	· ·
DOM position 33	DOM id: UP <u>5/4 0/0</u> 8
(U, Short) Cable mark: 443	
☐ Bottom shackle connected	
☐ Pop clutch connected at link #	$\Delta(33-34): 16,963$
\square Bow OK → \square clutch zip tied	2(00 01)
Photos: ☐ phi orientation ☐ whole view	
Breakout 17	Time:
a	Now 8:10
- LongDOM	Now_8:/0
\Box connector O-ring in place and \Box lubed	Δt [min]
☐ breakout O-ring in place and ☐ lubed	Depth:
□ connected	Paro 465.55
	Payout -33.86
- ShortDOM	
☐ connector O-ring in place and ☐ lubed	
□ breakout O-ring in place and □ lubed□ connected	
- Connected	8
☐ Loose pigtails taped to cable	*
	is a second of the second of t
□ All clear to lower cal	ble ⊚



Photos: DOM ids (☐ long ☐ short); connectors	s (□ long □ short)
DOM position 32	DOM id: TP <u>5 P0 6 0 5</u>
(T, Long) Cable mark: 460	
 □ Bottom shackle connected □ Top elutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(32-33): <u>//_e, 940</u>
DOM position 31	DOM id: UP_5H0244
(U, Short) Cable mark: 477	56 m m. 61 <u>5// (</u>
Bottom shackle connected ☐ Top clutch connected at link # ☐ Bow OK → ☐ clutch zip tied Photos: ☐ phi orientation ☐ whole view	Δ(31-32): <u>14, 9/7</u>
Breakout 16	Time:
Breakout 10	
 LongDOM □ connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected ShortDOM	Now 6.2 4 Last b/o Δt [min] Depth: Paro 500.67 Payout -37.55
 □ connector O-ring in place and □ lubed □ breakout O-ring in place and □ lubed □ connected 	
☐ Loose pigtails taped to cable	B
☐ All clear to lower cab	ole 🙂



Photos: DOM ids (\square long \square short); connectors (\square long \square short)		
DOM position 30		DOM id: TP 6P/225
(T, Long)	Cable mark: 494	<u> </u>
(·, _e.i.g)		
Bottom shackle	connected	0.1
☐ Tøp clutch conne	ected at link #	Δ(30-31): / 4. 94/
Bow OK → © cl	utch zip tied	- 1
Photos: phi orien	tation \square whole view	
	9	10 - 0
DOM position 29	~ 10	DOM id: UP 4P0256
(U, Short)	Cable mark: 5 /0	
	1	
■ Bottom shackle of		1/02/2
Top clutch conne	· · · · · · · · · · · · · · · · · · ·	Δ(29-30): //, 933
	•	
Photos: \square pni orien	tation whole view	
D - 1 - 4 - 4 - E		·
Breakout 15		Time:
		Now 8:39
- LongDOM		Last b/o
	ring in place and □ lubed	Δt [min]
	ing in place and \Box lubed	Depth:
□ connected		Paro 547.67
		Payout -42.50
- ShortDOM		****
□ connector O-	ring in place and □ lubed	
	ing in place and □ lubed	2
□ connected		
☐ Loose pigtails tap	ped to cable	
		1 2 1
Thermistor 12/21	resent \(\subseteq \text{Distance to DOM} \)	129: , 969 above Dom 29
Keller	onnected Operational	☐ Air pressure [PSI]: 1,09
	able mark: □ Dist	
al s	☐ All clear to lower cal	ole 😊



Photos: DOM ids (\square long \square short); connectors (\square long \square short)			
DOM position 28	DOM id: TP <u>5#0/33</u>		
(T, Long) Cable mark: 528			
Bottom shackle connected Top clutch connected at link # Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view	Δ(28-29): /6, 937		
DOM position 27	DOM id: UP 6P 1268		
(U, Short) Cable mark: 5 44	<u> </u>		
Bøttom shackle connected Top clutch connected at link # Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view	Δ(27-28): /6.9/9		
Breakout 14	Time:		
 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 	Now 8:50 Last b/o Δt [min] Depth: Paro 568.77 Keller 401.17 Payout -44.02		
☐ Loose pigtails taped to cable			
a P			
□ All clear to lower ca	ble ⊚		



