

**LICENSEE EVENT REPORT EVALUATION FORM**

**EVENT CLASS: EXP - RADIATION EXPOSURES**

**LICENSEE / REPORTING PARTY INFORMATION:**

Licensee/Reporting party name:	FMC Corporation		
License number :	49-04295-01		
Docket number :	030-06794		
Licensee's City of record :	Green River		
Licensees State of record :	Wyoming		
NRC regulated?	Y	If so, what Region?	IV
Working under reciprocity?	N		

**EVENT INFORMATION:**

In what City and State did the event occur?	25 miles west of Green River, Wyoming
Event date :	12/17/2009
Discovery date :	12/17/2009
Report date :	12/17/2009
Agreement State reportable?	N
NRC reportable?	Y
Reporting regulation :	30.50(b)(2) - SAFETY EQUIPMENT FAILURE
NMED Item Number :	090883

**ADDITIONAL PARTIES INVOLVED:**

Name :	Berthold Technologies
License number :	R-01082-E12 (Tennessee Agreement State License)
City :	Oak Ridge
State :	Tennessee

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**CONSULTANT INFORMATION (if any):**

Consultant name :	Sue Engelhardt
Company :	Engelhardt & Associates
Who hired consultant?	FMC Corporation

**DEVICE INFORMATION:**

Manufacturer :	Berthold Technologies USA
Model number :	LB 7440-D
Serial number :	226-1-91

**RADIATION SOURCE INFORMATION:**

Isotope :	Cs-137
Activity :	150 mCi
Manufacturer :	
Model number :	
Serial number :	

**ADDITIONAL INFORMATION REQUIRED IF MEDICAL EXPOSURE:**

Procedure administered?	
Dose intended?	
Dose administered?	
Target organ?	

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**NARRATIVE EVENT DESCRIPTION:**

Licensee's RSO notified NRC of abnormal, high radiation levels from a fixed nuclear gauge containing 150 mCi of Cs-137 (EN#45580). Licensee stated that gauge appeared to be malfunctioning because radiation rates did not change when shutter on gauge was moved to the off (closed) position. Licensee isolated the area and contacted the gauge service provider, Berthold Technologies.

Gauge service provider arrived the next day and performed maintenance on the gauge. Service provider determined that a lock-washer was missing from the gauge, and the absence of the washer likely contributed to the malfunction. The missing washer allowed the source holder to become lodged in the gauge shutter mechanism, and thus, decrease the ability of the gauge to shield the radiation. After maintenance and replacement of the lock-washer, the gauge functioned as designed.

Licensee's 30-day report determined that non-radiation workers received unintended doses over the course of three months. NRC conducted a reactive inspection to verify the conclusions of the 30-day report. The NRC determined that the licensee's initial dose analysis was not conservative and failed to include all potentially exposed individuals. Licensee committed to an expanded dose analysis and hired a consultant to assist. Final, revised dose analysis determined that six individuals received doses in excess of regulatory limits for members of the public.

**CORRECTIVE ACTIONS:**

The gauge service provider repaired the malfunctioning gauge. In addition, the service provider repaired other gauges of similar model type. Some of these other gauges were also missing the required lock-washer, but the source holder had remained in the shielded position. Licensee resurvey all gauges onsite and verified that no other abnormal radiation rates were present. Licensee radiation safety staff made training presentations to general staff to answer any questions that they had concerning the event.

**RECOMMENDED FOLLOWUP:**

Was a reactive inspection conducted?	Y	If so, inspection report number :	2010-001
Is LER recommended for closure?	Y		
Is this NMED Item Number recommended to reflect "complete"?	Y		

LER Evaluator:	Branch Chief or Designee Review:
Name: <u>J M Ray</u> Date: <u>9/16/10</u>	Name: <u>[Signature]</u> Date: <u>9/17/2010</u>