



Report from a UK incident

Incident involving 'premature lock out' on Techops 660 Gamma Radiography Source Projector

Description of incident

Following a gamma radiography exposure, the winding mechanism counter showed the source had not fully retracted by approximately 5 cm. After several attempts, it was apparent that the source could not be fully retracted.

A survey meter showed a dose rate of 40 to 50 mSv/h at the rear mechanism end and sides of the source container and it was noticed that the locking bar was in the locked/safe position, showing the Green Flag although the source was still not fully retracted.

An attempt was made to pull the drive cable back, to fully retract the source but it would not move backwards because the Pozilock sliding mechanism was in the safe position as confirmed by the coloured identification Flag (Green). It was decided to secure the container and report the situation.

NOTE: At this point having established that the source was only 2 inches from the fully shielded position and within the DU shield, the best option would have been to reconnect the controls, push the lock slide to the expose position and wind the source back into the stored position from 25ft away.

The equipment suppliers were contacted and immediately mobilized a service engineer who attended the site and carried out a full inspection of the device and controls. All the equipment was found to be functioning correctly and within all the gauged tolerances.

After several attempts, it was possible (but not easy) to recreate the situation using a dummy source

Radiological consequences

The problem with the source not retracting was immediately identified by the operator and appropriate measures were taken to maintain control of the situation. Because of these actions, no significant radiation exposures were received.

Lessons Learned

- It was concluded that the incident was caused by operator error, as the Pozilock slide had not been pushed fully home. It should be noted that all operators of these devices MUST read the appropriate manual for the device and understand the contents.
- The 660 instruction manual clearly indicates to push the lock slide till you hear a click and then test that the lock slide is fully seated in the open position by

attempting to push the slide back to the lock position. (MAN 006, page 2.9 steps 3 and 4)

- The later version of the source container (the "880") has a modified slide lock slide assembly to prevent the possibility of premature lock out; this has been achieved by redesigning the lock slide and central sleeve to incorporate a chamfered location in the lock slide and a corresponding machining on the central sleeve so that the Pozilock will only lock in the correct position. (Please note, these parts are not interchangeable with the 660.). This is illustrated in the diagrams below.



The lock slide and central sleeve showing the chamfered edges of the corresponding components to ensure positive location.



In this position, you can see how the lock slide slides across the front face of the central collar