The state of the s		
Photos: DOM ids ($(\Box \log \Box \text{ short}); \text{ connector}$	rs (□ long □ short)
DOM position 26	See E. Commission of the Commi	DOM id: TP <u>(P / 20 (</u>
(T, Long)	Cable mark: 562	
□Bow OK → □ c	connected ected at link #	Δ(26-27): /6,938
DOM position 25		DOM id: UP 5 70092
(U, Short)	Cable mark: 578	υσινια. στ <u>υ γυσγ</u> α
Bottom shackleTop clutch connBow OK → □ c	connected ected at link #	Δ(25-26): /6.903
Breakout 13	- 10	Time
Dreakout 13		Time:
		Now <u>9:00</u>
- LongDOM		Last b/o
	-ring in place and □ lubed	Δt [min]
8	ring in place and □ lubed	Depth:
\Box connected		Paro <u>603./5</u>
CI DOM		Keller <u>(,02.07</u>
	-ring in place and □ lubed ring in place and □ lubed	Payout46, 98
□ I oogo niotoila to	anad ta aabla	
☐ Loose pigtails ta	ped to cable	. 9
	- AH - 1 - 1 - 1	
-,	□ All clear to lower cal	ble 😊





Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 24	DOM id: TP 570667	
(T, Long) Cable mark: 5 9 5		
	· 	
☑ Bøttom shackle connected☑ Top clutch connected at link #	Δ(24-25): ////////////////////////////////////	
Bow OK $\rightarrow \Box$ clutch zip tied	$\Delta(24-23)$.	
Photos: phi orientation whole view	A CONTRACTOR OF THE PROPERTY O	
a motor in part of the motor in	8	
DOM position 23	DOM id: UP <u>5 P6826</u>	
(U, Short) Cable mark:		
□ Bøttom shackle connected	e	
Top clutch connected at link #	Δ(23-24): 16,943	
□ Bow OK → □ clutch zip tied	2(20 2 1). 14,713	
Photos: □ phi orientation □ whole view	*	
Breakout 12	Time:	
0	Now_9:15	
- LongDOM	Last b/o	
☐ connector O-ring in place and ☐ lubed	Δt [min]	
☐ breakout O-ring in place and ☐ lubed	Depth:	
□ connected	Paro <u>(37.77</u>	
	Keller 434.38	
- ShortDOM	Payout	
☐ connector O-ring in place and ☐ lubed		
☐ breakout O-ring in place and ☐ lubed☐ connected☐		
Connected		
☐ Loose pigtails taped to cable		
ar .		
□ All clear to lower ca	able 😊	





Photos: DOM ids (□ long □ short); connectors	(□ long □ short)
DOM position 22	DOM id: TP <u>5\6113</u>
(T, Long) Cable mark: \(\begin{aligned} \frac{1}{3} \textit{0} \\ \end{aligned}	
Bottom shackle connected	V s
Top clutch connected at link #	Δ(22-23): 16,942
Top clutch connected at link #	Z(22 20)
Photos: □ phi orientation □ whole view	
2	BROKEN CONNECTOR
DOM position 21	DOM id: UP <u>59/06</u> 8
(U, Short) Cable mark: 646	
Bottom shackle connected	,
☐ Top clutch connected at link #	Δ(21-22): /6,960
\square Bow OK → \square clutch zip tied	
Photos: \Box phi orientation \Box whole view	
	Y E
Breakout 11	Time:
	Now 9:24
- LongDOM	Last b/o
☐ connector O-ring in place and ☐ lubed	Δt [min]
☐ breakout O-ring in place and ☐ lubed	Depth:
	Paro <u>672.21</u> Keller 671.58
- ShortDOM	Pay
\Box connector O-ring in place and \Box lubed	Tay
□ breakout O-ring in place and □ lubed	
□ connected	
☐ Loose pigtails taped to cable	

□ All clear to lower cab	le 😊





Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 20		DOM id: TP 5 P 07 1 7
(T, Long) Bottom shackle	Cable mark: 663	-
□ Top clutch conn □ Bow OK → □ 6	ected at link # lutch zip tied	Δ(20-21): 16.963
	ntation	Vertical distance:
DOM position 19		DOM id: UP <u>// 44/5</u> 2
(U, Short)	Cable mark: <i>(₀ 8 (</i>)	-
Bow OK → D c	ected at link #	Δ(19-20): /6,924
	around DOM:	☐ Vertical distance:
Breakout 10		Time:
5 B		Now_9:35
- LongDOM		Last b/o
	-ring in place and □ lubed	Δt [min]
	ring in place and \Box lubed	Depth:
□ connected	¥	Paro 706,57
- ShortDOM		Keller 764.77 Payout -56.6/
□ connector O	-ring in place and □ lubed ring in place and □ lubed	
☐ Loose pigtails ta	aped to cable	
□ All clear to lower cable ⊚		





