



Update from the
National Science Foundation
Wire Pool
Rick Trask
NSF Wire Pool Manager



Topics for discussion

- Synthetic Rope
- .681 Power Optic Cable



Synthetic Rope Update



Synthetic Rope

- * 9/16” diameter Plasma HICO 12 strand rope
- * Two lengths purchased by the Wire Pool: 12,000 m and 10,000 m
- * 12,000 m length on the *R/V Neil Armstrong*
- * 10,000 m length went on the West Coast Winch Pool Dynacon Traction winch for use during a coring cruise on the *R/V Thomas Thompson* for Elisabeth Sikes 7 November to 19 December 2018



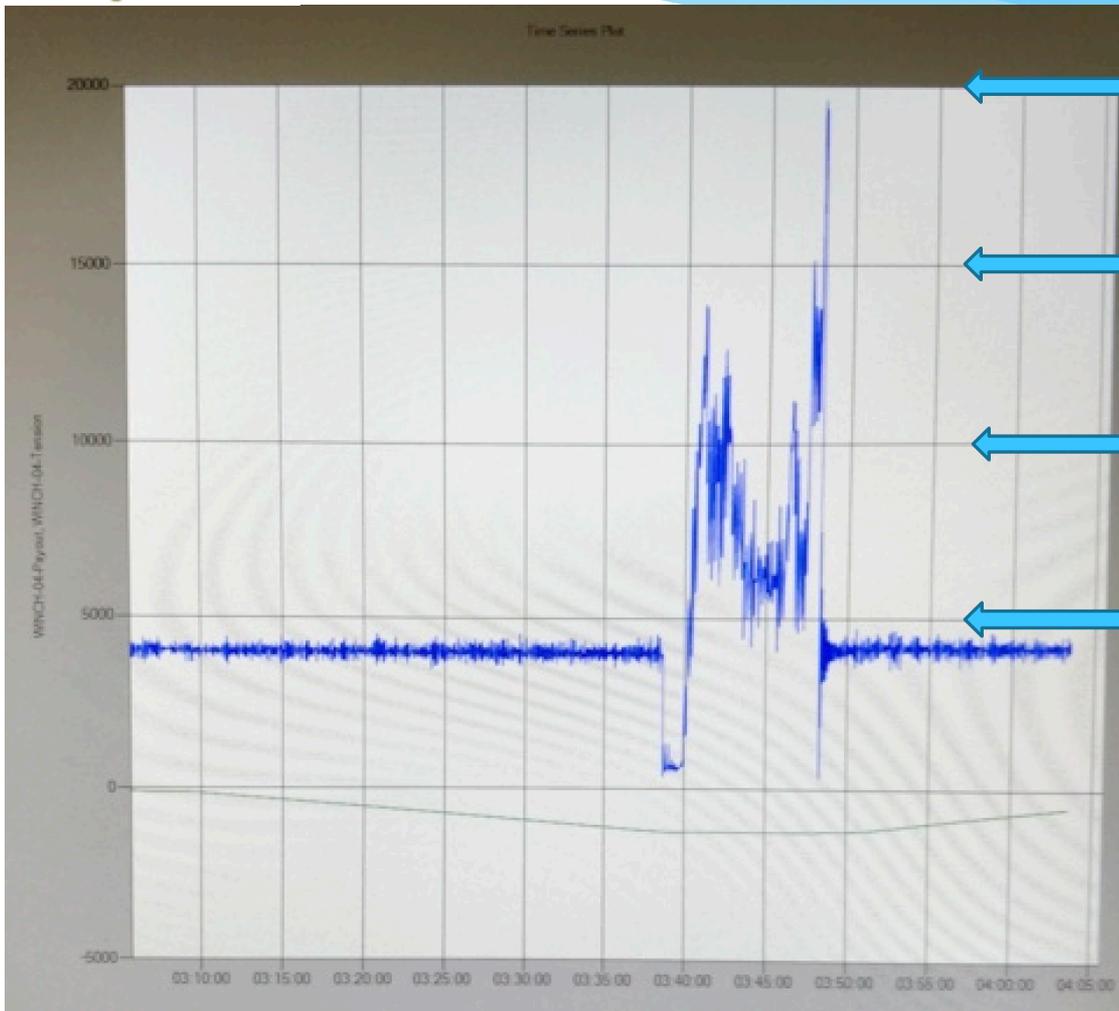
TT1811 Coring

- * 1st Core, piston core: 1544 m max tension 9500 lbs.
- * 2nd Core, also piston: 1250 m, max tension 20,000 lbs. with slippage on the traction heads but eventual pullout





Tension Record from Core #2



20,000 lbs.

