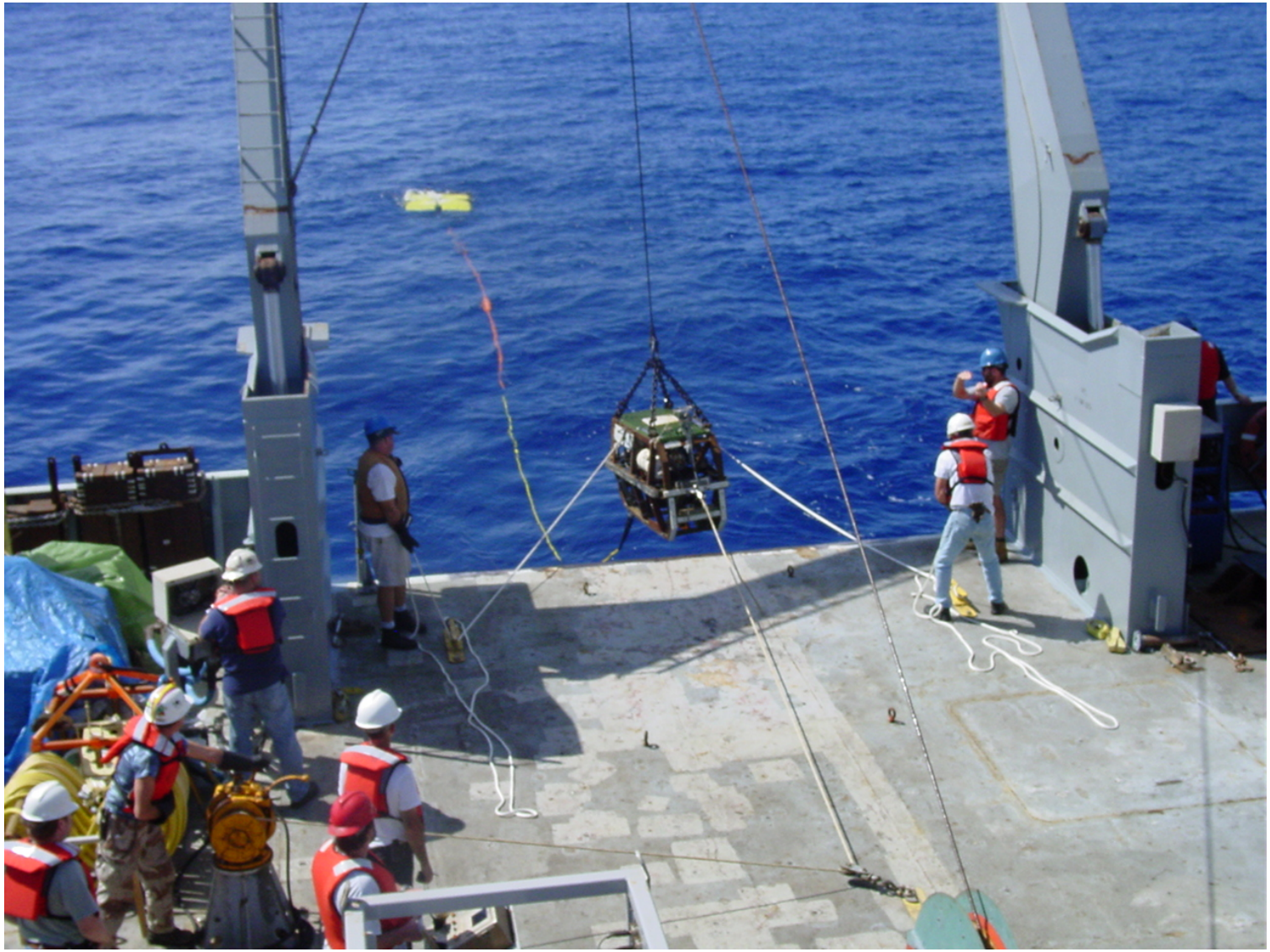
Goals

- Improve safety
- Increase weather window
- Reduce number of people to LAR
- Decrease turnaround time
- Retain heavy lift capability

