

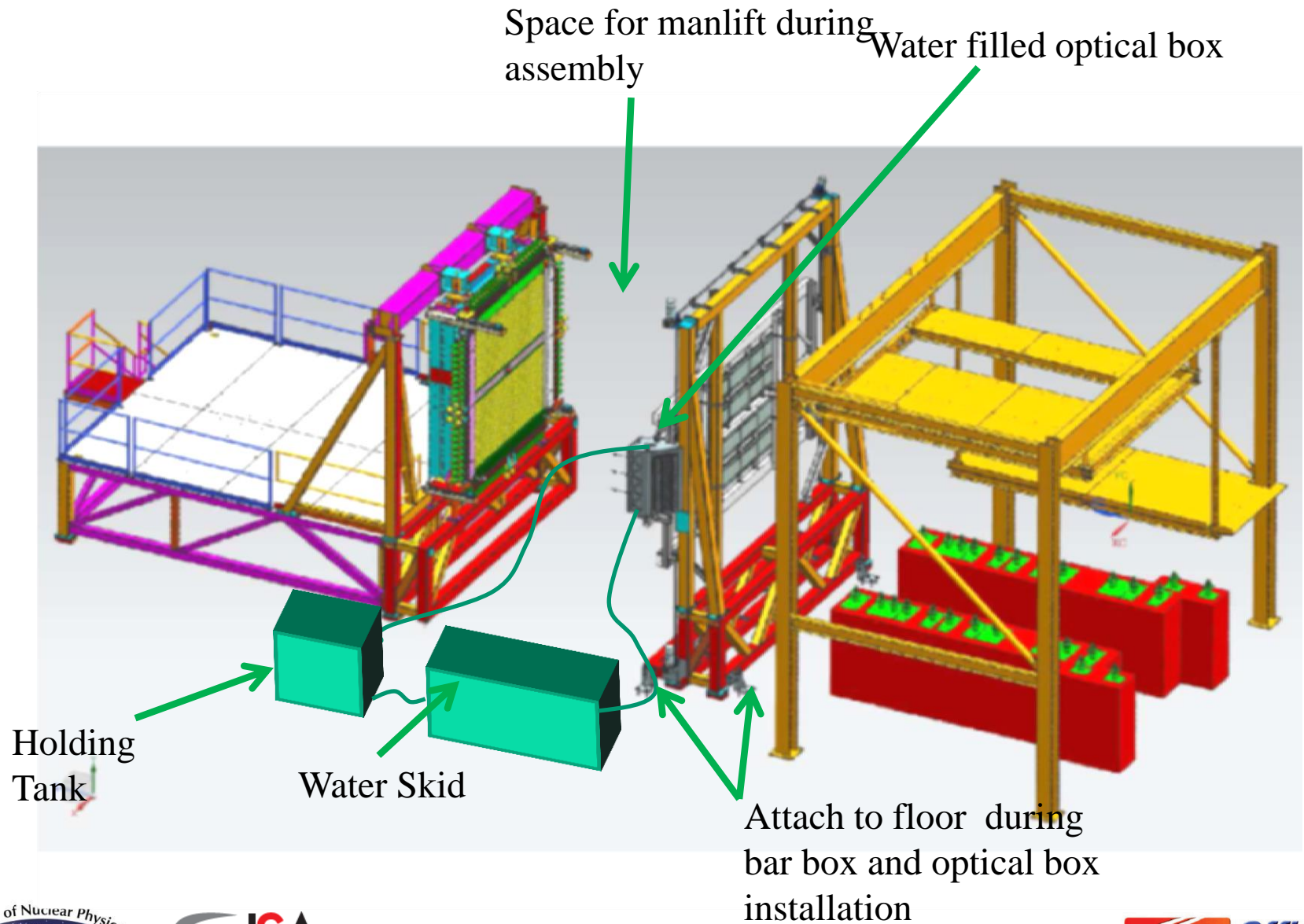
# *GlueXII and DIRC ERR*

*Tim Whitlatch  
Hall D Engineer*

*DIRC Installation, Schedule and  
ESH&Q Considerations*

- *DIRC System Design*
- *Installation Progress for  $\frac{1}{2}$  Detector*
- *Operations*
- *Controls*
- *Remaining Installation Tasks/Resource Loaded Schedule*
- *Summary*

# DIRC Installation





# Bar Box #10 Installation





# ***Support Equipment Design and Hardware***

- ***Support Structure designed to a Factor of Safety to 3 or higher on all components***
  - ***Analysis Checked/signed by JLAB Facilities Structural Engineer***
  - ***All design, fabrication and Inspections done to AWS D1.1***
- ***Optically Clear Water System***
  - ***Waterskid delivered Sept 2017 - tested and operational***
  - ***Final Plumbing - Designed and partially installed - Complete upon Optical Box Installation***
- ***Nitrogen System***
  - ***Bar Box Designed/Installed/Tested and Operational***
  - ***Optical Box Designed - to be complete upon OB Install***
- ***Lifting Fixtures Designed/Tested and Certified***
- ***Controls Hardware Identified and Purchased***
- ***Controls Software in work***

