

FIRE Activities in Preparation for Snowmass

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Issues and Plans for Snowmass

- Driven by Recommendations and Chits from the External Engineering Review. Recommended (see Committee Report and Chits plan)
- Magnet Critical Design Issues (Titus)
 - chose design point aimed at $Q = 10$, **Done**, $R = 2.14\text{m}$, 7.7 MA, 10 T
 - chose coil structural configuration – **Done**, wedged BeCu (30% margin)
 - address design details coil leads the usual source of trouble
 - refine pulse length simulations – neutron damage impact on resistivity
 - improve TF cool down performance and repetition rate
- Magnet Critical R&D Issues (Heitzenroeder)
 - qualify BeCu properties and availability – talks with vendor are encouraging
 - qualify TF insulator availability – MIT/SBIR,
- Divertor PFC Issues (Ulrickson/Driemeyer/Baxi)
 - refine design and determine divertor power handling operating space
 - Improve edge and divertor plasma modeling (Rognlein/Brooks)
 - complete and document disruption loads and impacts – FY02 scope

- First wall / Vacuum Vessel Issues (Nelson, Ulrickson)
 - Disruption loads in conjunction with normal operating loads
 - Develop design for maximum pulse length at 2.3 MWn/m^2 for AT
 - Address Eng. Rev Chits on maintenance.
- Fueling and Vacuum Pumping (Fischer, Gouge)
 - finalize pumping systems for divertor and main chamber
 - establish pellet injection configuration, refine injection models
- Auxiliary Heating (Swain)
 - finalize ICRF system characteristics
 - begin design of the ICRF launchers
 - Evaluate potential/costs for NBI
- Configuration Design (Brown)
 - Update configuration for new design point
 - Begin addressing leads, and similar design details

- Shielding and Activation (Sawan/Khater)
begin to address some 3-D issues streaming at ports
provide analysis for diagnostic interfaces
- Safety (Petti, INEEL)
update safety/environmental analyses
- Physics Support
Physics scenarios (Kessel/Jardin/Mandrekas/Meade)
Physics Operations (Wesley/(Bell))
Diagnostics (Young)
- Management (Meade, Thome, Heitzenroeder, Schmidt)
costing (Simmons)
- Additional Overall Tasks
Update FY2000 Engineering Report by Jan 2001
Provide FIRE Physics description Document by Jan 2001
Participate in SOFE, ISFNT, Snowmass, IAEA, SOFT, ITPA, ANS

Summary

- Good progress resolving previously identified issues, beginning to get more interest from community.
- The Snowmass process is generating an extensive list of items that need to be addressed in the next six months
- The direct FIRE resources are inadequate to address all of the needs/requests.
- The long list of “to do” items is being prioritized and help is being sought from the base program and by participation in the ITPA process.