Photog: DOM ida (Jana □ short), connectors	(long showt)
Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 18	107	DOM id: TP <u>(P / 25</u> /
(T, Long)	Cable mark: 697	
Bottom shackle of Pop clutch connected Bow OK → Dot Photos: □ phi orien	ected at link #	Δ(18-19): <u>/6,970</u>
DOM position 17 (U, Short)	Cable mark: 713	DOM id: UP <u>5 P 0 9 28</u>
Bottom shackle o	ann acted	
☐ Top clutch conne ☐ Bow OK → ☐ cl	ected at link #	Δ(17-18): <i>[6, 92]</i>
The same of the sa	tation whole view	
Breakout 9	g M	Time:
		Now 10: 25
- LongDOM		Last b/o
	ring in place and □ lubed	Δt [min]
CAP 20 MI W 10 MI	\log in place and \square lubed	Depth:
\Box connected		Paro 742.20
		Keller 741.06
- ShortDOM		Payout - 58.09
□ connector O-	ring in place and \Box lubed	-
□ breakout O-ri	\log in place and \square lubed	
\Box connected	4	
☐ Loose pigtails tap	ped to cable	
5		
□ All clear to lower cable ☺		





Photos: DOM ids (\square long \square short); connectors (\square long \square short)		
DOM position 16		DOM id: TP 4P0299
(T, Long)	Cable mark: 73]	•
 □ Bottom shackle connected □ Top clutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 		Δ(16-17): <u>//₄. 937</u>
DOM position 15		DOM id: UP 5 P 0988
(U, Short)	Cable mark: 747	
Bottom shackle		
	eeted at link #	Δ(15-16): 16,962
Bow OK → © c	lutch zip tied	2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
Photos: □ phi orier	ntation whole view	
Breakout 8		Time:
		Now 10:35
- LongDOM		Last b/o
	ring in place and □ lubed	Δt [min]
☐ breakout O-r	ring in place and □ lubed	Depth: Paro 774.86
Connected		Keller 775.34
- ShortDOM		Payout -63.01
A CONTRACT OF CONTRACT	-ring in place and \Box lubed	a a
and the second s	ing in place and □ lubed	
□ connected	t t	
☐ Loose pigtails ta	ped to cable	
	I and the second	
□ All clear to lower cable ⊚		





Photos: DOM ids (\square long \square short); connectors (\square long \square short)		
DOM position 14	DOM id: TP 6 P 1315	
(T, Long) Cable mark: 765	9	
Bottom shackle connected ☐ Top clutch connected at link # ☐ Bow OK → ☐ clutch zip tied Photos: ☐ phi orientation ☐ whole view	Δ(14-15): <u>/6.945</u>	
DOM position 13 (U, Short) Cable mark: 781	DOM id: UP 4 4 0040	
 □ Bottom shackle connected □ Top clutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(13-14): /6 · 965	
Breakout 7	Time:	
- LongDOM	Now 10:45 Last b/o At [min] Depth: Paro 8/1/9 Keller 869, 6/ Payout -6/2,43	
□ All clear to lower cab	ole 🙃	





Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 12	DOM id: TP 4 <i>P0309</i>	
(T, Long) Cable mark: 799	2011 Id. 11 <u>/// 0/0/</u>	
(1, 20.19)		
	1/ 02/	
Top clutch connected at link #	Δ(12-13): /6, 93/	
\square Bow OK $\rightarrow \square$ clutch zip tied		
Photos: □ phi orientation □ whole view		
DOM position 11	DOM id: UP 490222	
(U, Short) Cable mark: 815		
☐ Bottom shackle connected	3 6 m ct #	
☐ Top clutch connected at link #	Δ(11-12): /6.94/	
Bow OK → Glutch zip tied		
Photos: □ phi orientation □ whole view		
Breakout 6	Time:	
Breakout o	Time.	
	Now_//:00	
- LongDOM	Last b/o	
☐ connector O-ring in place and ☐ lubed	Δt [min]	
☐ breakout O-ring in place and ☐ lubed	Depth:	
	Paro 845, 75	
	Keller 846.63	
- ShortDOM	Payout	
☐ connector O-ring in place and ☐ lubed		
☐ breakout O-ring in place and ☐ lubed		
□ connected		
☐ Loose pigtails taped to cable		
-		
	•	
☐ All clear to lower cab	le 🙃	
- 7 th block to lower bable		



