Princeton Plasma Physics Laboratory
Procedure

Procedure Title: **Modular Coil Mfg. Facility- Emergency Response Procedure**

Number:	Revision:	Effective Date: January 11, 2005
D-NCSX-OP-EO-41	**00**	Expiration Date: *(2 yrs. unless otherwise stipulated)*

Procedure Approvals

Author: James H. Chrzanowski — James H. Chrzanowski — Digitally signed by James H. Chrzanowski DN: CN = James H. Chrzanowski, C = US, O = PPPL, OU = Engineering Reason: I am the author of this document Date: 2005.01.12 07:39:47 -05'00'

ATI: James H. Chrzanowski — James H. Chrzanowski — Digitally signed by James H. Chrzanowski DN: CN = James H. Chrzanowski, C = US, O = PPPL, OU = Engineering Reason: I have reviewed this document Date: 2005.01.12 07:40:02 -05'00'

RLM: Larry Dudek — Larry Dudek — Digitally signed by Larry Dudek DN: CN = Larry Dudek, C = US, O = PPPL, OU = FOM Division Date: 2005.01.12 07:56:52 -05'00'

Responsible Division: **NCSX Project**

Procedure Requirements
Designated by RLM

LABWIDE:

X	Work Planning Form # **WP-1188 & 1138** (ENG-032)		Lockout/Tagout (ESH-016)
	Confined Space Permit (5008,SEC.8 Chap 5)		Lift Procedure (ENG-021)
	Master Equip. List Mod (GEN-005)	**X**	ES&H Review (NEPA, IH, etc.) **NEPA 1283**
	RWP (HP-OP-20)		Independent Review
	ATI Walkdown	**X**	Pre-Job Brief
X	Post-job Brief *		

D-SITE SPECIFIC:

X	D-Site Work Permit (OP-AD-09)		Door Permit (OP-G-93)
	Tritium Work Permit (OP-AD-49)		USQD (OP-AD-63)
X	Pre-Job Brief (OP-AD-79)		T-Mod (OP-AD-03)
	** DCA/DCN (OP-AD-104) # _____		

* Required for installations involving internal vacuum installations, critical lifts, and for the initial installation of repetitive work.

** OP-AD-104 was voided by procedure ENG-032. However, DCA's that were open at the time of adoption of ENG-032 are still considered valid for work approval purposes.

REVIEWERS (designated by RLM)		
Accountable Technical Individual. **……. J. Chrzanowski**		
Test Director		
Independent Reviewer		
D-Site Shift Supervisor		
Independent		
NCSX	**Tom Meighan X**	**Steve Raftopoulos X**
Vacuum		
Project Engineer for Stellerator Systems (WBS 1) Manager**……..**		
ESU ……		**Jim McGuire X**
Quality Assurance/Quality Control. …….		**Judy Malsbury X**
Maintenance and Operations Division		
Energy Conversion System/Motor Control Division		
Engineering ……..		
Environmental Restoration & Waste Management Division		
Environmental, Safety & Health**……**		**Jerry Levine X**
Industrial Hygiene**……...**		**Bill Slavin X**
Health Physics**……**		**Carl Tilson X**
RLM ……..**Larry Dudek**		

NOTE: X indicates comments received and incorporated: James H. Chrzanowski Digitally signed by James H. Chrzanowski DN: CN = James H. Chrzanowski, C = US, O = PPPL, OU = Engineering Reason: I attest to the accuracy and integrity of this document Date: 2005.01.12 07:40:29 -05'00'

TRAINING (designated by RLM) No training required _____ Instructor **Jim Chrzanowski**			
Personnel (group, job title or individual name)	Read Only	Instruction Pre-job Briefing	Hands On
Lead Tech.		**X**	
Technicians performing task		**X**	
Field Supervisors		**X**	
Quality Control Representative		**X**	
Training Rep.			
RLM **Larry Dudek**			

RECORD OF CHANGE

Revision	Date	Description of Change
00	11/30/04	Initial release

TABLE OF CONTENTS

1 PURPOSE

The purpose of this procedure is to clearly identify the actions to be taken by personnel in the NCSX Coil Manufacturing Facility in the event of a fire or other emergency condition. A "RUN" copy of this procedure must be obtained prior to the start of a VPI operation.

2 SCOPE

This procedure identifies response actions for the following emergency scenarios:

2.1 Response to Fire Alarm
2.2 Response to Health Physics associated emergency
2.3 Response to Loss of Power

3 APPLICABLE DOCUMENTS

3.1 D-NCSX-MCF-003: VPI/ Autoclave Activities

3.2 D-NCSX-OP-G-162: Modular Coil Autoclave Operating Procedure

4 RESPONSIBILITIES:

4.1 Field Supervisors

During an emergency situation, the Field Supervisor is responsible for ensuring that all personnel are safely evacuated and that the stations are properly shut down.

4.2 VPI Director

Is responsible for the oversight of epoxy impregnation (VPI) activities and in an evacuation situation shall ensure, with ESU consent, the continuation of the VPI activities. In a mandatory all personnel evacuation, is responsible for the safe shutdown of the VPI/autoclave station.

4.3 VPI Lead Technician

During VPI activities, is responsible for radio communications with the ESU in an emergency situation.

4.4 Health Physics Technician

During a Radiological emergency situation [contamination spread], is responsible for notifying and ensuring that facility personnel are evacuated from the Coil Facility and are mustered in their designated area.

