

# Design Integration

T. Brown

*Design Integration Job Manager*

# Design Integration

## Responsibilities include:

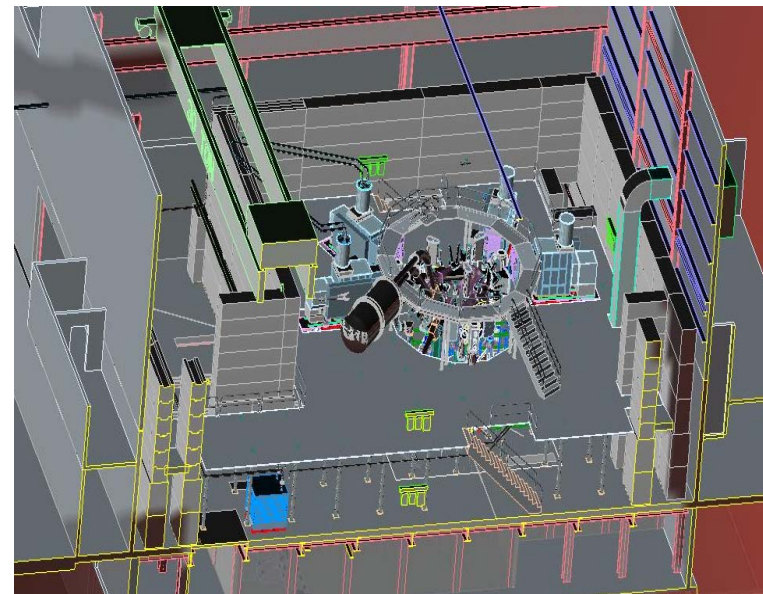
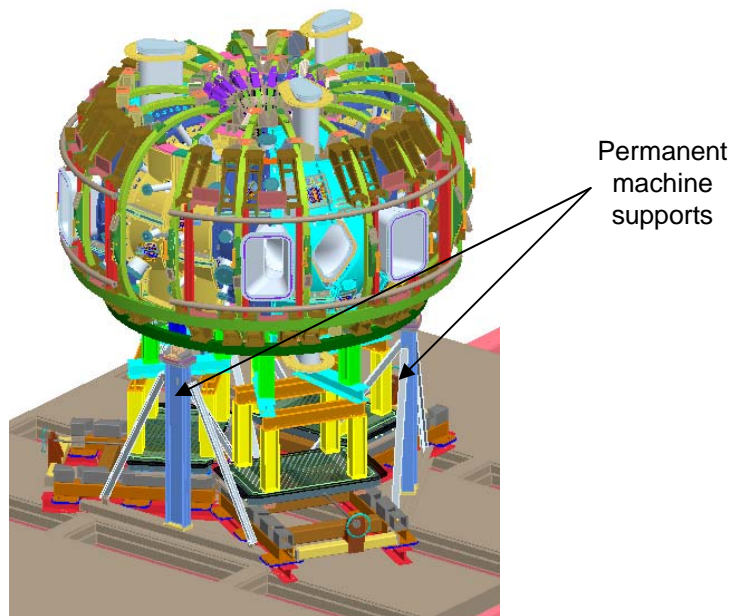
- Configuration development and integration support for all design and construction activities.
- Administering the CAD database of project models and drawings. Reviewing and promoting CAD models and drawings. Establishing Intralink procedures and privileges.
- Providing support to the metrology and dimensional control efforts by analyzing metrology data in conjunction with CAD models of the parts and assemblies

# Configuration development and integration support of design activities.



## DI activates are used:

- In support of ORNL in developing the device core component details
- Development of the test cell general arrangement, and
- The machine assembly design and assembly sequence plan



# Rev 10 of the assembly sequence plan issued



Station 2 - 1st Article (Half Period Assembly)		
NO.	ASSEMBLY STEP	COMMENTS
1.00	Station 3 (Assembly of MCHP over VV)	
1.01	Step Assembly Step	Comments
1.00	Station 5 (Assembly of VV ports, TF and services)	
1.01	Step Assembly Step	Comments
1.02	Component preparations	
2.00	Station 6 (Final Machine Assembly)	
2.01	Step Assembly Step	Comments
2.01	1.00 Component preparations	
2.02	1.01 Assemble three field period support stands (see Fig 1a)	Drawing:
2.02	1.02 Assemble three spool piece support stands (see Fig 1b)	Drawing:
2.03	1.03 Assemble machine base structure (see Fig 2a)	Drawing:
2.03	1.04	
2.03	1.05	
2.03	1.06	
2.04	2.00	
2.04	2.01	
2.04	2.02	
2.04	2.03	
2.05	2.04	
2.06	2.05	
2.07		
2.08		
2.09		
2.00	Test cell metrology set-up and floor deflection test	Reference drawing:
2.01	Install test cell metrology site monuments and perform initial metrology checks as defined the Station 6 Metrology procedure.	Metrology procedure covering Station 6:

Detailed assembly steps for Stations 2, 3, 5 and 6 have been developed and forms the basis for the assembly estimates generated by Mike and Erik.