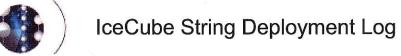


Photos: DOM ids (\square long \square short); connectors (\square long \square short)		
DOM position 10	DOM id: TP <u>6 / 433</u> 9	
(T, Long) Cable mark: <u>\$32</u>	g 8	
 Bottom shackle connected Top clutch connected at link # Bow OK → □ elutch zip tied Photos: □ phi orientation □ whole view 	Δ(10-11): /6, 902	
DOM position 9 (U, Short) Cable mark: 849	DOM id: UP <u>5 Y 01 08</u>	
 ☑ Bøttom shackle connected ☑ Top clutch connected at link # ☑ Bow OK → ☑ clutch zip tied Photos: ☐ phi orientation ☐ whole view 	Δ(9-10): /6,945	
Breakout 5	Time:	
 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 	Now //./4 Last b/o Δt [min] Depth: Paro <u>\$80.26</u> Keller <u>\$73.74</u> Payout <u>-74.01</u>	
☐ Loose pigtails taped to cable		
□ All clear to lower cable ☺		





Photos: DOM ids (□ long □ short); connectors (□ long □ short)		
DOM position 8	DOM id: TP 644345	
(T, Long) Cable mark: 846		
 □ Bottom shackle connected □ Top clutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(8-9): /6.960	
DOM position 7	DOM id: UP 44 0046	
(U, Short) Cable mark:	DOWN 10. 01 17 10	
 Bottom shackle connected Top clutch connected at link #_/ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(7-8): <u>/6 869</u>	
Breakout 4	Time: 23:29	
- LongDOM	Now // 30 Last b/o	
□ connector O-ring in place and □ lubed□ breakout O-ring in place and □ lubed	Δt [min] Depth:	
□ connected	Paro 9/6, 25	
	Keller 7/9,84	
- ShortDOM	Payout - 78.7	
☐ connector O-ring in place and ☐ lubed		
□ breakout O-ring in place and □ lubed□ connected		
☐ Loose pigtails taped to cable		
E E		
a 2 2		
□ All clear to lower cable ☺		



Photos: DOM ids	$(\Box \text{ long } \Box \text{ short}); \text{ connectors}$	(□ long □ short) 5	7
DOM position 6		DOM id: TP_	H0/19
(T, Long)	Cable mark: 900	BROKEI	N CONNECTO,
Bow OK → D	nected at link #	Δ(6-7): 16,970	0 0
DOM position 5		DOM id: UP_5	H0104
(U, Short)	Cable mark:9]7	ń.	-
\square Bow OK $\rightarrow \square$	nected at link #	Δ(5-6): 16.924	20 1 1 32
Breakout 3		Tim	e:
		Now //: 40	f.
LongDOM		Last b/o	
- LongDOM	o-ring in place and □ lubed	Δt [min]	
	ring in place and □ lubed	Dep	th:
□ connected	ing in place and a label	Paro 949.	77
	· ·	Keller 949	18
- ShortDOM		Payout -80	0.88
	oring in place and □ lubed ring in place and □ lubed		
☐ Loose pigtails to	aped to cable		
		-	

☐ All clear to lower cable





Photos: DOM ids (\square long \square short); connectors (\square long \square short)		
DOM position 4	DOM id: TP 590555	
(T, Long) Cable mark: 934		
 □ Bottom shackle connected □ Top clutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(4-5): <u>16,956</u>	
DOM position 3	DOM id: UP 6 Pl232	
(U, Short) Cable mark: NA		
 □ Bottom shackle connected □ Top clutch connected at link # □ Bow OK → □ clutch zip tied Photos: □ phi orientation □ whole view 	Δ(3-4): /6,9/δ	
Breakout 2	Time:	
 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 	Now AMM 11:50 Last b/o Manage 11:50 At [min] Depth: Paro 984.11 Keller 985.06 Payout -84.73	
☐ Loose pigtails taped to cable	i grande de la companya de la compan	
□ All clear to lower cal	ole ©	





