

## 3T/7T MRI FACILITY

|                    |   |
|--------------------|---|
| <b>SOP Number:</b> | <b>320.03</b>                           |
| <b>Title</b>       | <b>3T MRI Black/Brown Out Procedure</b> |

| <b>Revision Chronology</b> |                        |                           |
|----------------------------|------------------------|---------------------------|
| <b>Version Number</b>      | <b>Date</b>            | <b>Changes</b>            |
| <b>320.01</b>              | <b>01 March 2010</b>   | <b>New Version</b>        |
| <b>320.02</b>              | <b>22 January 2013</b> | <b>Updated procedures</b> |
| <b>320.03</b>              | <b>27 October 2015</b> | <b>Update procedures</b>  |
|                            |                        |                           |
|                            |                        |                           |
|                            |                        |                           |
|                            |                        |                           |

**Associate Director Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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

**Standard Operating Procedure #320.03**

**MRI Black/Brown Out Procedure**

**1. Introduction**

- 1.1 Research involving Magnetic Resonance Imaging (MRI) at high magnetic field strengths presents 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 magnitude and strength of the static magnetic field along with the immense flexibility of the research system and associated peripheral hardware.
- 1.2 Dangerous and potentially lethal levels of electricity are used by both the 3T and 7T MRI systems. Therefore it is important that all individuals working around the MRI systems be aware of the dangers and understand the safety issues concerning electricity. 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 may result in breakage, thereby causing electrical arcing, sparking, and high heat levels before the system can shut down. In these instances there is a high potential for personal injury as well as 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 or malfunction. Only authorized Level 2 MRI Personnel are permitted to perform these procedures.
- 1.4 Extensive training is required before performing any procedure on the 3T MRI system, see SOP#130: "MRI Personnel Training".

**2. Black/Brown Out Procedure**

- 2.1 In the event that there is a black out or a momentary power interruption there is the possibility that the 480V electrical supply may be lost. The loss of power will cause the 3T MRI to shutdown including the magnet cold head and compressor.
- 2.2 If the 480V electrical supply has been lost, you must contact Siemens service to restore power. Currently, there is a specific order of operations that must be performed by a qualified Siemens field engineer in order to restore power.
- 2.3 Contact Siemens Service at: 1-800-359-6709 and use site number '7334'. Tell the that the 480V power supply has been lost and we require a field engineer to restore power