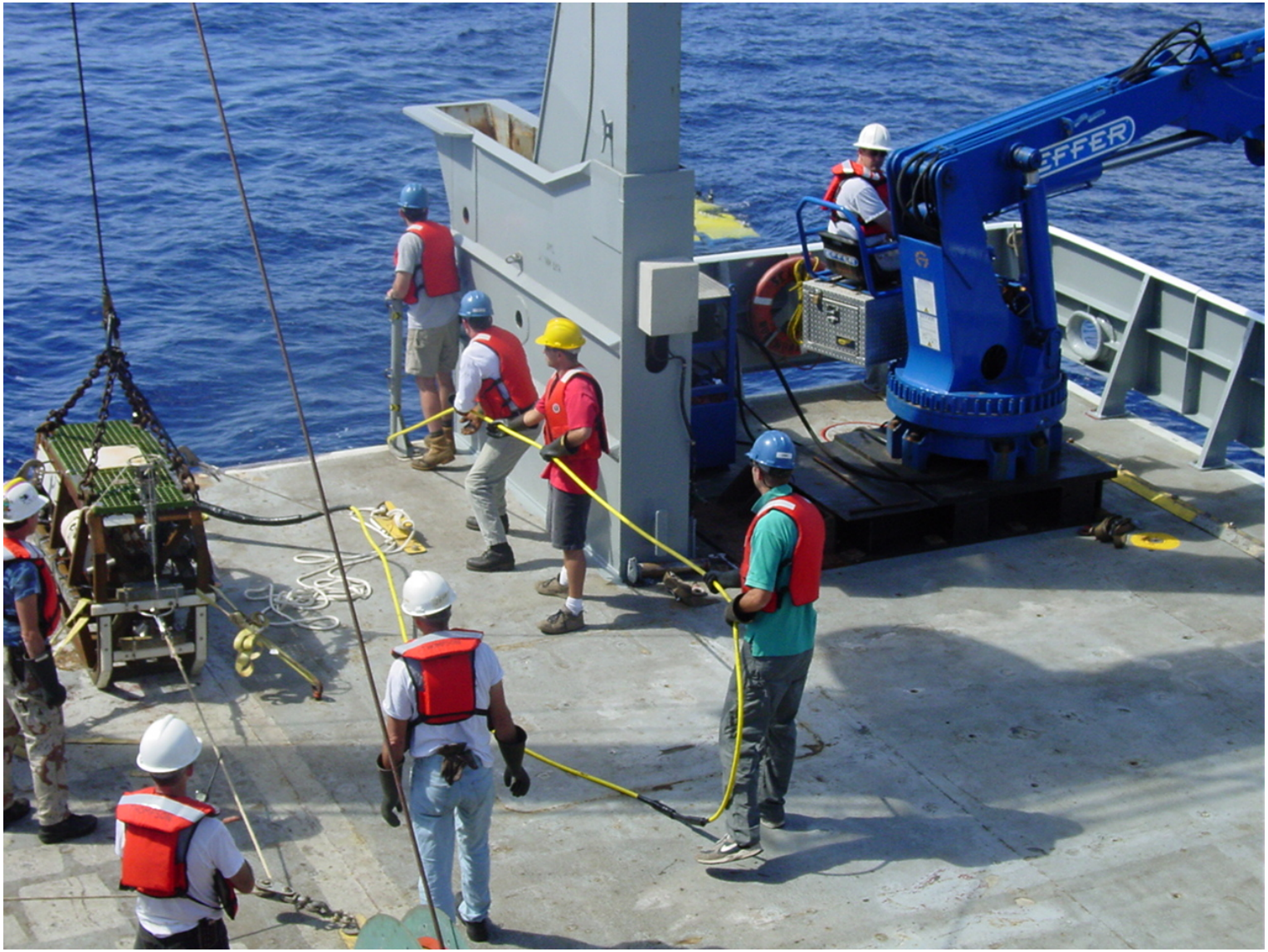
Jason LARS

Personnel on Deck



Jason LARS

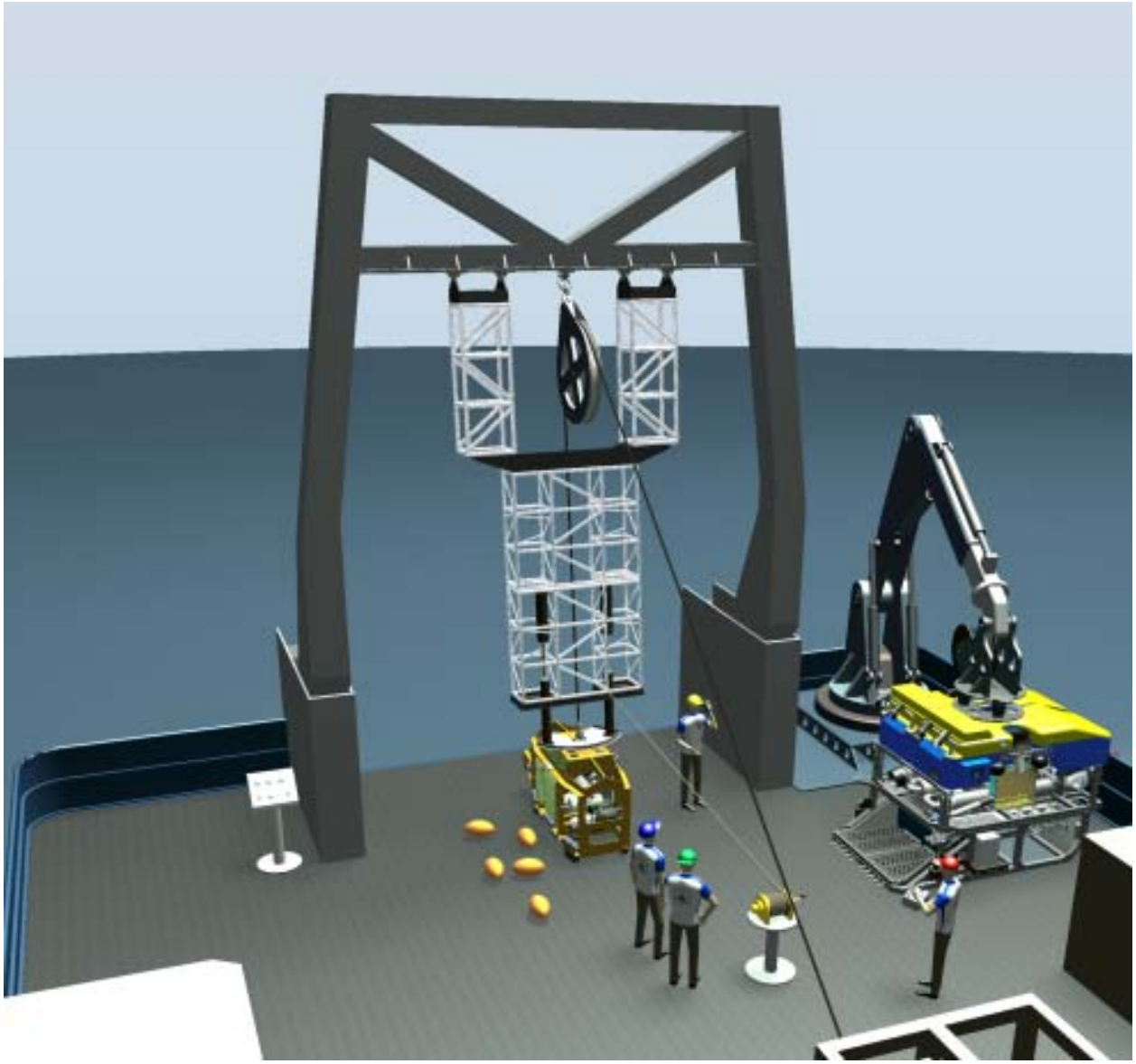
Personnel on Deck



Jason LARS

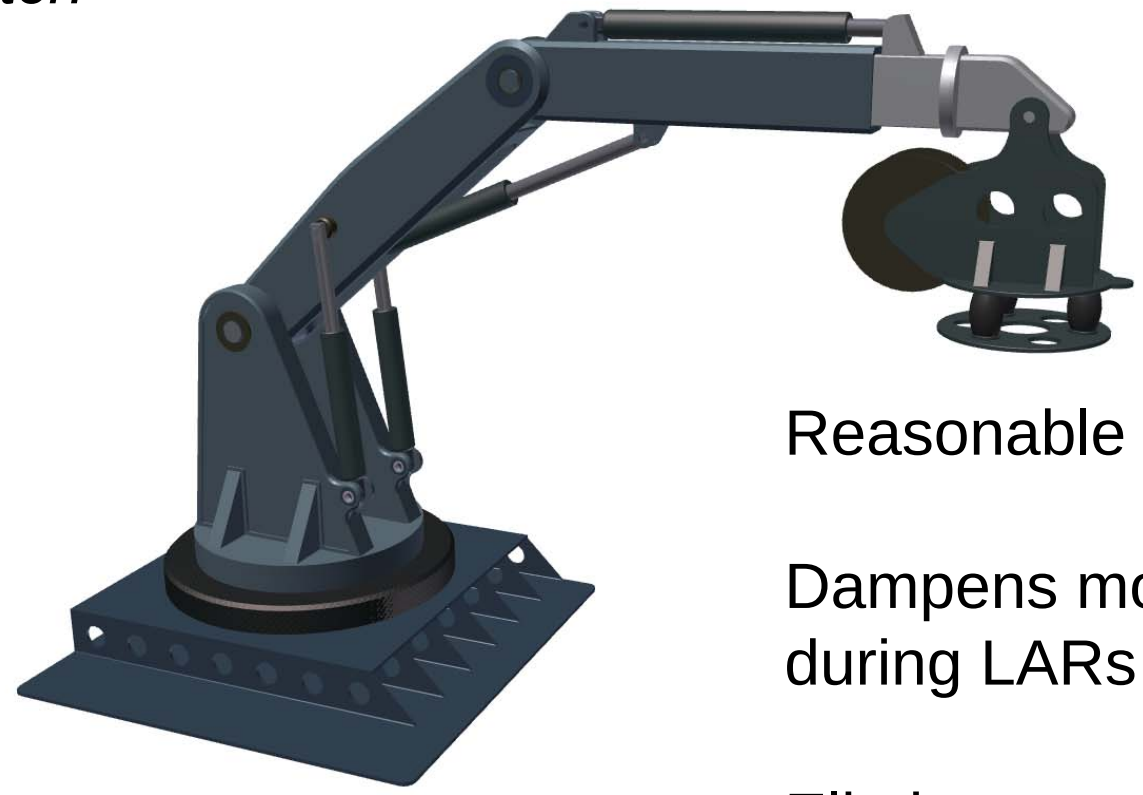
Personnel on Deck

Jason LARS



Jason Crane

New crane with docking head and latch