Photos: DOM ids (\square long \square short); connectors (\square long \square short)		
DOM position 2	DOM id: TP 4P 0267	
(T, Long) Cable mark: 968		
☑ Bottom shackle connected☑ Top clutch connected at link #	Δ(2-3): 16.936	
\square Bow OK → \square clutch zip tied	1 (2 0). My 10119	
Photos: ☐ phi orientation ☐ whole view		
and and the second seco	100.00	
DOM position 1	DOM id: UP <u>57064</u> 2	
(U, Short) Cable mark:		
Bottom shackle connected		
☐ Top clutch connected at link #	Δ(1-2): /6,9 5 2	
\square Bow OK → \square clutch zip tied		
Photos: □ phi orientation □ whole view		
Breakout 1	Time:	
	Now /2;0/	
- LongDOM	Last b/o	
☐ connector O-ring in place and ☐ lubed	Δt [min]	
☐ breakout O-ring in place and ☐ lubed	Depth:	
□ connected	Paro /6/8, 63	
79	Keller /020.33	
- ShortDOM	Payout	
☐ connector O-ring in place and ☐ lubed	40	
□ breakout O-ring in place and □ lubed□ connected		
Connected		
☐ Loose pigtails taped to cable		
	×	
No second Paro no more		
To Curam nhata		
Group photo		
□ All clear to lower cable ☺		



Uphole Pressure Sensor (Setra)

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

☐ 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: <u>54,477</u>
If the two well depth measurements agree:
☐ Switch to Setra well depth in monitoring system
Time: /:/0

Now the String Drop begins



String	Dron
Junig	DIOP

The target depth is 2450 m

	Switch	cable	winch	to	computer	control
--	--------	-------	-------	----	----------	---------

□ Speed:	,49	Time:	1210	Depth:_	1165	
☐ Speed:	52	Time:	1:26	Depth:	1535	
☐ Speed:	.36	Time:	1:36	Depth:_	1786	

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

	Depth by Paro ¹	Time	Well depth ¹	Depth by cable marks²	Depth by Payout¹	Δdepth P-K ¹
_	1000 m	1:25	53.049	1479	-21.8.81	-6.67
) _	2000 m	110/	77.0//	1111	a (20 - 0)	6.67
	2100 m	1. (/	r \ d1/2	2170	217 29	=14.07
-	2200 m 2300 m	1:56	50.947	A170	-802.39	-/0.87
	2400 m	2:10	56.395	2369	-023.44	-14,88

¹Read off monitoring screen

²Cable mark offset =
$$\frac{3}{\text{(from p.4)}}$$
 (at DOM59) - 17 m = $\frac{-13.8}{\text{(at DOM60)}}$

- ☐ Switch to manual control @ 2400 m
- ☐ Well depth

(a) 2420:

Position string at target depth of **2450** m

Time: 2:/5

☐ String secured with Yale grip and anchor chain

Time: 2:4/

FILE WELL HET!

1562,00

0040



-	1
	1
7	1
	/

Abso	lute	depth	with	bottom	P	aro
		<u>-</u> 24				

(depth in *meters* and pressure in *PSI*)

1	T	•	T.	S	DOM60:
	Lintongo	trom	Doro	to	1 11 11/16/11
1 1	INSIAIRCE	1111111		141	I M MVICE
A CONTRACTOR OF THE PARTY OF TH	Dibunio	TIVITI	I WILL	·	D OINTOU.

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

☐ 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 $\rightarrow \exp(-KP_0) =$ _____

Pressure reading (from screen):
$$P = \underline{\hspace{1cm}} PSI \rightarrow exp(-KP) = \underline{\hspace{1cm}}$$

Subtract exponentials
$$\rightarrow$$
 = $\frac{1.05047.10^5}{1.05047.10^5}$

Paro depth in water
$$\rightarrow$$
 = ____ m

Add well depth
$$\rightarrow$$
 + m

Depth of bottom DOM
$$\rightarrow$$
 = _____ m

Final depth estimates

----- read off deployment screen ------

Time:	Paro	Keller	Payout	Cable marks				
Reading	3418 86 PSI	2700.0/ PSI	-961.69 m	24/9 m				
Offset	/6.00 PSI	1.09 PSI	6 m	-13,8 m				
Well depth	m		This space is intentionally left blank					
Dist. to DOM60	antimounte m	MANANTES m	This space is inter	itionally left blank				
DEPTH (DOM60)	2450.45	2464.53		24 32,8				