15,000 lbs.

10,000 lbs.

5000 lbs.



Coring Continued

- * Paper-like material peeled off the traction head grooves, no sign of it on the rope itself.
- * Due to the slippage, 1300 m cut back.
- * Continued coring completing 38 gravity cores and 1 additional piston core.
- * Max tension following core #2 was 6900 lbs. and max rope out was 3825 m.



Break Test Results

- * 8700 m piece (10,000 m -1,300 m)
- * Nominal Breaking Load: 37,900 lbs.
- * Tested Breaking Load (New): 43,350 lbs.
- * TBL after 38 coring ops: 45,750 lbs.

- * 1300 m piece damaged due to slippage
- * Nominal Breaking Load : 37,900 lbs.
- * Tested Breaking Load (New) : 43,350 lbs.
- * TBL: 85% of new TBL, 97% of NBL 36,790 lbs.



Post Cruise Comments

- * “All parties involved think this stuff has a LOT of promise for future coring use.” - Dale Hubbard (OSU)
- * Not having the added weight of the wire along with the sensitivity of the Dynacon tension display, they could determine quite accurately whether the core had penetrated or fell over.
- * There were no other slippage events following the one that occurred during the second core.
- * Lorenzo McCoy (SIO) removed the Lebus shell and wire wheeled the traction winch grooves in preparation for use with Plasma HICO.



A New .681 Power Optic Cable



.681 Power Optic Cable

Manufacturer: Fibron previously Cortland

Strength Member:

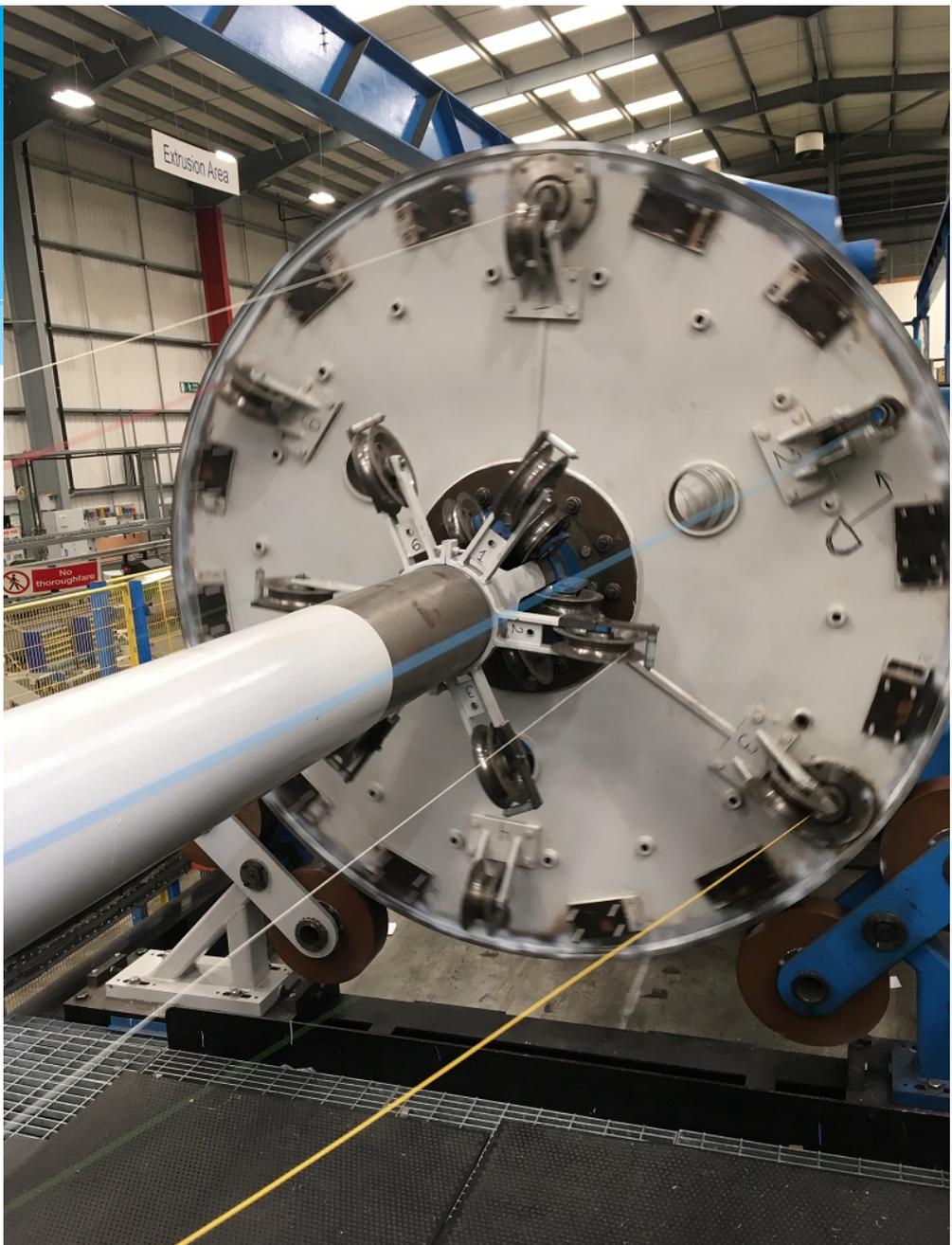
Two layer steel wire armor

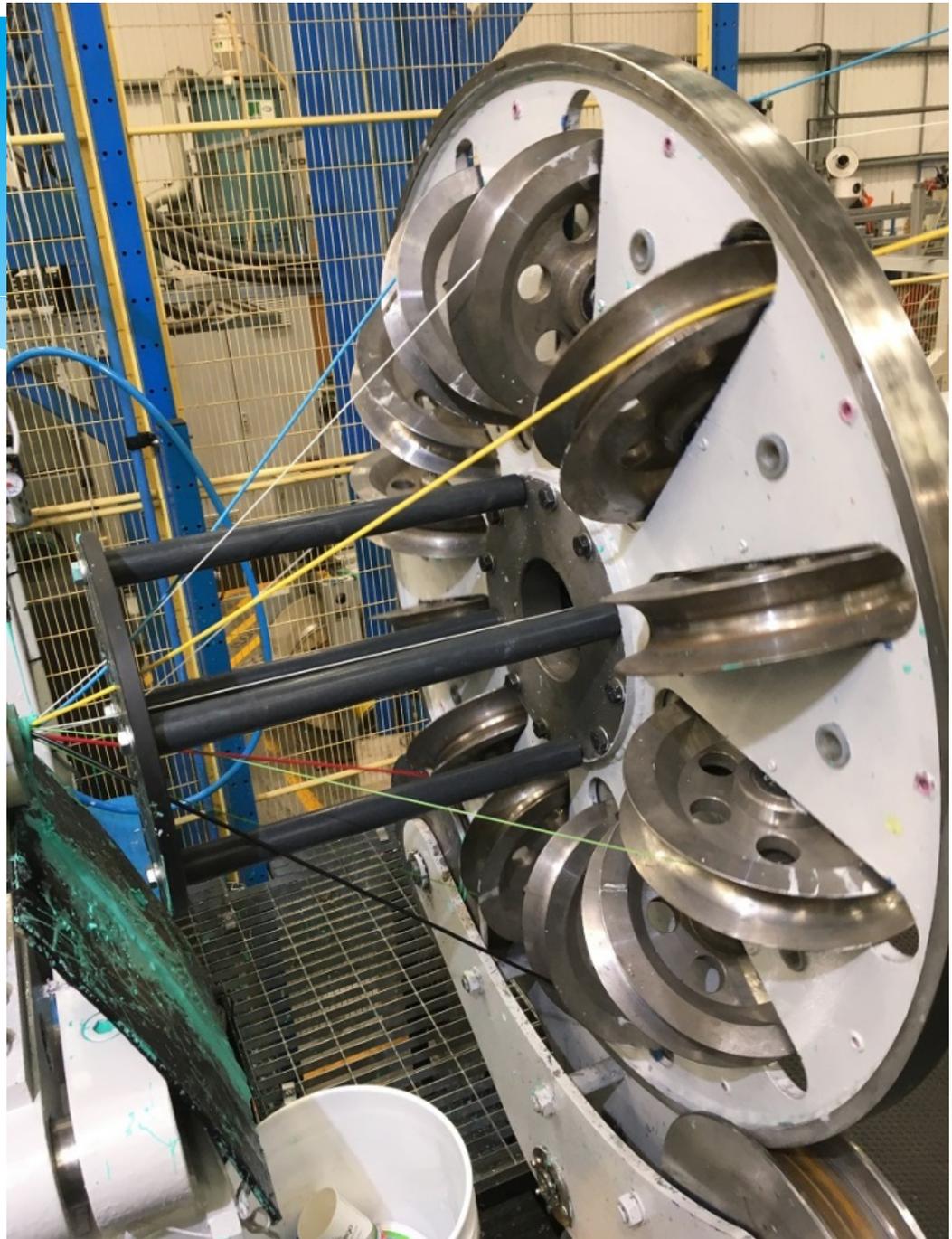
41589 lbs minimum breaking strength

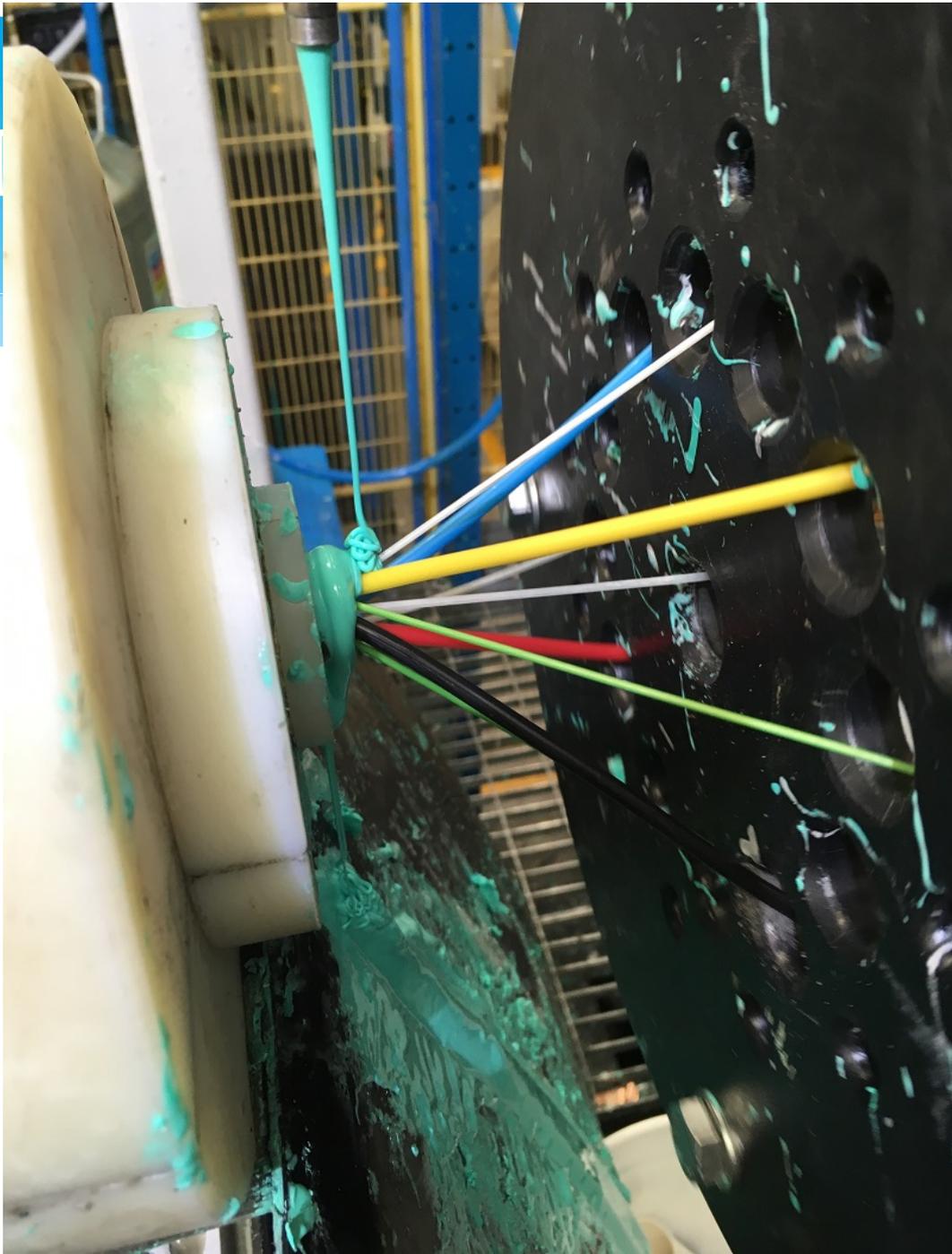
(3) 5 mm² stranded plain copper power conductors

