

Status of APEX FY 2000 Task I: Operate a Flowing Liquid Wall in a Major Experimental Physics Device

Task Performers

UCLA: Alice Ying, Neil Morley, Sergey Smolentsev, Tom Sketchley
PPPL: Bob Kaita, Bob Woolley
ORNL: Brad Nelson, Rajesh Maingi
SNL: Mike Ulrickson, Richard Nygren
LLNL: Tom Rognlien
INEEL: Kathy McCarthy, Brad Merrill
ANL: Ahmed Hassanein

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APEX FY 2000 Task I: Explore options and issues for implementing a flowing liquid wall in a major experimental physics device (e.g. NSTX)

I.1 Characterization of projected plasma operating conditions in NSTX

I.2 Design and analysis of flowing liquid wall options in NSTX and other operating plasma devices

- a) Configuration
- b) Divertor Integration
- c) Hydrodynamics and Heat Transfer
- d) Safety and Off-normal events

I.3 Plasma-Liquid Interactions

The data from Task II should help identify issues concerning plasma-liquid wall interactions such as:

- a) Surface Interactions and Edge Physics (LLNL, under C.C. Task A)
- b) Bulk Plasma-Liquid (PPPL, covered under Task II)

I.4 LM-MHD initial exploratory experiments with magnetic field gradients and applied currents

I.5 Identification of key issues and Development of an R&D plan for implementing liquid walls in NSTX and other operating plasma devices

Presentation Outline

- ❑ **NSTX Perspective** - Bob Kaita
- ❑ **Flowing Liquid Wall Options in NSTX** - Brad Nelson
- ❑ **MHD and Heat Transfer Analysis for Lithium Walls in NSTX** - Alice Ying
- ❑ **Status of LMMHD Toroidal Facility** - Bob Woolley