

3T/7T MRI FACILITY

SOP Number:	330-01
Title	3T MRI Black/Brown Out Procedure

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Facility Manager Signature: _____

Date: _____

ROBARTS RESEARCH INSTITUTE
CENTRE FOR FUNCTIONAL AND METABOLIC MAPPING:
3T MRI FACILITY

Standard Operating Procedure #330-01

MRI Black/Brown Out Procedure

1. Introduction

- 1.1 Research involving Magnetic Resonance Imaging (MRI) at high magnetic field strengths present unique hazards to both research subjects and individuals working within and around the MRI system. Consequently, the potential for serious personal injury is present due to the sheer size and strength of the static magnetic field along with the immense flexibility of the research system and associated peripheral hardware.
- 1.2 There exist dangerous and potentially lethal levels of electricity in the 3T MRI system. As such, it is important that all individuals working around the MRI system be aware of the dangers and therefore knowledgeable as to the safety issues concerning electricity. Furthermore, current carrying cables, connections and junction points in the vicinity of the main magnetic field are particularly susceptible to damage due to the extreme Lorentz forces created through the normal operation of the system. Periodically, the effects of prolonged mechanical fatigue will result in breakage causing electrical arcing, sparking and high heat levels before the system can shut down. There therefore becomes a high potential for personal injury and the possibility of a fire being ignited.
- 1.3 Equipment in the 3T MRI Facility is sensitive to the order used in powering the system up and down. If the proper procedures are not followed, the equipment may be damaged. Only qualified operators are to perform the following procedure.
- 1.4 Training is required to perform any procedure on the system involving equipment in the Equipment Room. The training includes location and function of the equipment in the Equipment Room. See SOP#110-01: "Safety and Operator Training Procedures".

2. Black/Brown Out Startup Procedure

- 2.1 If you are unsure of any of the steps in the following procedure, DO NOT CONTINUE. Immediately contact the Facility Manager.
- 2.2 In the event that there is a black out or a short power glitch there is the possibility that the 480V electrical supply may be lost. A loss of power will result in an audible alarm coming from the 3T equipment room indicating a trip of the 480V supply.
- 2.3 Before proceeding any further, ensure the system is fully shut down. Follow the procedure in SOP#320-01: "3T MRI System Shutdown" to complete a full system shutdown.
- 2.4 The 480V power supply must be reset via the following procedure in order to restore

power.

- 2.4.1 Shut down the RF amp. In the 3T equipment room:
 - 2.4.1.1 Switch CB2 to “OFF”.
 - 2.4.1.2 Switch CB1 to “OFF”.
- 2.4.2 On the wall by the Chiller, press the GREEN button labeled “480V Reset”.
- 2.4.3 Start up the RF Amp:
 - 2.4.3.1 Switch CB1 to “ON”.
 - 2.4.3.2 Switch CB2 to “ON”.
- 2.4.4 Power up the system by pressing the “SYSTEM ON” button on the Siemens control panel. See SOP#310-01: “3T MRI System Start-up”.