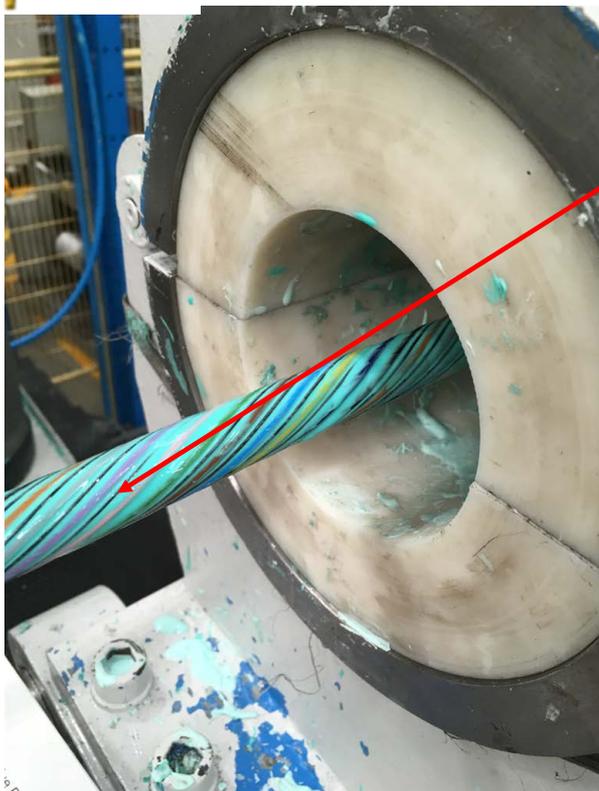
(1) Gell filled SS tube w/ 6 single mode optical fibers

Configuration may be less susceptible to optical attenuation observed on direct drive winches.

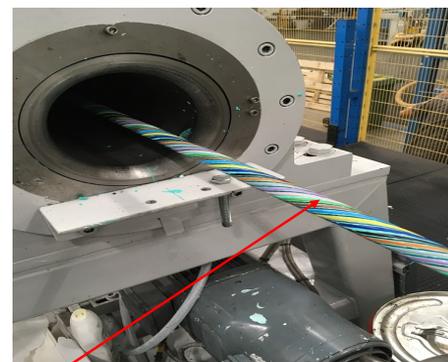








Cores after Water Block Process



Once the water block process is complete, the core will be wrapped in copper tape.





Looking Ahead

- * Keigwin coring cruise in Sept 2019 on *R/V Neil Armstrong* is planning on using the Plasma HICO synthetic rope
- * Take delivery in June of the .681 Power Optic cable from Fibron
- * Fibron providing a 1000 m sample for electrical and optical attenuation testing
- * Trial synthetic cable to be purchased and CBOS tested monitoring the conductor performance and compared to .322 tested simultaneously under similar conditions



THANK YOU