

Stellarator Core Integration

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Stellarator Core Integration Overview



- Integration at Oak Ridge
- Subsystem/component Interfaces
- Manpower Loading
- Risk Mitigation Activities

Integration at Oak Ridge

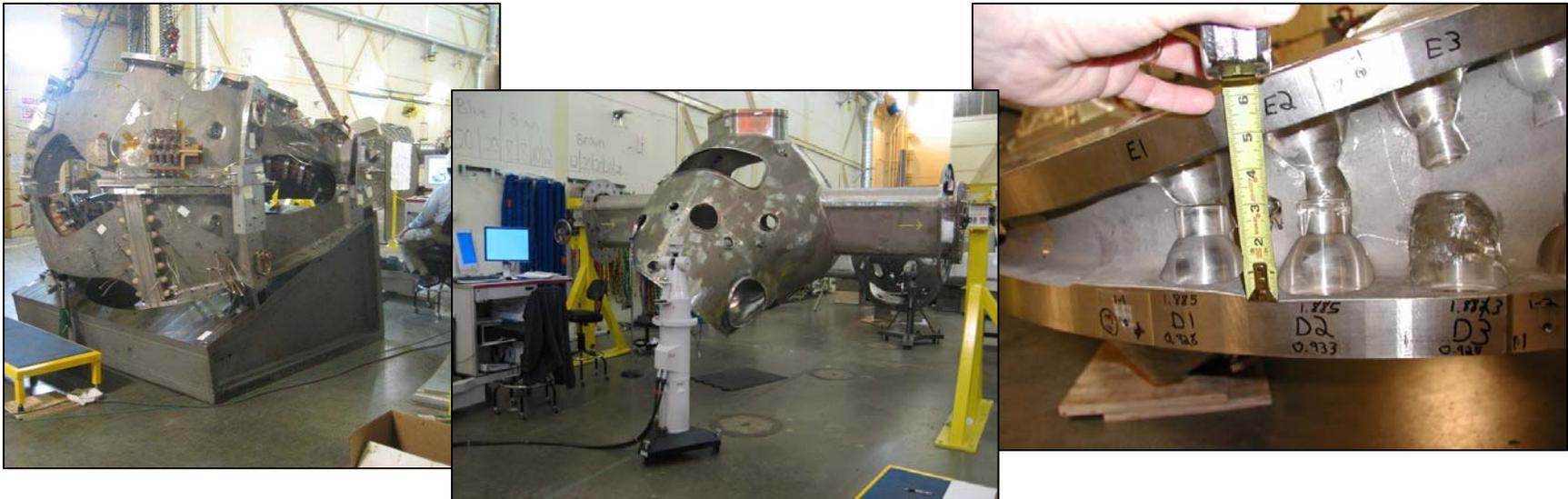


- This WBS provides integration support during fabrication and assembly at PPPL
- Integration support consist of:
 - Installation oversight and inspection of Stellarator Core components
 - Verifying fabrication problems very early before fabrication starts is key to preventing delays that impact cost and schedule
 - Provide as built drawings and models to document the fabrication details
 - Address risk mitigation activities and integrating results into the assembly

Integration at Oak Ridge



- Installation oversight and inspection of Stellarator Core components



It is important to walk around even though you are not addressing a specific problem – it is amazing what you can learn

Integration at Oak Ridge/PPPL



- Verifying fabrication problems very early before fabrication starts is key to preventing delays that impact cost and schedule



