

**Princeton Plasma Physics Laboratory  
NSTX Machine Proposal**

**Title: Initial Shake-Out of Li Dropper**

**OP-XMP-62**

**Revision: 0**

Effective Date: 6/25/08  
*(Ref. OP-AD-97)*  
Expiration Date: 6/25/10  
*(2 yrs. unless otherwise stipulated)*

**Procedure Approvals**

Responsible author:

Date

ATI (NSTX Physics Ops):

Date

RLM (NSTX Expt. Research Ops):

Date

Responsible Division: **Experimental Research Operations**

**Procedure Requirements**  
designated by RLM

	NSTX Work Permit		T-MOD (OP-AD-03)
	Independent Review		ES&H Review

**MINOR MODIFICATIONS**

<b>REVIEWERS</b> (designated by RLM)		
<u>Organization/Position</u>	<u>Name</u>	<u>Signature</u>
ATI		
Test Director		
Independent Reviewer		
NB		
RF		
Diagnostics		

<b>TRAINING</b> (designated by RLM)			
Training required: No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Instructor _____			
Personnel (group, job title or individual name)	Read Only	Instruction	Hands-On
Training Rep. _____			

RLM \_\_\_\_\_

# NSTX MACHINE PROPOSAL

TITLE: **Initial Shake-Out of Li Dropper**  
AUTHORS: **D. K. Mansfield**

No. **OP-XMP-62**  
DATE: **6/25/08**

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**1. Overview:**

This provides an initial check of the Li dropper.

**2. Justification:**

An initial check of the Li dropper should be accomplished before the start of XP-828

**3. Plan:**

(1) Drop a few mg of Li powder into the vessel under no plasma conditions

(2) Drop a few mg of Li powder into a fiducial discharge nominally to arrive at the plasma towards the end of the discharge at a time agreed with the Physics Operator

\_\_\_\_\_  
NSTX shot number(s)

**4. Required machine, beam, ICRF and diagnostic capabilities:**

Standard fiducial with plasma TV

**5. Sign off at run time:**

5.1 Permission to Proceed:

\_\_\_\_\_  
Physics Operations Head

5.2 Documentation of results:

Documentation of the results completed, attached to proposal and sent to Ops. Center with copies to Cognizant Physicist and Head of Physics Operations.

\_\_\_\_\_  
Cognizant Physicist/Test Director

# PHYSICS OPERATIONS REQUEST

TITLE: **Initial Shake-Out of Li Dropper**

No. **OP-XMP-62**

AUTHORS: **D. K. Mansfield**

DATE: **6/25/08**

Machine conditions (specify ranges as appropriate)

$I_{TF}$  (kA): Flattop start/stop (s):

$I_p$  (MA): Flattop start/stop (s):

Configuration: **Limiters / DN / LSN / USN**

Outer gap (m): Inner gap (m):

Elongation  $\kappa$ : Upper/lower triangularity  $\delta$ :

Z position (m):

Gas Species: Injector(s):

**NBI Species: D** Sources: Voltage (kV): Duration (s):

**ICRF Power (MW):** Phasing: Duration (s):

**CHI: On / Off** Bank capacitance (mF):

**LITER: On / Off**

Previous shot numbers for setup: **Any daily fiducial with NBI**

## DIAGNOSTIC CHECKLIST

TITLE: **Initial Shake-Out of Li Dropper**

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*Note special diagnostic requirements in Sec. 4*

Diagnostic	Need	Want
Bolometer – tangential array		X
Bolometer – divertor		
CHERS – toroidal		
CHERS – poloidal		
Divertor fast camera		X
Dust detector		X
EBW radiometers		
Edge deposition monitors		X
Edge neutral density diag.		
Edge pressure gauges		
Edge rotation diagnostic		
Fast ion D_alpha - FIDA		
Fast lost ion probes - IFLIP		
Fast lost ion probes - SFLIP		
Filterscopes		
FIRETIP		X
Gas puff imaging		
H $\alpha$ camera - 1D		
High-k scattering		
Infrared cameras		
Interferometer - 1 mm		
Langmuir probes – divertor		
Langmuir probes – BEaP		
Langmuir probes – RF ant.		
Magnetics – Diamagnetism		
Magnetics – Flux loops	√	
Magnetics – Locked modes		
Magnetics – Pickup coils	√	
Magnetics – Rogowski coils	√	
Magnetics – Halo currents		
Magnetics – RWM sensors		
Mirnov coils – high f.		
Mirnov coils – poloidal array		
Mirnov coils – toroidal array		
Mirnov coils – 3-axis proto.		

*Note special diagnostic requirements in Sec. 4*

Diagnostic	Need	Want
MSE		
NPA – ExB scanning		
NPA – solid state		
Neutron measurements		
Plasma TV	X	
Reciprocating probe		
Reflectometer – 65GHz		
Reflectometer – correlation		
Reflectometer – FM/CW		
Reflectometer – fixed f		
Reflectometer – SOL		
RF edge probes		
Spectrometer – SPRED		X
Spectrometer – VIPS		X
SWIFT – 2D flow		
Thomson scattering		X
Ultrasoft X-ray arrays		
Ultrasoft X-rays – bicolor		
Ultrasoft X-rays – TG spectr.		
Visible bremsstrahlung det.		X
X-ray crystal spectrom. - H		
X-ray crystal spectrom. - V		
X-ray fast pinhole camera		
X-ray spectrometer - XEUS		