

# NEW SOUTH WALES FIRE BRIGADES



## OPERATIONS BULLETIN 2003/2

### Magnetic Resonance Imaging (MRI) machines

When responded to, or conducting Pre-Incident Planning at health care facilities with MRI machines, crews need to be aware of the hazards involved.

- MRI scanners are medical diagnostic devices that use a very strong magnetic field to produce images of internal anatomical structures. The MRI magnet can exert more than 4 tonnes of force at the centre of the scanner core.
- Disconnecting the electrical service to an MRI lab does not affect the magnet. The magnet is on all the time regardless of whether the machine is in use or not.
- The magnetic field has the potential to severely damage or destroy pacemakers, aneurism clips, hearing aids, cochlear implants and insulin pumps. Any firefighter who is fitted with any of these or other metallic implant should not, for any reason, enter a MRI room.
- Credit cards, battery powered watches and other electronic devices can be severely damaged when brought into the room.
- The room is encased in a copper (or in some cases steel) cage. Portable radios will not transmit or receive within a MRI room.
- Larger objects containing ferrous materials such as many items of firefighting equipment have the potential to become lethal objects if torn from the grasp of the firefighter by the magnetic field.
- Firefighters should only enter the room under the direct supervision of trained MRI staff. The room will normally be secured and display warning notices to prevent unauthorised access. A viewing window is provided which allows surveillance of the room.
- If a fire within a MRI room that cannot be extinguished with a fire blanket or other non ferrous medium, the magnet can be disarmed by initiating a quench protocol which releases large quantities of liquid helium from the system and renders the machine dormant in about 20 seconds. The quenching protocol should only be initiated under supervision of MRI trained staff.

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