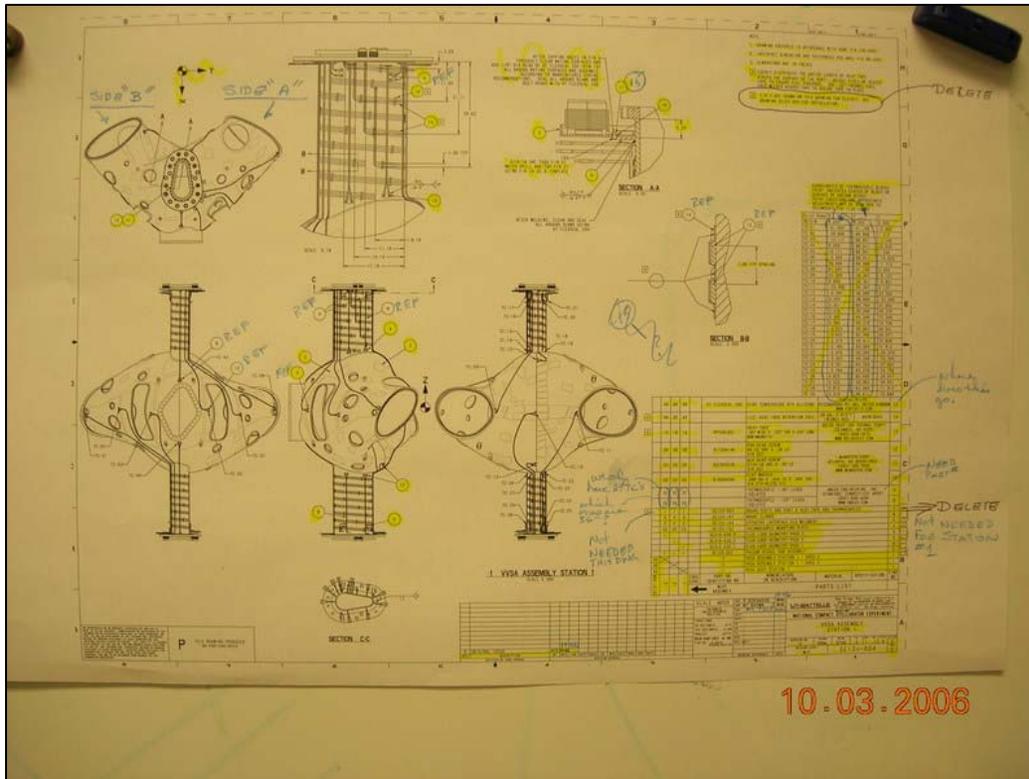
Station 6 machine assembly does not start for several years. Addressing problems early saves time and money if problems can be identified and solutions resolved.

Integration and Subsystem/component Interfaces



- Managing assembly interfaces is critical to meeting cost and schedule objectives
 - During the design phase, interface requirements are met by
 - Reviewing and checking interfaces with mating components
 - Coordinating requirements with responsible individuals of mating components
 - Checking released information to verify requirements have been incorporated and interfaces are correct
 - Checking CAD models for interferences
 - During assembly operations
 - Reviewing top level assembly models before assembly to assure assembly is possible and space is available using CAD models that have “as inspected” data reflected in the model

- Reviewing and checking interfaces with mating components



Integration is not always using the latest 3D Cad model

- Checking released information to verify requirements have been incorporated and interfaces are correct

Manpower Loading



Task	Manpower Loading, FTE					Totals
	FY08	FY09	FY10	FY11	FY12	
Installation oversight and inspection	0.20	0.40	0.40	0.40	0.00	1.40
Verify fabrication problems very early	0.10	0.40	0.40	0.40	0.00	1.30
Provide as built fabrication dwgs	0.10	0.20	0.20	0.20	0.00	0.70
Risk mitigation activities	0.20	0.80	0.70	0.40	0.00	2.10
Reassigned staff available for support	0.00	0.60	0.60	0.60	0.00	1.80
Totals by Year	0.60	2.40	2.30	2.00	0.00	



Risk Mitigation Activities



- Risk have been identified in the Risk Register, RR-28a, as shown below

Stat6-12	7503	Station 6. Problems making up C-C joint. Interferences, bolt access problems.	A Pro E model/sterolithography of the three period assemblies and mechanism for positioning the FPA will be fabricated to evaluate the assembly of the coils. Also CAD modeling Job 1901 / 8203	By start of Station 6	Cole
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Summary



- Integration is an important part of the project
 - Performing oversight is not just showing up when there is a problem. It is about being involved.
 - If a problem can be identified early and a solution found instead of waiting until assembly the return in lower cost and lost schedule is significant
 - Our Cad systems are **almost** as good as the real thing but sometimes a stereo lithography model, prototype, or full scale mockup is really important.
- Risk Mitigation activities have been included to address critical issues as early as possible to avoid possible schedule, cost, and assembly issues