Reasonable size for shipping

Dampens motion and rotates during LARs

Eliminate people handling tether
Or Vehicle → safer

Jason LARS
Teleleg

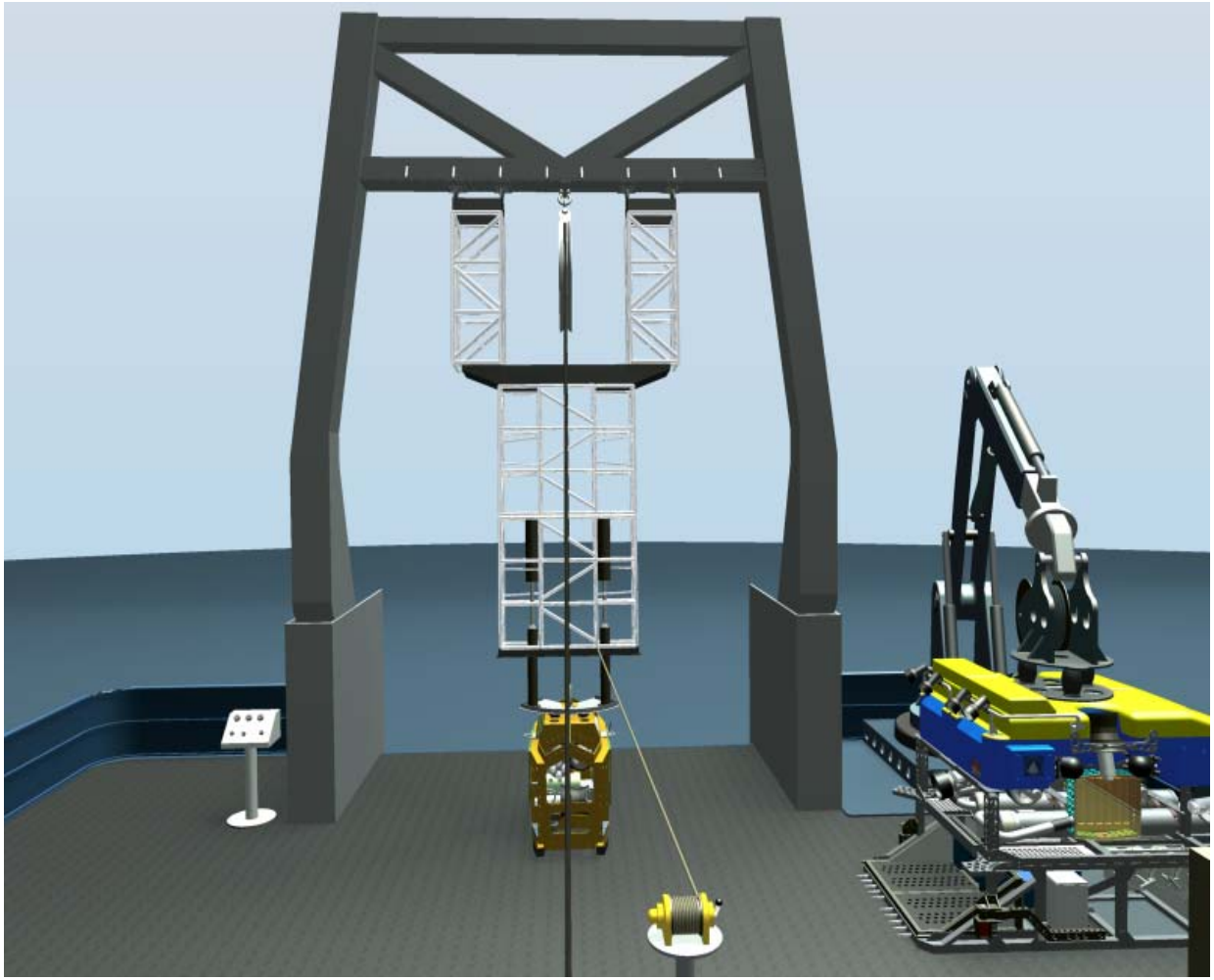
Utilize existing A-frame

Dampen Medea motion
No tag lines

Reduces # people required LAR → safer

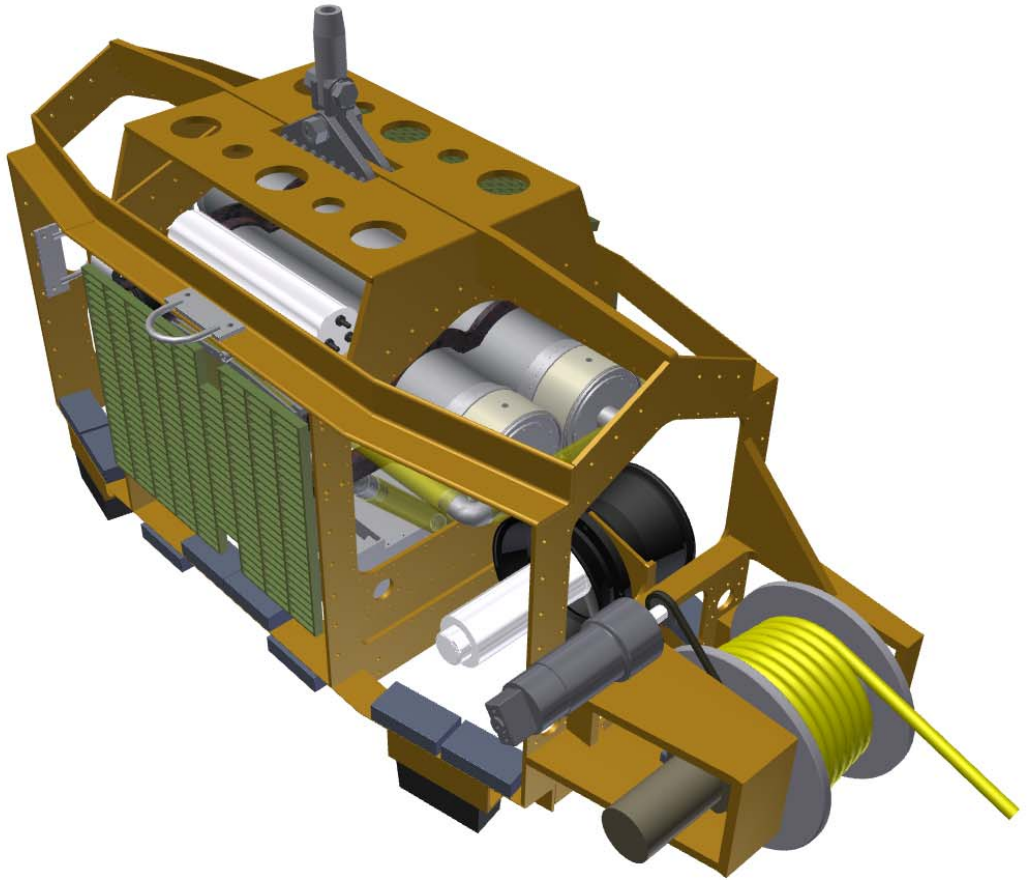