Fig 1a) Period

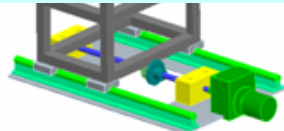


Fig 1b) Spool support stand

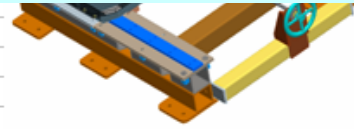


Fig 1c) FPA assembly cart



# Administering the CAD database of project models and drawings

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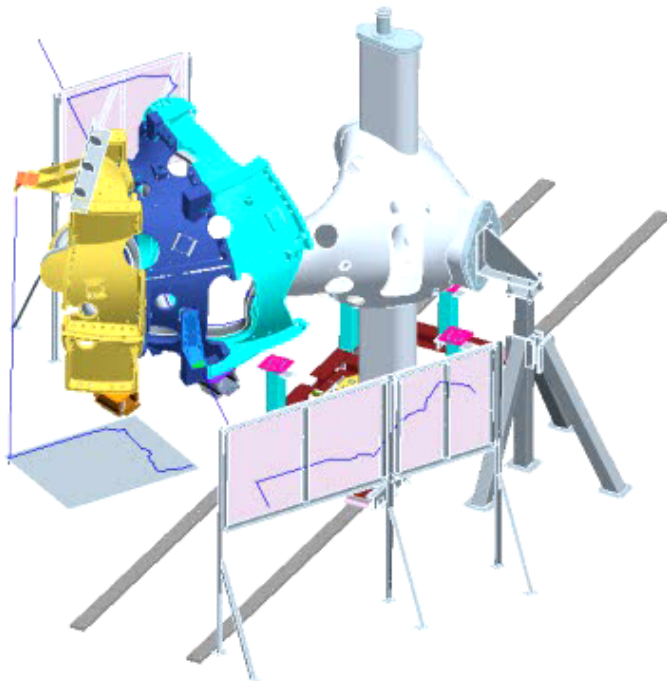


## A centralized 3D modeling of the device core and facility is maintained using Pro/Intralink.

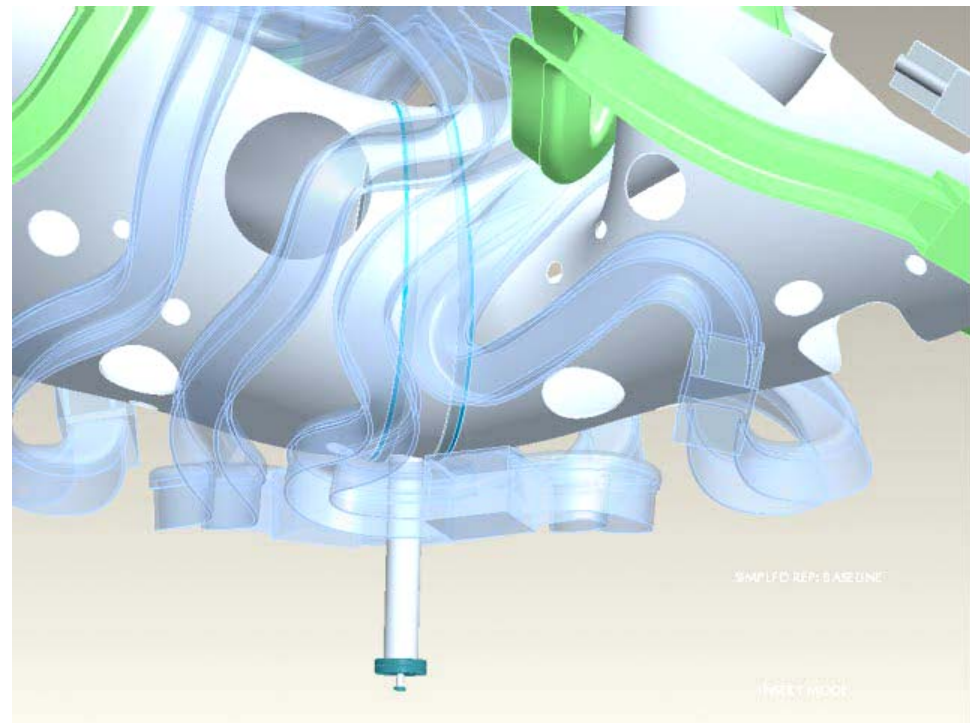
- The CAD database is accessible to all design staff here at PPPL and at ORNL.
- The CAD modeling and data management system allows timely development and view of physical details and interfaces.
- Insertion of As-Built component conditions allows assembly simulation models to be run to view critical interfacing areas to aid machine assembly activities.

