Event Detail - Abnormal Occurrence

ITEM #:	070672	**AO #:**	08-03	**AO REPORT:**	NUREG-0090, Vol. 31
TITLE:	Medical Event at Karmanos Cancer Center in Detroit, Michigan				
NAME:	Karmanos Cancer Center				
DATE:	10/24/2007	**CITY:**	Detroit	**STATE:**	MI

Criteria:

Criteria III.C.1.b and III.C.2.b(iii), "For Medical Licensees," of Appendix A to this report provide in part that a medical event that results in a dose that is equal to or greater than 10 Gy (1,000 rad) to any organ or tissue (other than a major portion of the bone marrow, or the lens of the eye, or the gonads) and represents a prescribed dose or dosage that is delivered to the wrong treatment site shall be considered for reporting as an AO.

Nature and Probable Consequences:

Karmanos Cancer Center reported that a medical event occurred associated with its gamma stereotactic radiosurgery unit (gamma knife). A patient being treated for a metastatic brain tumor was scheduled to receive 18 Gy (1,800 rad) to the lesion in the right cerebella area of the brain but received 18 Gy (1,800 rad) to an unintended area adjacent to the tumor. An error in the setup of the magnetic resonance imaging (MRI) unit caused the MRI scan to be reversed (i.e., the image of the right side of the head was on the left side and vice versa). The patient and the referring physician were informed of this event.

Prior to the treatment, the medical physicist, authorized user physician, and neurosurgeon reviewed the MRI scan and treatment plan but failed to recognize the reversed MRI images. The reversed MRI images were scanned into the gamma knife treatment planning computer, and a treatment plan was generated based on the reversed MRI images. The authorized user physician and neurosurgeon reviewed and approved the treatment plan generated from the reversed MRI images, and again the reversed MRI images were not recognized.

The NRC staff conducted a reactive onsite inspection on October 29, 2007. The NRC-contracted medical consultant reviewed the case and agreed with the licensee's analysis, stating that no significant adverse health effect to the patient is expected.

Cause:

The medical event was caused by the MRI technologist who inadvertently performed the MRI scans in the "caudal" mode (from the jaw to the top of the head) rather than the "cranial" mode (from the top of the head to the jaw). This change in device mode caused the MRI images to be reversed.

Licensee Action:

The licensee initiated several corrective actions to reduce the likelihood of recurrence of a similar event. Specifically, those corrective actions included (1) weekly meetings with the physics staff to discuss technical issues, focusing on the importance of good communication and (2) new written procedures and policies for the MRI staff and gamma knife facility staff that require dual verification of the various steps in the process to ensure that the correct treatment plan is generated from the MRI images.

NRC Action:

On January 10, 2008, NRC issued a Notice of Violation related to this event.

Other Agency Action: