

# NSTX Run Coordination



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# Role of NSTX Run Coordinator



- ◆ Primary contact for organizing, approving, scheduling experiments
  - facilitate experiments and maximize research productivity of a complex facility requiring contributions from many people
  - model based on experience from TFTR and DIII-D
- ◆ Develop overall schedule and publicize before start of run
  - important for planning by Team Members offsite
- ◆ Oversee approval of Experimental Proposals
  - required for all physics experiments on NSTX
- ◆ Schedule experiments on weekly basis and publicize plans

# Experimental Proposals for NSTX



- ◆ An Experimental Proposal (XP) is a document describing plans for a physics experiment
  - guides conduct of an experimental run
  - may take from a few hours to several days to execute
  - use Machine Proposals (under Experimental Research Operations) for operational development: e.g. commissioning controls
  
- ◆ Each XP should have a clear scientific goal and contribute in a measurable way to the NSTX research output
  - there needs to be a product

# Generation of Experimental Proposals for NSTX



- ◆ Discuss ideas for experiments in this and future Research Forums
  - contribute to writing the Experimental Task session reports
- ◆ NSTX management will then work with Task Force Leaders (TFLs) and Run Coordinators to identify XPs to be developed
  - ensure coverage of all major research directions
  - Task Forces will have a rough allocation of run time for each run
    - following recommendations of NSTX Program Advisory Committee
- ◆ XPs are initially prepared and eventually executed by those with the most knowledge and interest in the experiment
  - in between, they are reviewed, approved and eventually scheduled

# Structure of an NSTX Experimental Proposal



- ◆ Preparation, approval and execution governed by an NSTX Procedure
- ◆ Required elements for XPs
  1. Overview of planned experiment - The goal
  2. Justification - Why is this interesting and why NSTX; be brief
  3. Experimental run plan - Describe experiment in detail including shot list with decision points for proceeding
  4. Required machine, Beam, RF and diagnostic capabilities - need to inform operators and diagnostics of special requirements
  5. Planned analysis - What analysis of the data will be required and when?
  6. Research output - What publication is expected of this work and when?
  7. Diagnostics Checklist and Physics Operations Request - standard forms

# Approval Process for NSTX Experimental Proposals



- ◆ First, discuss ideas for XP with relevant Task Force Leader
  - Task Forces are responsible for prioritizing experiments in their areas of interest
  - TFL will probably request initial review within the Task Force
  - may lead to broadening scope or combining similar studies
  - if you cannot interest anyone in your idea, talk to me!
  
- ◆ Discuss the experimental requirements with
  1. Physics Operations (D. Mueller)
  2. Diagnostics (R. Kaita)
  3. RF and/or NB systems, if needed (R. Wilson)
  4. Physics Analysis (S. Kaye)

# Approval Process for NSTX XPs (2)



- ◆ Prepare the written proposal, including all required elements
- ◆ Submit it to the Run Coordinator who will
  - assign an XP number
  - appoint reviewers, who will eventually sign off the proposal
    - normally Run Coordinator, TFL, one or more experts
  - schedule a formal review (generally held at a Physics Meeting)
- ◆ Present the proposal for review at the meeting
  - distribute the XP to the reviewers at least two days beforehand
  - post on Web for offsite Team Members to review
  - make 20 copies to distribute at the review

# Approval Process for NSTX XPs (3)



- ◆ After review presentation, reviewers collect chits, assign responsibility for responding to them and forward them to the XP author
  - all chits should be submitted by the end of the review meeting
- ◆ Author amends proposal or answers chits directly and circulates final document to the list of reviewers on the cover page for signature
  - final version should include chits and responses
- ◆ Run Coordinator (final signatory) submits approved XP to NSTX Operations Center which
  - distributes copies to a standard route list, including the Control Room
  - posts the final text on the Web

# Scheduling NSTX Experiments - Overall



- ◆ Allocation of run time to Task Forces depends on:
  - recommendations of NSTX Program Advisory Committee
  - scientific opportunities, milestones, major meetings
- ◆ Run Coordinator develops overall run schedule depending on
  - planned availability of tokamak, heating systems, diagnostics
  - expected availability of key people
- ◆ Publicize schedule after review by NSTX Project management
  - allow advance planning of travel for Team Members offsite
  - update during run as situation changes and communicate with Team Members