- *Lifting fixture and procedures approved by JLAB Facilities Structural Engineer and Crane and Rigging Authority*
- *Many practice runs performed before actual lifts*
- *Detailed Installation drawing issued*
- *Successful install of 2 Bar Boxes*
- *Lessons Learned incorporated into future Box installs*
- *Initial Survey and Alignment complete*
- *Bar Boxes Installed*
- *Support Structure Installed, Tuned and Surveyed*
- *Nitrogen System Operational*
- *Water System Operational (Minus Optical Boxes) and Water Tested.*
- *Preliminary Controls and PLC Screens in Place*
- *PMT's tested*



# Water Skid and Tank



- *EPICS Screens for control/monitoring*
- *Engineering group to commission Mechanical systems*
- *Mechanical On Call Trained for systems*
  - *Water*
  - *Nitrogen*
  - *Vertical Stage movement*
- *Training of Shift Leaders Needed*
- *Nick and Hovanes on call For PLC/EPICS Controls Issues*



# Start Up/Operational Procedure

## ● DIRC Water system operations

- Water Skid Operations Manual Complete
- Overall System Maintenance/operation plan underway

## ● DIRC Nitrogen System Operations

- Overall System Maintenance/Operations Plan underway

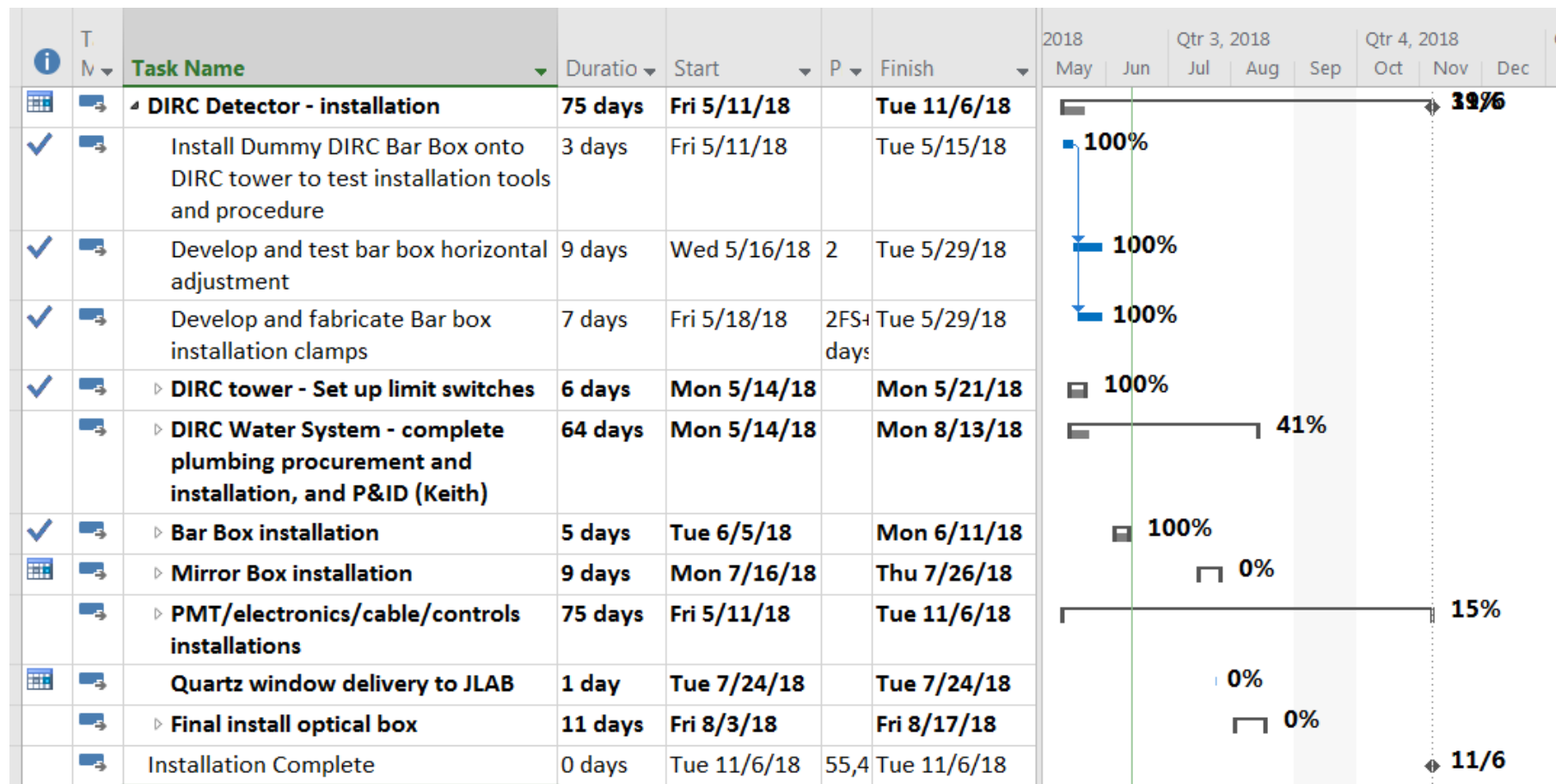
## ● DIRC Mirror box fiducialization procedure