Time: 2:41

Final depth (DOM60):___ 2450.45





D	lovment	01-	4
IIION	IOVMANT	LIO	SPAIIT
	CALLCIE	VIV-	JUUGE

20 piloy mont oloobout			
String safely secured			
Hole covered and secured			
☐ Equipment safely shutdown and secured			
X Deployment data OK (in database)			
☐ Site cleanup			
☐ Deployment crew dismissed			
ズ, String deployment complete			
Time: 2:41 Date: 1/24/07 TUF			
Shift Lead: A Karle, Ak.			
Logger: M. DAgntwo name / signature			
PTS Lead: M. & Agretius name / signature			
Deployment Manager:			
Safety Officer: name / signature			
IceCube On-ice Lead: A. Karle V. name / signature			



46

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

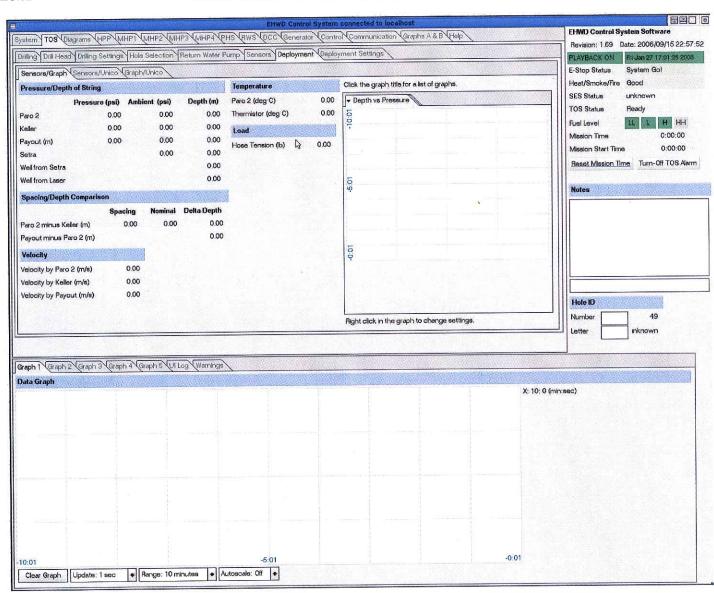
The deployment velocity calculated from recent pressure/payout readings.

Temperature

Temperature readings.

Load

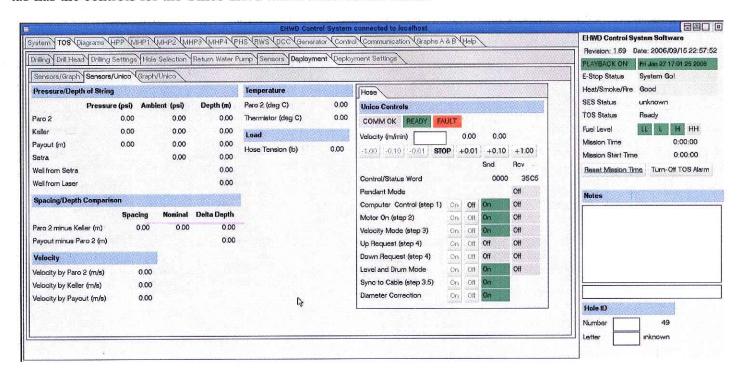
Cable tension from load cell data.



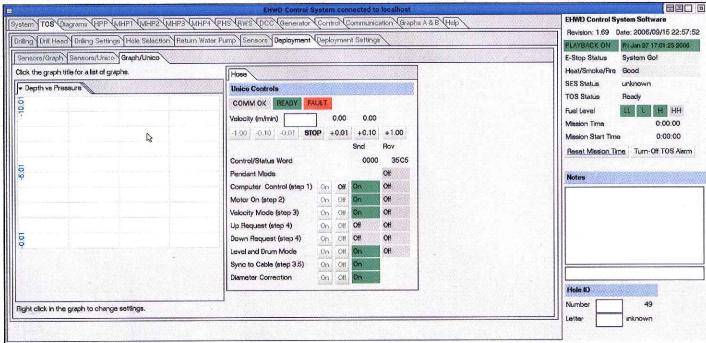
Screen Tab: TOS ▶ Deployment

▶ 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.