# Scheduling NSTX Experiments - Detailed



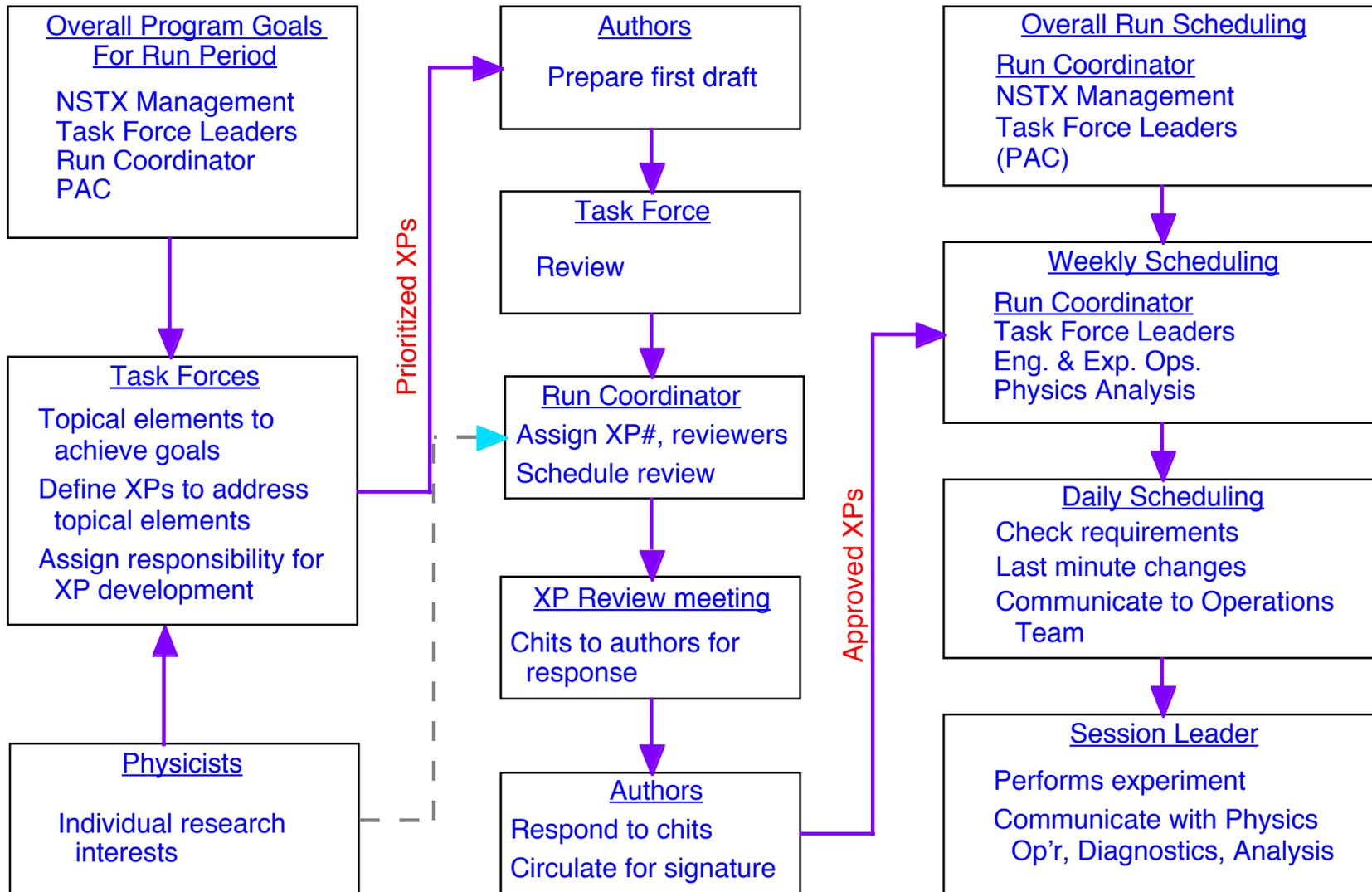
- ◆ Prior to run weeks, Run Coordinator organizes Experimental Scheduling Meetings involving
  - Task Force Leaders
  - Engineering Operations
  - Experimental Operations
  - Physics Analysis
  - NSTX Project, Program Directors
- ◆ Run Coordinator compiles schedule for following week, publicizes it electronically and presents it to weekly NSTX Physics Meetings
- ◆ Ensure communication with Team Members offsite

# Scheduling NSTX Experiments - Detailed (2)



- ◆ Final scheduling for an experiment depends on:
  1. Having an approved XP
  2. Required capabilities
  3. Programmatic issues
  4. Availability of key people (Session Leader, Physics Operator, Diagnosticians, Analysts)
  
- ◆ At brief daily status and planning meeting during run weeks
  - review readiness for planned XPs
  - Head of Experimental Operations enters XP(s) into Daily Orders
  - minor changes to XPs are permitted and are signed off by Head of Experimental Operations
  
- ◆ Session Leader takes it from the top ...

# Generation, Approval, Execution of XPs



# Reporting Status of NSTX Experiments



- ◆ Methods for reporting status of experiment needed
  - Session Leader's Log (electronic)
  - Daily Run Summaries
    - Physics Operator
    - Session Leader (including analysis status)
- ◆ Should we have a brief meeting at the end of each session or before the next to review status?
- ◆ Need presentation(s) at NSTX Physics Meetings, Task Force Meetings as results are analyzed