# Assembly simulation clearance studies

## Station 3 assembly



## Final machine assembly

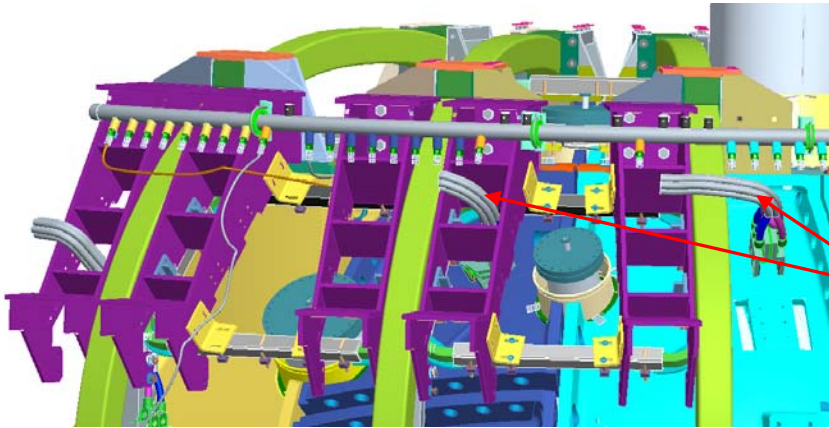




# Continue to review interfaces and support the metrology and dimensional control efforts

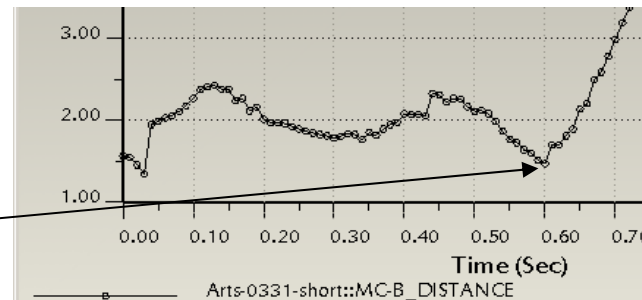
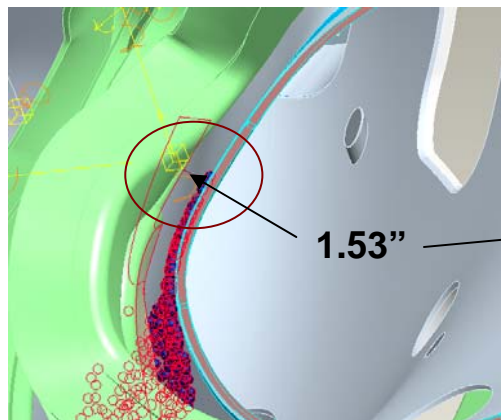


- Continue to review component interfaces



Added lead stems to improve assembly features and schedule

- analyzing metrology data in conjunction with CAD models of the parts and assemblies



# Manpower Staffing



A	B	C	D	E	F	G	H	I	J	K	L
	<b>DESIGN INTEGRATION through FY08</b>		Brown	Smith	Avasarala	Jones	Morris	Upcavage			
1	Service routing within the cryostat and test cell		40								
2	Facility update and integration with the device core		80			80		320			
3	Cryostat design review and integration update		120					120			
4	General integration activities		80					120			
			320			80		560			
	<b>DI / Assembly Oversight FY08 thru FY12</b>		Brown	Smith	Avasarala	Jones	Morris	Upcavage			
	FY08 Activities (Station 2 & 3, BOP)		0.2			0.1		0.3		0.6	FTE
	FY09 Activities (Station 3 & 5, BOP)		0.7	0.4	0.4	0.1	0.8			2.4	FTE
	FY10 Activities (Station 5 & 6, BOP)		0.7	0.4	0.4		0.8			2.3	FTE
	FY11 Activities (Station 6, BOP)		0.7	0.4	0.0		0.6			1.7	FTE
	FY12 Activities (BOP and integrated CAD models)		0.3	0.0	0.0		0.0			0.3	FTE
										7.3	FTE