Set values for which alarm is to be sounded (optional).

Alarms

EHWD Control System Software rstern TOS (Diagrams HPP (MHP) (MHP2 (MHP3 (MHP4 PHS RWS (DCC (Generator (Control Communication (Graphs A & B (Help Revision: 1.69 Date: 2006/09/15 22:57:52 Drilling Drill Head Drilling Settings Hole Selection Return Water Pump Sensors Deployment Deployment Settings PLAYBACK ON Fri Jan 27 17:01:25 2006 E-Stop Status System Gol Heat/Smoke/Fire Good **Well Depth Selection** Distances Tower Mode SES Status unknown From Paro 2 to bottom DOM (m) 0.00 Drilling Deployment Using: Laser Well Depth TOS Status From Keller to bottom DOM (m) Use Laser Well Depth | Use Setra Well Depth | 0.00 Fuel Level LL L H HH Laser Well Depth (m) 0:00:00 Paro 2 (psi) 0.00 Get Setra Depth Calibration Startup Paro Attached Paro In Water Mission Start Time 0:00:00 0.00 Keller (osi) Get Floor to Setra Length (m) 0.00 Keller Attached | Keller In Water Reset Mission Time Turn-Off TOS Alarm 0.00 Get String Drop Complete Setra (psi) Water Compressability Factor 1.0975 DDB Mode Status: Ready ID (Z) unknown Paro 2 to Keller (m) 0.00 Paro 2 minus Keller (m) 1.00 unknov DDB01 DDB02 DDB03 DDB04 500.00 Depth 1 (m) Payout at Tower From Hose Depth 2 (m) 1000.00 Current Difference Start 1500.00 Depth 3 (m) 0.00 0.00 Payout (m) Top of Hole 0.00

Deployment Events

☐ Startup Click when the deployment begins.

Reset

☐ 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

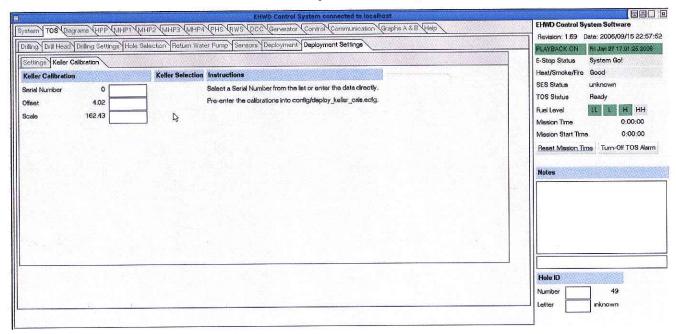
Click when the deployment ends (string is secured, etc).

Hole ID Number

Screen Tab: TOS ▶ Deployment Settings

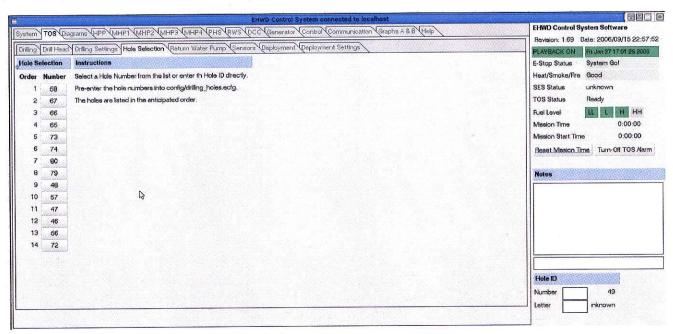
▶ Keller Calibration

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



Screen Tab: TOS ▶ Hole Selection

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



Distances between devices

calculate manually and enter on Deployment Settings tab

Distance between Paro and DOM60:	1++		
Distance between Keller and DOM60:	31.17+ =3000+210+17+	=	_

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 ₂ O	Atm
1 PSI	=	1	0.70	0.07
1 mH ₂ O	=	1.4	1	0.1
1 atm		14.7	10.3	1

Check Sheet

STRING # 46

DATE: 1/26/07

Before Deployment

Action: Locate laser ranger for well depth measurements.