Retain heavy lift

NDSF & NSF standard mounting arrangement UNOLS A-frames

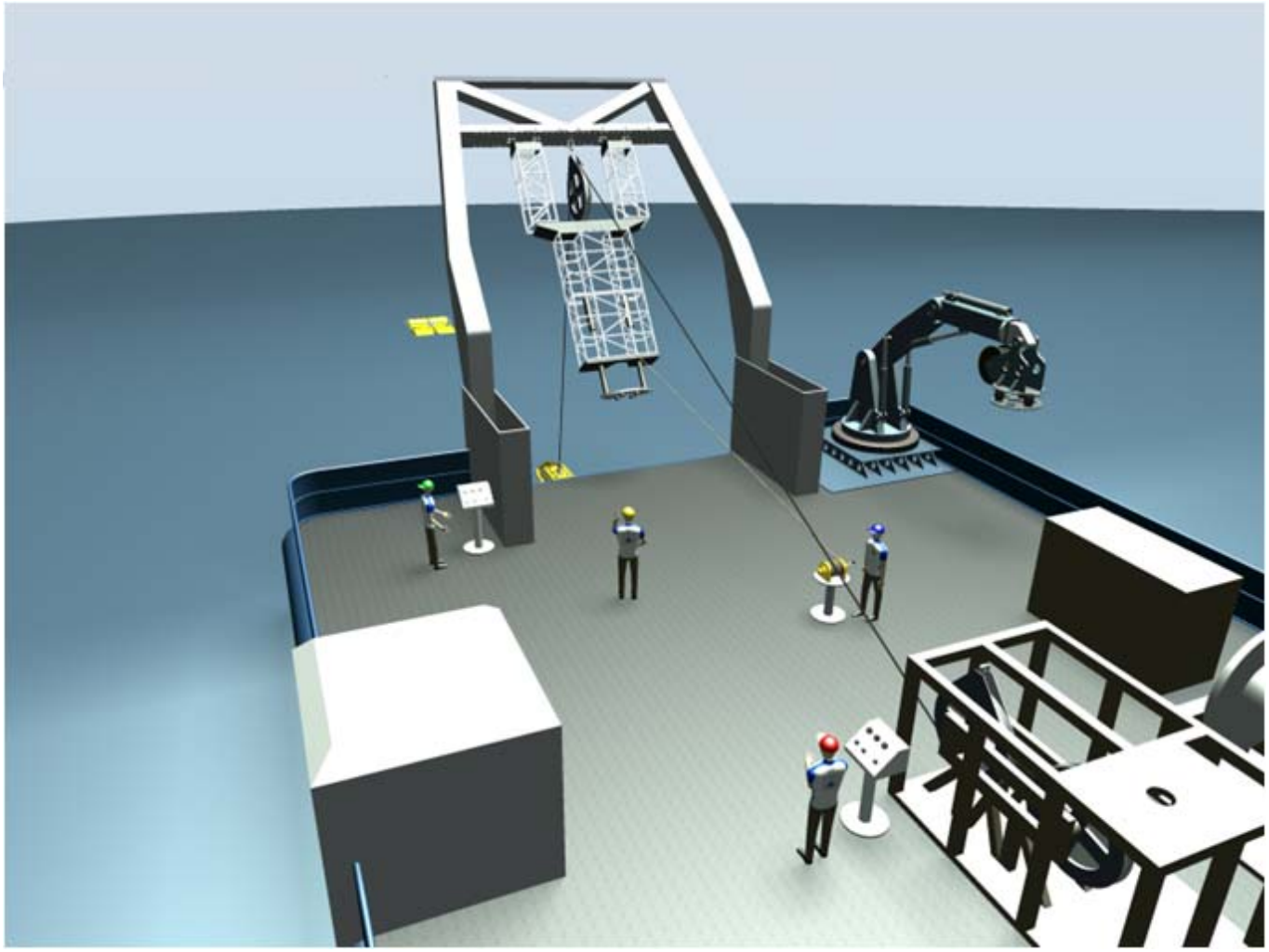


Jason LARS
Medea Winch

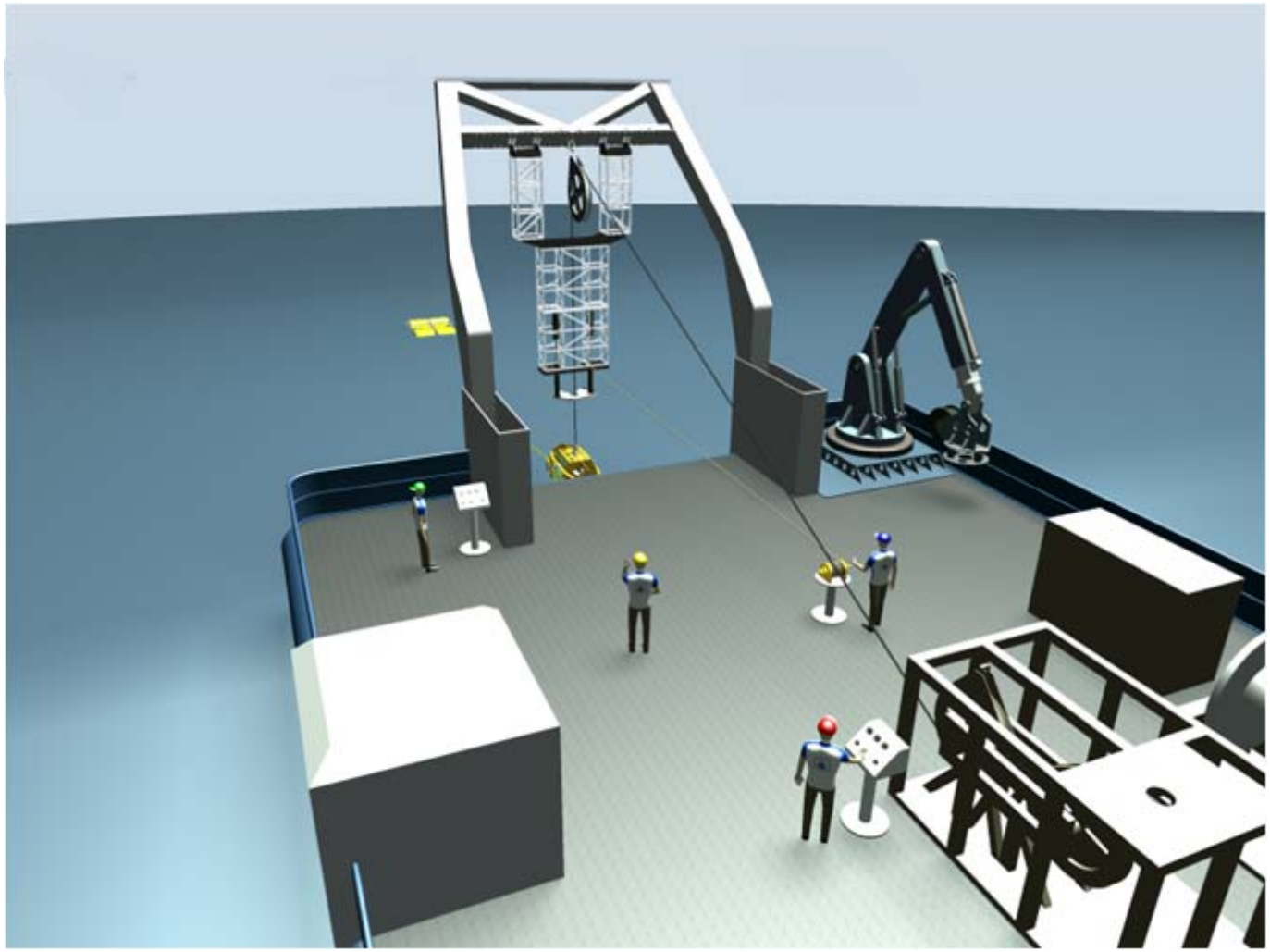
Pull *Jason* to the ship, store tether
Eliminate people handling high voltage tether → safer



