

GlueXII and DIRC ERR

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DIRC Installation, Schedule and ESH&Q Considerations









- DIRC System Design
- Installation Progress for ½ Detector
- Operations
- Controls
- Remaining Installation Tasks/Resource Loaded Schedule
- Summary







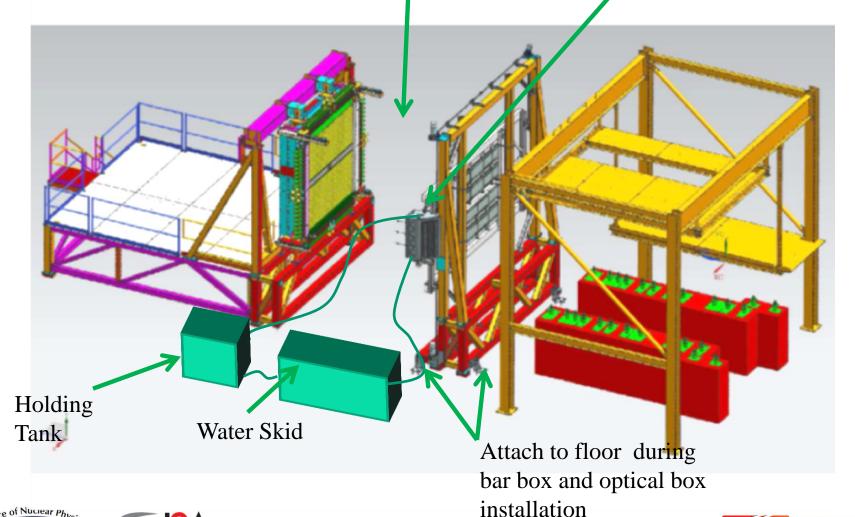


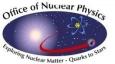
DIRC Installation

Office of

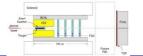
OF ENERGY

Space for manlift during Water filled optical box assembly









Bar Box #10 Installation











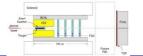
Support Equipment Design and Hardware

- 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









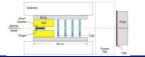
Installation Progress

- 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



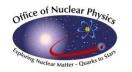






Water Skid and Tank

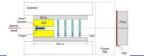












Operations

- 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

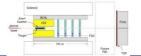
- DIRC Water system operations
 - ➤ Water Skid Operations Manual Complete
 - Overall System Maintenance/operation plan underway
- DIRC Nitrogen System Operations
 - Overall System Maintenance/Operations Plan underway
- DIRC Mirror box fiducialization procedure
- DIRC System Z and Y Location Change Procedure underway
- ●Installation of 2 Additional Bar Boxes and the 2nd Optical Box Planned for January 2019



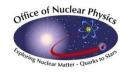








- DIRC Water system operations
- DIRC Nitrogen System Operations
- DIRC Mirror box fiducialization procedure
- DIRC System Z and Y Location Change









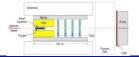
Resource Loaded Installation Schedule

0	T. N →	Task Name	Duratio →	Start 🔻	P 🕶	Finish 🔻	2018 May	_	tr 3, 2018 Jul Aug	g Sep	Qtr 4, 201 Oct N	8 ov Dec
-	-5	△ DIRC Detector - installation	75 days	Fri 5/11/18		Tue 11/6/18	_				•	39%
✓	=5	Install Dummy DIRC Bar Box onto DIRC tower to test installation tools and procedure	3 days	Fri 5/11/18		Tue 5/15/18	100	%)			
V	-5,	Develop and test bar box horizontal adjustment	9 days	Wed 5/16/18	2	Tue 5/29/18	100%					
V	=3,	Develop and fabricate Bar box installation clamps	7 days	Fri 5/18/18	2FS+	Tue 5/29/18	- 1	00%				
~	-5	DIRC tower - Set up limit switches	6 days	Mon 5/14/18		Mon 5/21/18	□ 10	00%				
	5	 DIRC Water System - complete plumbing procurement and installation, and P&ID (Keith) 	64 days	Mon 5/14/18		Mon 8/13/18	-			41%		
V	5	▶ Bar Box installation	5 days	Tue 6/5/18		Mon 6/11/18	E	100	%			
===	-5	▶ Mirror Box installation	9 days	Mon 7/16/18		Thu 7/26/18			□ 0 %			
	=5	 PMT/electronics/cable/controls installations 	75 days	Fri 5/11/18		Tue 11/6/18						15%
=	5	Quartz window delivery to JLAB	1 day	Tue 7/24/18		Tue 7/24/18			0%			
	- 5	Final install optical box	11 days	Fri 8/3/18		Fri 8/17/18				0%		
	-5 ₃	Installation Complete	0 days	Tue 11/6/18	55,4	Tue 11/6/18					•	11/6









- •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?

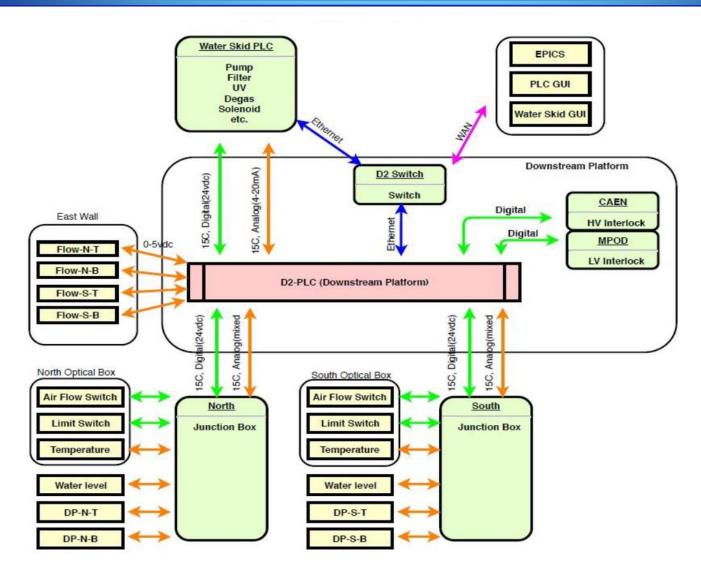








DIRC Controls and Alarms











- > Installation Needed for Commissioning Planned Out
- > Operations/Maintenance Team/Plan in Place
- $\geqslant \frac{1}{2}$ of the Detector Will be Ready for Beam in November