Action: Locate metric tape measure.

X

Action: Locate one Paro and one Keller, plus spares of each.

Action: Locate bucket (for cooling of Keller sensor with water/ice mix).

Action: Fill bucket with snow and place in heated area to make slush.

Action: Locate Setra uphole pressure assembly (sensor + cable).

Deployment Startup

Action: Click "Deployment" button under "Tower Mode" on Deployment Settings tab.

Action: Select string (=hole) number on Hole Selection tab.

Action: Note deployment start time.

Logbook: Time

Action: Click "Reset Mission Time" on the right panel on the deployment screen.

Action: Click "Startup" under Deployment Events.



IceCube String Deployment Monitoring

X

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

ENTER: DDB# (select button)

Logbook: DDB#

X

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

ENTER: Well depth [m]

Logbook: Well depth

X

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

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

Logbook: Payout Start value

X

Action: Get cable mark reading at DOM59.

Logbook: Cable mark [m]

X

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

Logbook: Paro serial number

K

Action: Click "Paro Attached" under Deployment Events.

K

Action: Measure distance between Paro location and nearest DOM.

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

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

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

-

Action: Get cable mark reading at Paro.

Logbook: Cable mark [m]



IceCube String Deployment Monitoring

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

K

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

0606739

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) .969 + 527 = 527.969

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



IceCube String Deployment Monitoring

	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.
V	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)
	Betw	reen 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]

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
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.

DOMs for String 46 (Hole 12)

Name	ID#	Position	
San Francisco	TP5P0909	60	
Kamephis	UP6Y4246	59	
Peach	TP4P0083	58	
Qi	UP6Y4380	57	
~ .	TP5P0797	56	
Cizin	UP6Y4262	55	
Zoology	TP5P0773	54	
Washington	UP5P0952	53	
Talgoxe	TP5H0209		?
Anka	UP5H0236	51	
Ringkobben	TP5H0253	50	
Gerbil	UP4P0314	49	
West Nile_Virusish	TP5P0975	48	
Angelology	UP5P0864	47	
Hartford	TP5P0861	46	
Bodharan	UP5H0144	45	
Mononucleosis	TP5P0993	44	
Worldinglessie	UP5H016	43	?
Magnolia	TP6P1235	42	•
Magnona	UP5Y0130	41	?
Tansy	TP6P1271	40	•
Carpology	UP5P0774	39	
Mole	TP4P0215	38	
Anthropology	UP5P0862	37	
Rubella	TP5P0943	36	
Dracula	UP6P1236	35	
Europhilia	TP5P0827	34	
Lillbredskobben	UP5H0108	33	
Placophobia	TP5P0605	32	
Steglits	UP5H0244	31	
Queenanneslace	TP6P1225	30	
Skomakarkobben	UP5H0256	29	
Labbkobb	TP5H0123	28	
Tulip	UP6P1268	27	
Lilac	TP6P1201	26	
LilaC	UP5Y0092	25 25	
Taurophobia	TP5P0667	24	
Entomology	UP5P0826	23	
Entornology	TP5Y0113	22	
Scabies	UP5P1068	21	
Motorphobia	TP5P0717	20	
Shun	UP6Y4452	19	
	TP6P1251	18	
Chincerinchee	UP5P0928	16 17	
Georgia	TP4P0299	17 16	
Tayra		15	
Japonophilia	UP5P0988 TP6P1315	14	
Pamela_Sue_Voorhees	UP4Y0040	13	
Aktien	UP410040	13	

Vaquita	TP4P0309	12	
Aardvark	UP4P0222	11	
Ah_Cun_Can	TP6Y4339	10	
Isuzu_Rodeo	UP5Y0108	9	
Ahulane	TP6Y4345	8	
DAB	UP4Y0046	7	
Trana	TP5H0119	6	
Glada	UP5H0104	5	
Wyvern	TP5P0555	4	
Tea_Olive	UP6P1232	3	
Raccoon	TP4P0267	2	
Iophobia	UP5P0642	1	
Sparv	TP5H0131		
Olyckskobben	TP5H0213		
Wannsee	TP5Y0113		
Livlandskobben	UP5H0106		·
Dromophobia	UP5P0558		
Helminthology	UP5P0797		
Arizona	UP5P1020		Rejected by Krasberg
GMC_Jimmy	UP5Y0092		