5 COMMUNICATIONS:

In the event of a Coil Facility evacuation (Fire Alarm) during an epoxy impregnation of a modular or Twisted Racetrack Coil the VPI Lead Technician shall maintain radio communication with the ESU via an ESU provided radio.

Other emergencies shall be restricted to communicating via the phones lines when reasonable.

6 SAFETY REQUIREMENTS:

This procedure is designed to identify the actions that should be taken by personnel in the Coil Manufacturing Facility in an event of an emergency.

6.1 Facility Re-Entry:

At no time shall an individual re-enter the Coil Facility once it has been evacuated unless they are authorized to do so by ESU for fire alarm events or HP for radiological alarm events.

7 RESPONSE ACTIONS

Response actions for emergency's are identified below, however "IF AT ANY TIME CONDITIONS IN THE COIL FACILITY ARE BELIEVED TO BE IMMINENTLY LIFE THREATENING, ALL PERSONNEL SHOULD IMMEDIATELY EVACUATE THE FACILITY".

7.1 Response to Fire Alarm

7.1.1 <u>During General Work Activities</u>

If the fire alarm in the NCSX Coil Facility is activated, all personnel shall safely stop their activities, shut down systems and proceed in an orderly fashion to their assigned muster area outside the D-site gate. The only exceptation to this is during the epoxy impregnating (VPI) of a coil in the autoclave. [7.1.2]

7.1.2 <u>During VPI Activities</u>

The only critical (high risk) activity that could affect the manufacturing/quality of the modular or twisted racetrack coils is during the epoxy filling operation. Abandoning the filling operation, once started could cause the loss of the coil with both cost and schedule impacts. The following course of action shall be taken prior to initialing VPI activities.

7.1.2.1 The VPI Director shall notify the Emergency Services Unit (ESU) 24 hours prior to the start of VPI operations. [Per D-NCSX-MCF-003]

7.1.2.2 The VPI director shall contact the ESU the morning of the VPI operation. The ESU will supply the VPI Lead Technician with a radio that will provide them with direct communication with the ESU.

7.1.2.3 The VPI Director shall identify the VPI team who are essential to the VPI operations in case of an evacuation alarm.
Team Members:

Lead: _____ _____

_____ _____

7.1.2.4 If the fire alarm in the NCSX Coil Facility is activated during VPI operations, the following actions shall be taken.

7.1.2.4.1 All non-essential personnel associated with the VPI operation MUST evacuate the NCSX Coil Facility and proceed in an orderly fashion to their assigned muster area outside the D-site gate.

7.1.2.4.2 The VPI Lead Technician shall contact the ESU via radio to determine whether there is imminent danger and if the NCSX Coil Facility must be evacuated by all personnel.

7.1.2.4.3 If the VPI team is notified that evacuation is mandatory, the VPI Lead Technician and VPI Director shall complete the following shut down sequence:

Close all valves associated with epoxy flow to/from coil. _____

Shut down epoxy tank heating elements _____

Shut down the autoclave system per Autoclave Operating Procedure D-NCSX-OP-G-162 section 6. 5 _____

Shut down vacuum pumps to coil and epoxy tanks _____

Verify that valve A-VV-5 is closed. DO NOT alter autoclave atmosphere _____

7.1.2.4.4 Once the shut down sequence has been completed, the remaining VPI team shall evacuate the Coil Facility NCSX Coil Facility and proceed in an orderly fashion to their assigned muster area outside the D-site gate

7.2 Response to Health Physics Related Emergency

This relates to an emergency associated with radiological contamination as a result of the venting of the Neutral Beam boxes, Ion sources or back flow from the elephant trunk ventilation system.

7.2.1 During General Work Activities

In the highly unlikely event of a health physics related emergency associated with contamination, the Health Physics technician may determine that the Facility needs to be evacuated. If this occurs, the HP technician shall notify the Coil Facility personnel that they must evacuate the facility and muster outside of the facility door to minimize any spread of contamination.

7.2.2 During VPI Activities

If a health physics related emergency occurs during the epoxy filling of a coil, the HP technician must decide whether the VPI team can remain in the Coil Facility to complete the VPI activities.

7.2.2.1.1 If the HP technician determines that the area is unsafe, and that all personnel must evacuate the facility, then the VPI Lead Technician and VPI Director shall complete the VPI shut down sequence as described in 7.1.2.4.3. The HP technician will determine the stay time that individuals can remain in the area to perform the shutdown operations.

7.2.2.1.2 Once the shut down sequence has been completed, the remaining VPI team shall evacuate the NCSX Coil Facility and proceed in an orderly fashion to their assigned muster area outside the facility door.

7.3 Response to Loss of Power

7.3.1 During General Work Activities

In the event of a power outage, if there remains sufficient lighting, personnel shall shutdown all power equipment and evacuate the NCSX Coil Facility in an orderly fashion. If there are no overhead lights the personnel should use portable lighting (flash lights), etc. and make their way out of the facility.

7.3.2 During VPI Activities

During the VPI operations, the autoclave and related systems will be connected to the backup diesel generator and should be able to continue the VPI related operations with little impact. Evacuation will not be required unless notified by ESU via radio communication. If evacuation is necessary, the shutdown sequence as identified in 7.1.2.4.3 should be followed.