## ● DIRC System Z and Y Location Change Procedure underway

## ● Installation of 2 Additional Bar Boxes and the 2<sup>nd</sup> Optical Box Planned for January 2019

- DIRC Water system operations
- DIRC Nitrogen System Operations
- DIRC Mirror box fiducialization procedure
- DIRC System Z and Y Location Change

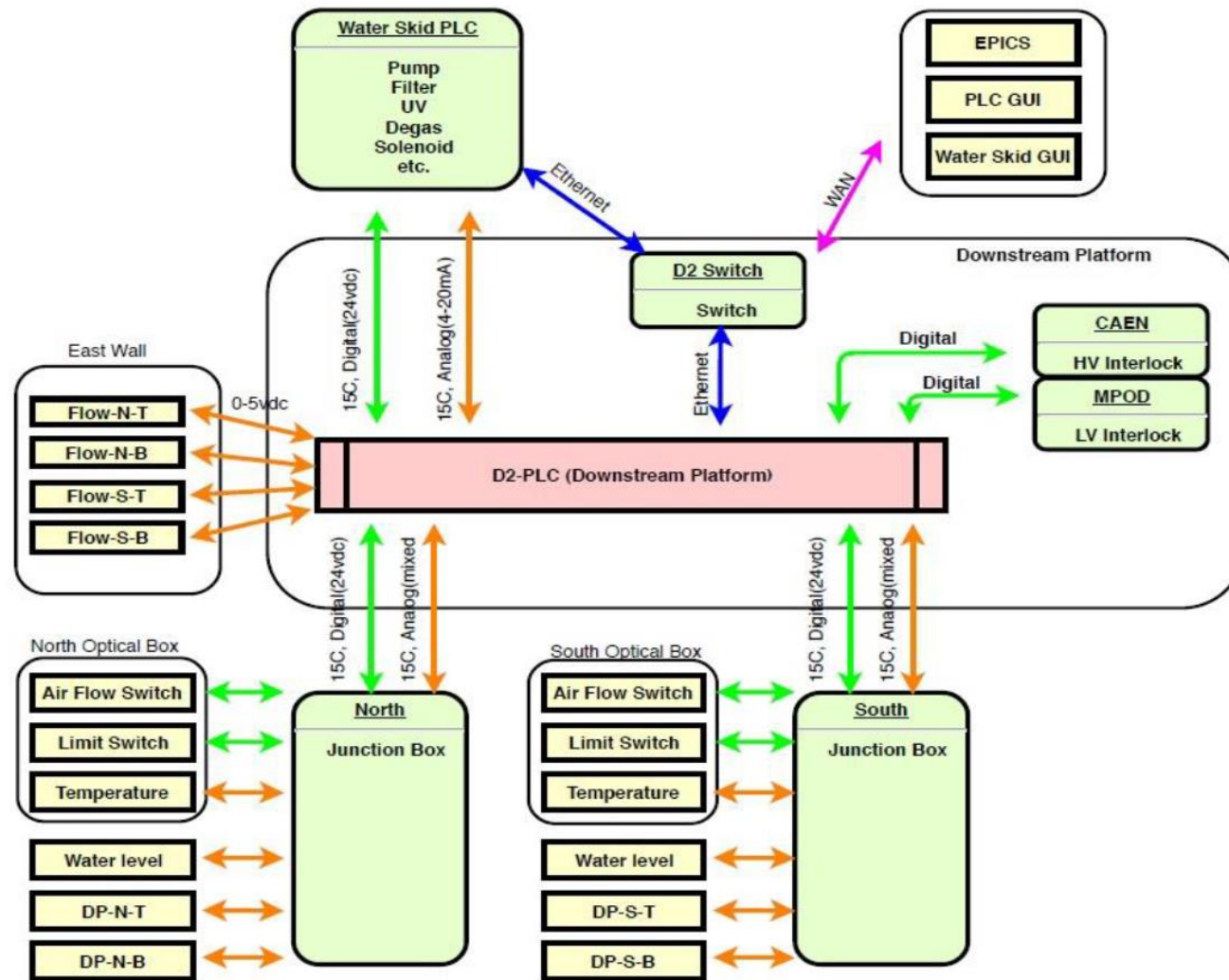
# Resource Loaded Installation Schedule



- Water level sensor in optical box (x2)
- Water Flow on water skid
- Water Temperature on water skid
- Water Pump fail alarm
- UV on/off
- Nitrogen Purge flow
- Nitrogen purge pressure
- Temp/humidity sensors in readout box
- High Voltage alarms?
- Do we wish to turn off pumps if LL gets too high?



# DIRC Controls and Alarms



- 