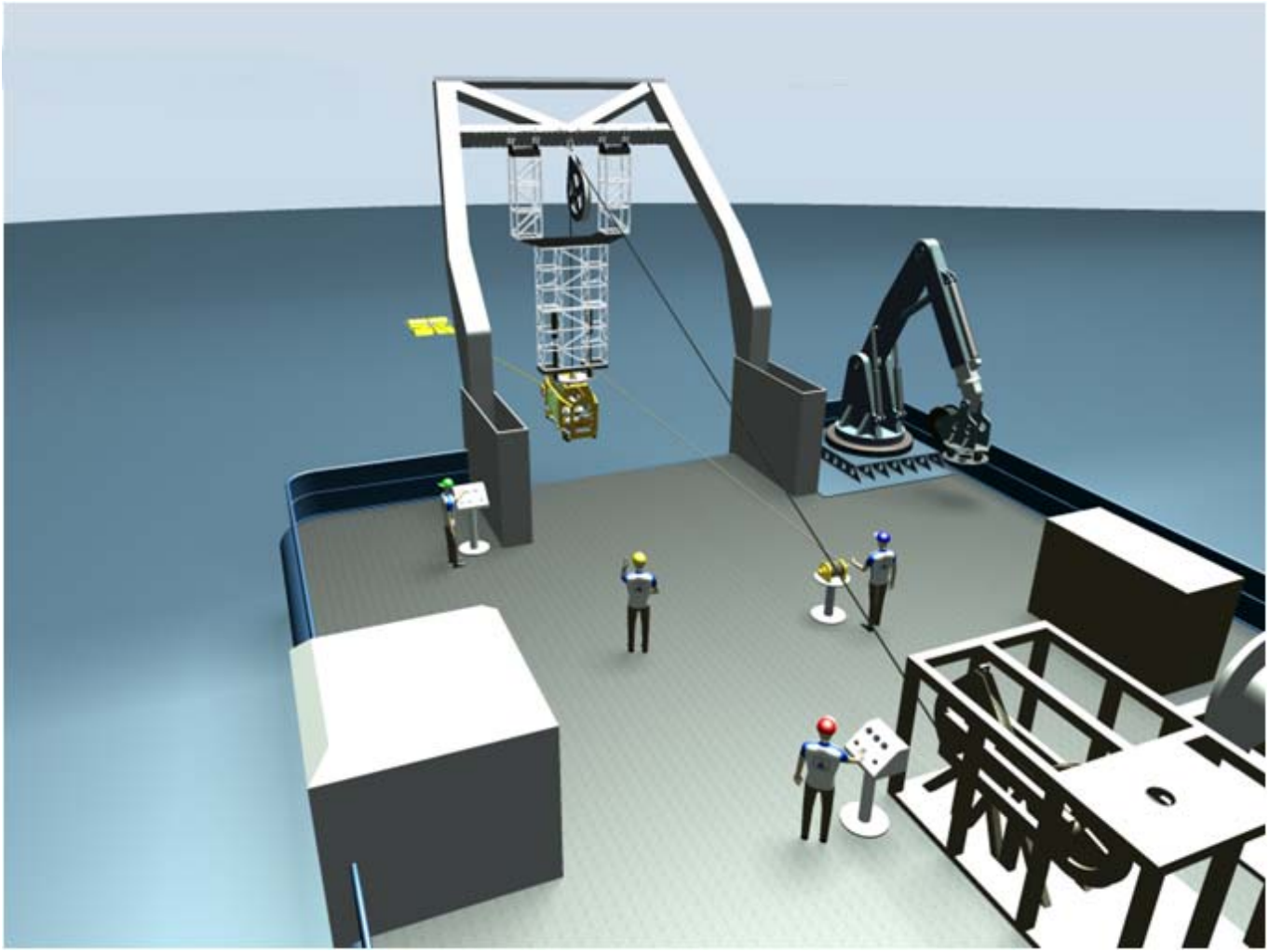
Jason LARS
Recovery Step 1



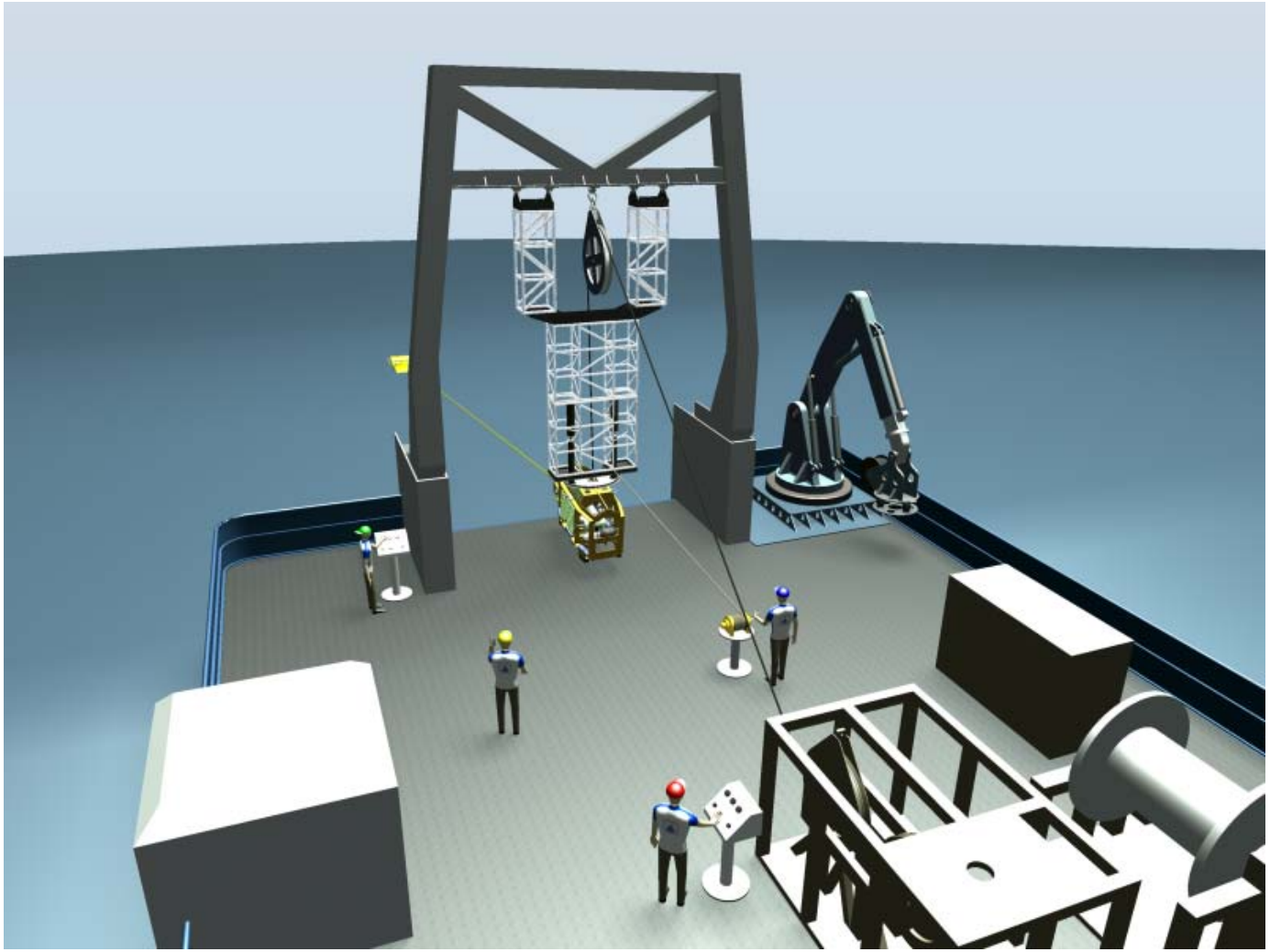
Jason LARS
Recovery Step 2



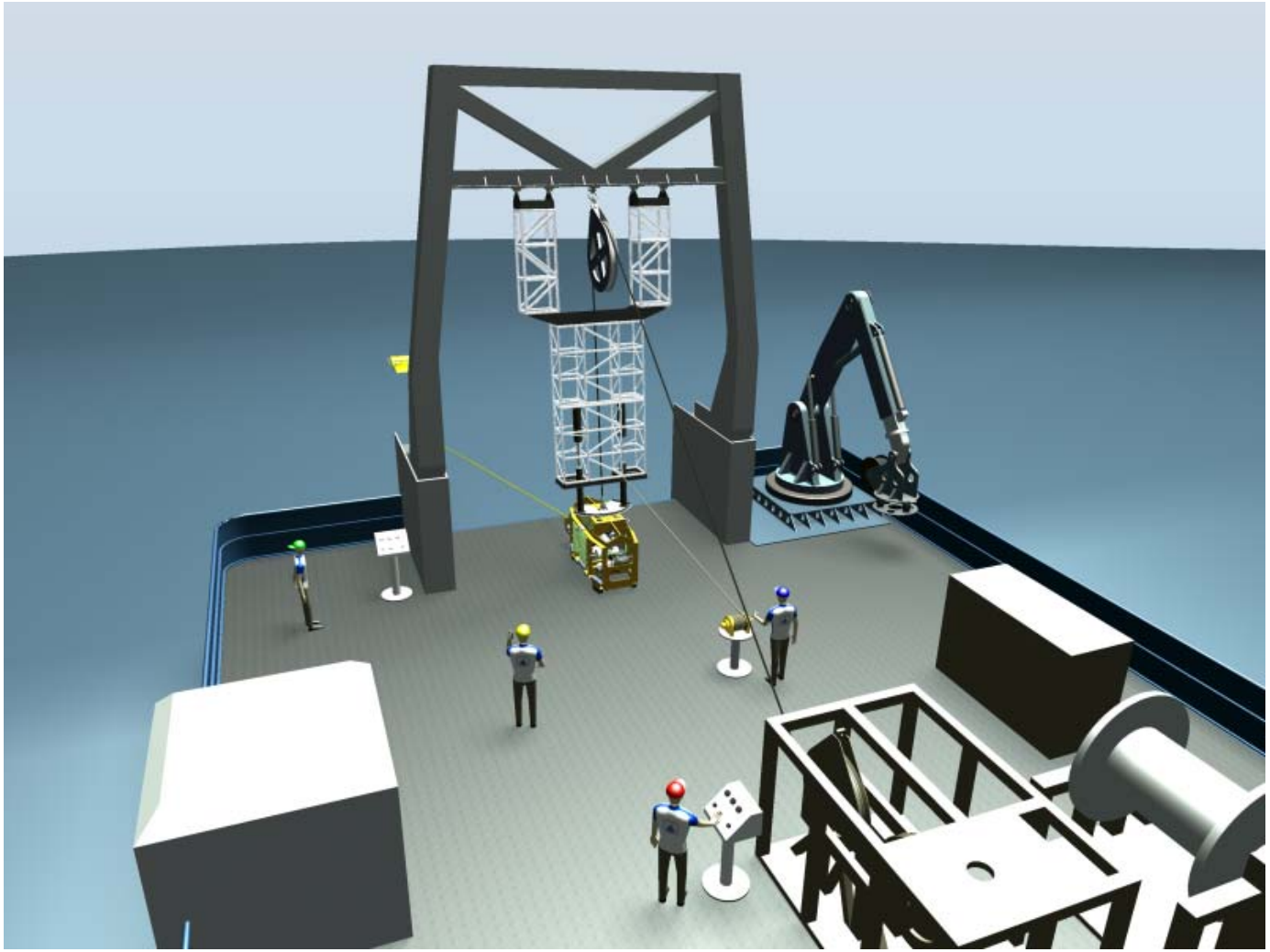
Jason LARS
Recovery Step 3



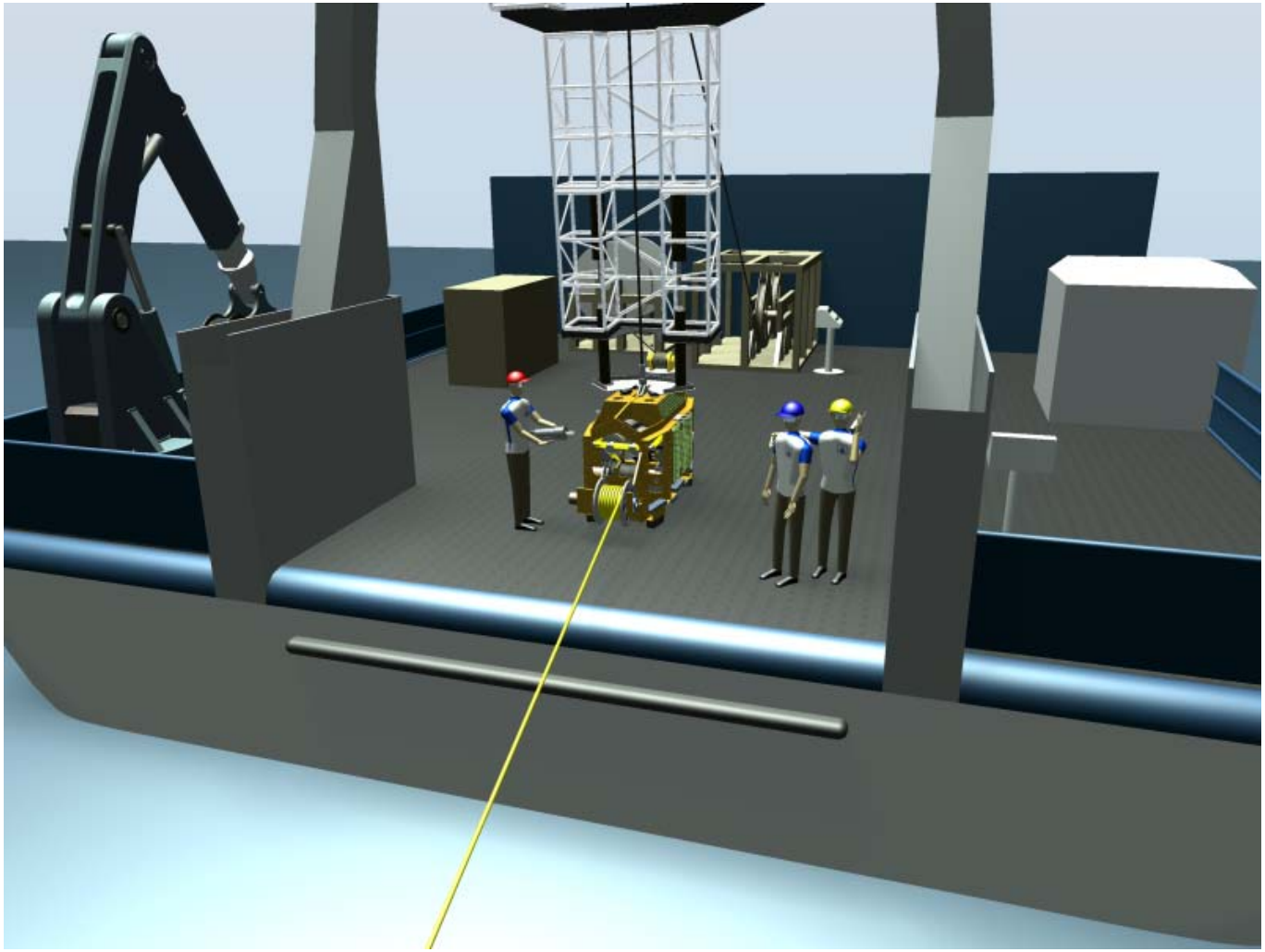
Jason LARS
Recovery Step 4



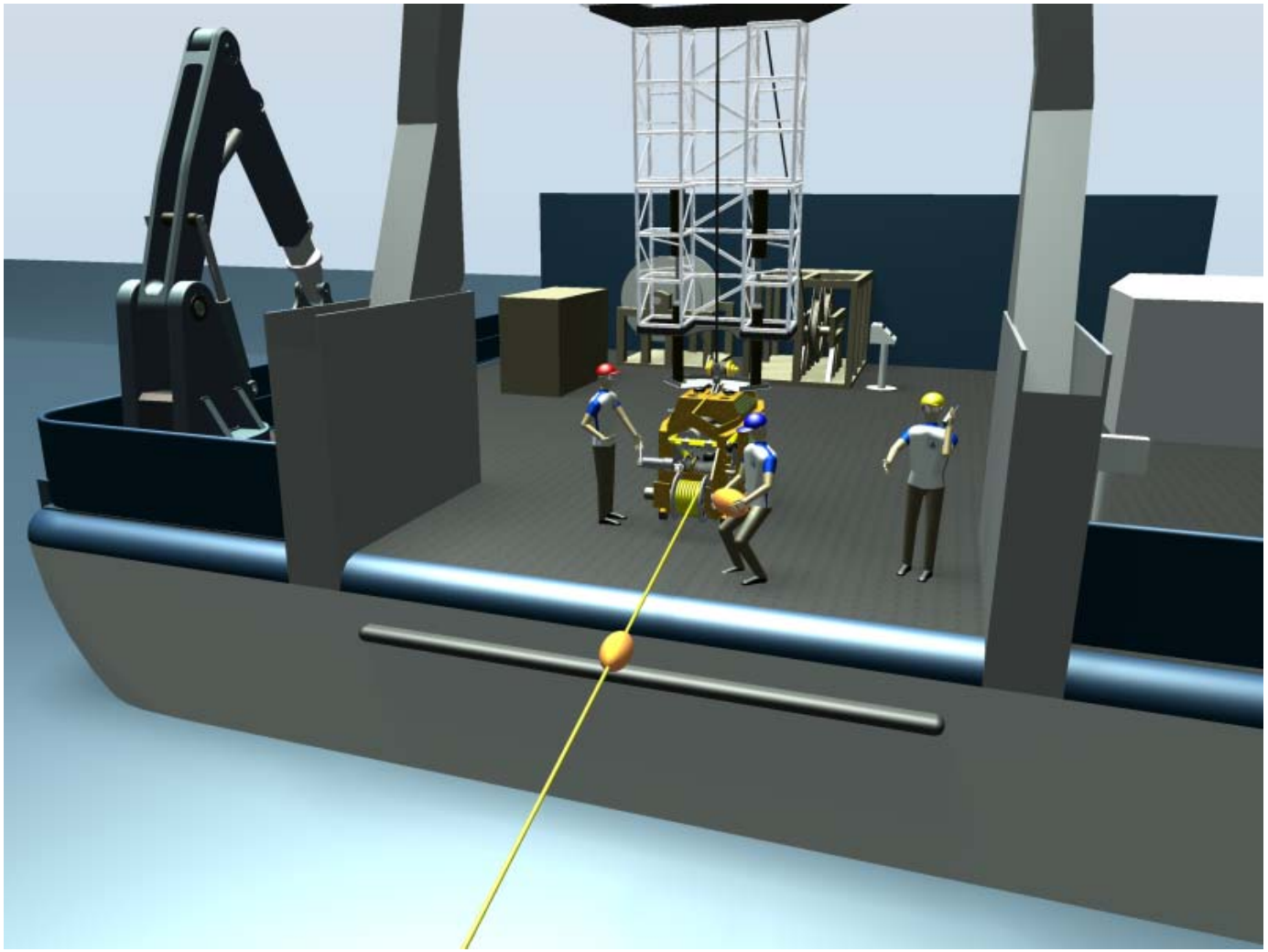
Jason LARS
Recovery Step 5



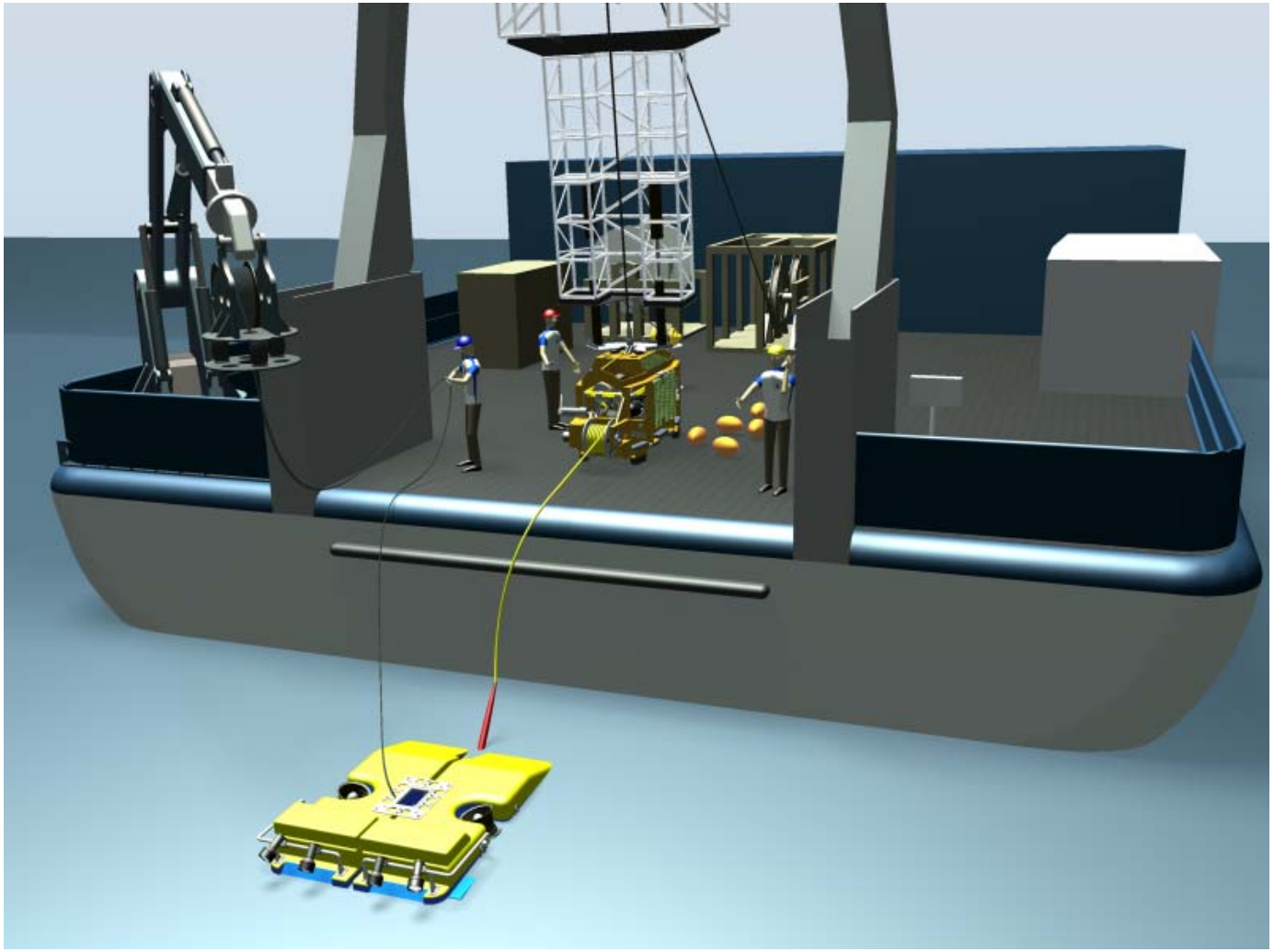
Jason LARS
Recovery Step 6



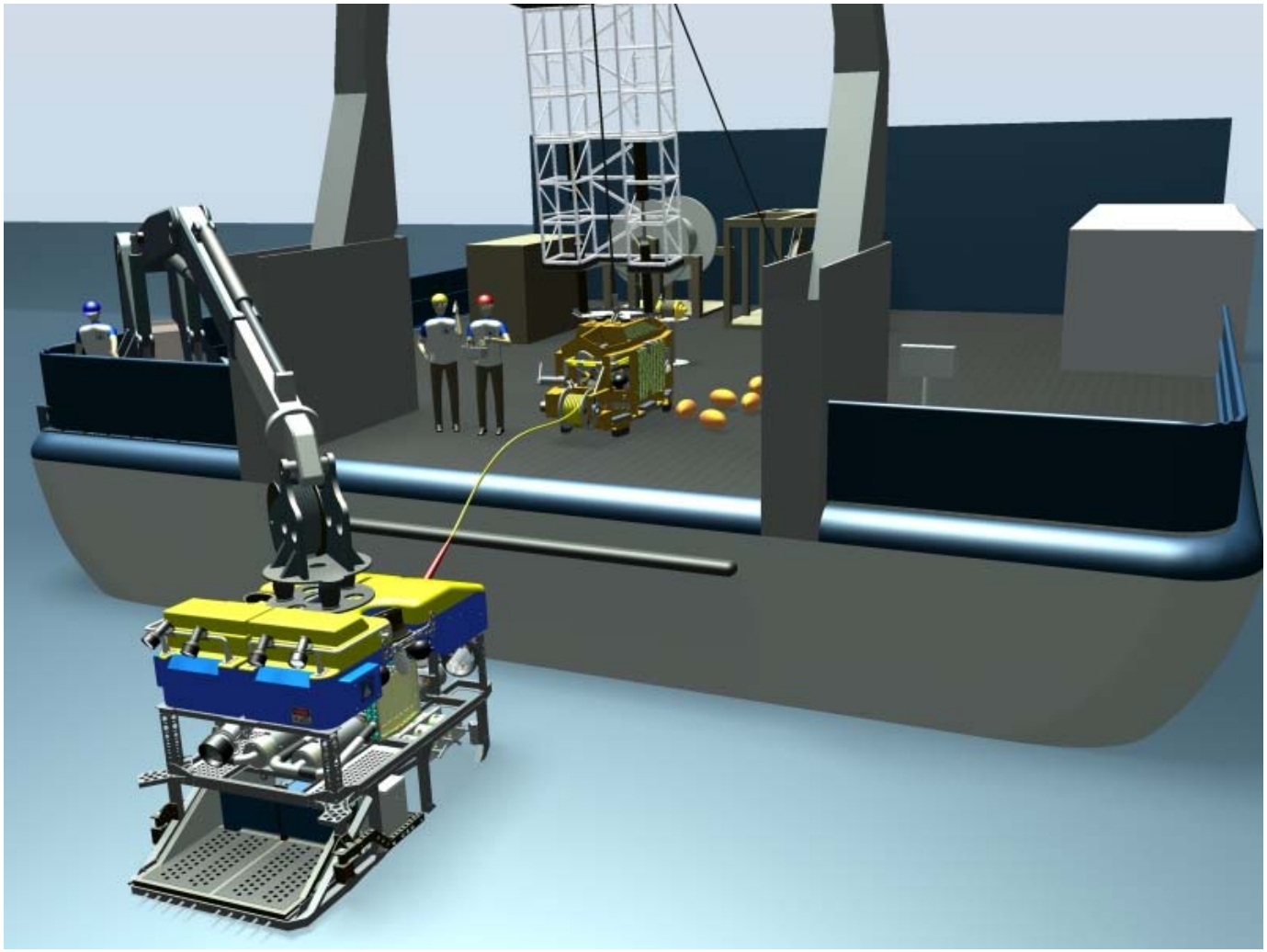
Jason LARS
Recovery Step 7



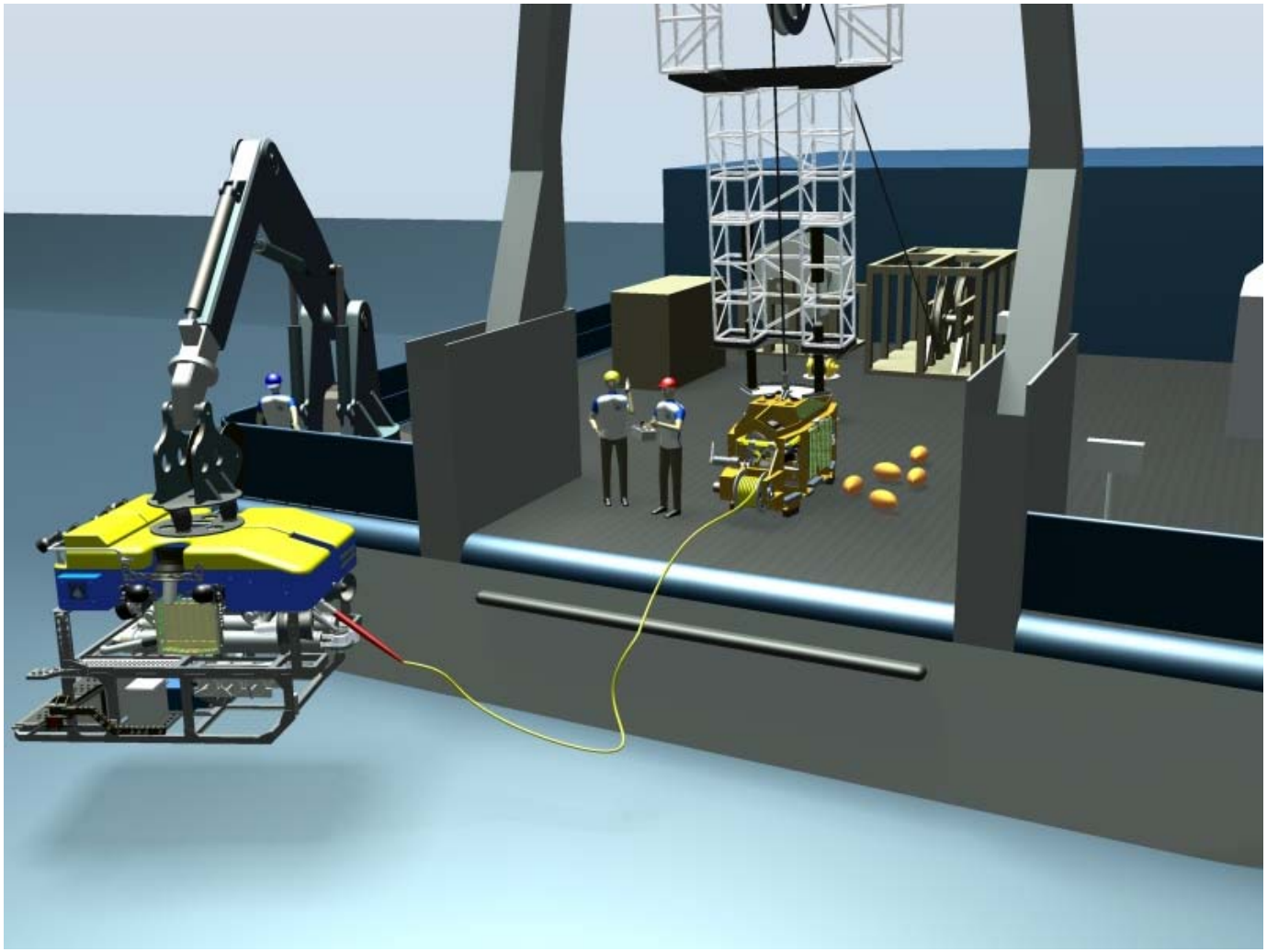
Jason LARS
Recovery Step 7



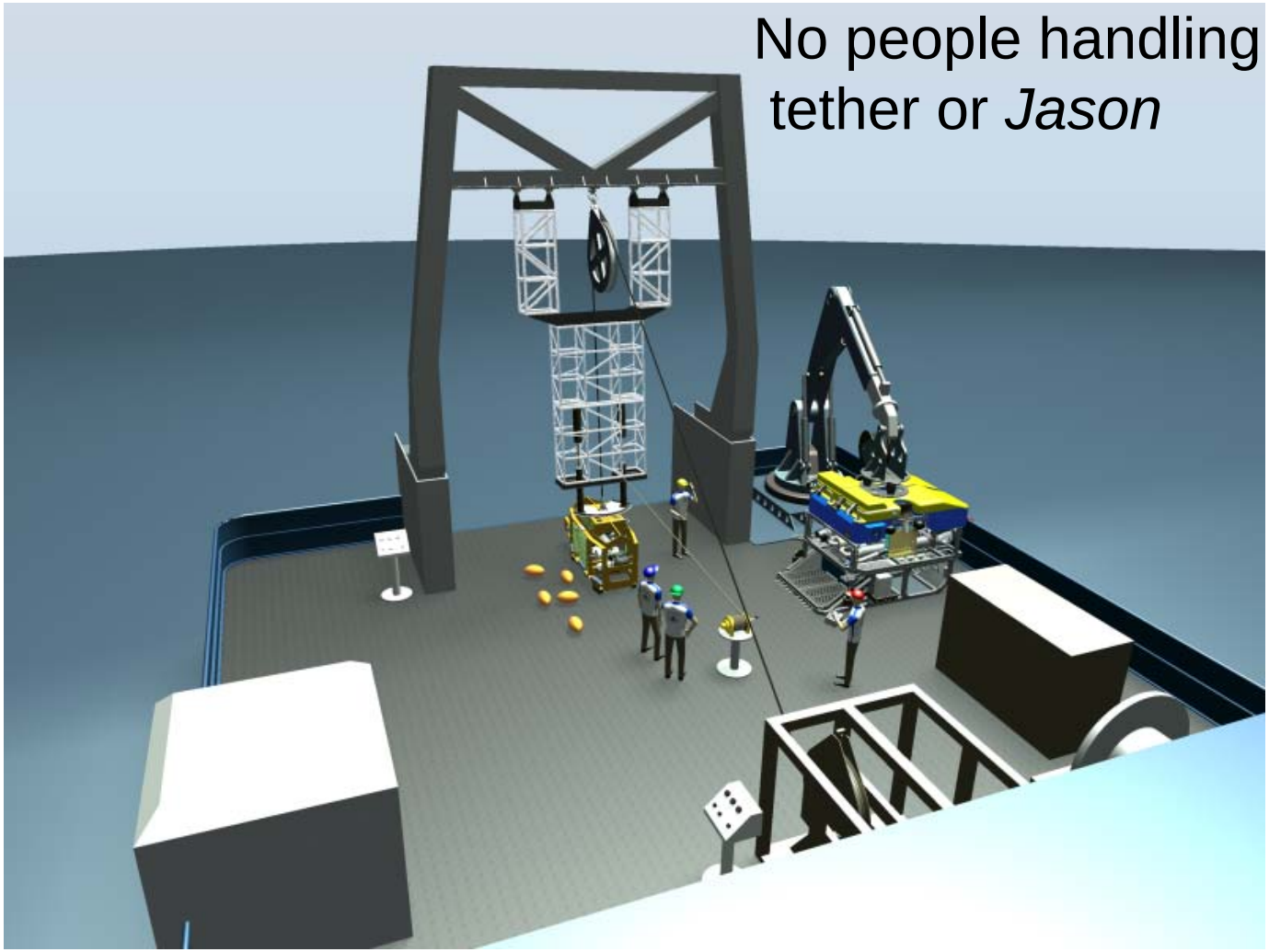
Jason LARS
Recovery Step 8



Jason LARS
Recovery Step 9



Jason LARS
Recovery Step 10



Personnel Requirements

Before LARs: 8 people on deck

- Crane/winch operator
- 4 x *Medea* tag lines and tether
- Tugger
- A-frame
- Deck boss

After LARs: 4 people on deck

- Tugger/floats/tether
- A-frame/floats/tether
- Main winch/*Medea* winch/crane
- Deck boss

Jason LARS
Timeline

Crane with docking head and latch

POs Jan 2011

Acceptance trials July 2011

Integration late Aug 2011 (Levin) ?

Teleleg Medea and winch

Final design 2nd QTR 2011

Construction 3rd QTR

Integration Nov 2011 on *Knorr* (Edgcomb)

Heavy Lift

Motion Compensation Heavy Lift System

- Proposed development of UNOLS tool for heavy lifts with *Jason*
- Articulated crane with motion-compensated winch to deploy packages up to 4,000 lb to depths of 3,000m.
- Operate while *Jason* is in the water, allowing *Jason* to do manipulations and provide elevator functions