Lesson Learned Statement:

55-gallon drums can become pressurized when changes in altitude and temperature occur requiring their lids to be secured prior to unlatching.

Discussion:

A Rocky Flats employee was preparing new, empty steel drums when the lid on the drum he was opening shot into the air narrowly missing him. These 55-gallon drums are not vented and are shipped to Rocky Flats from the manufacturer in California with lids sealed by a locking retaining ring. There are no visible signs that the drums are under pressure and all the drums examined have retained their structural integrity. However, when the employee released the locking ring, the lid shot up approximately two feet and landed nearby. The employee was able to move out of the lid's way and was not injured.

Analysis:

Building personnel determined that the change in altitude from California to Rocky Flats, Colorado is the most likely reason for the build-up of air pressure in the drums. A similar effect can be seen in bags of potato chips that are packaged at low altitude, then puff up when put on the shelf in a local grocery store. Storing the drums outdoors in our recent 90-plus degree heat also could have contributed to the increased air pressure.

Recommended Actions:

RFETS has taken the following corrective actions and recommend similar steps to other projects that are using new, non-vented steel drums:

- Require using a lid restraining device that fits over the top of the drum before releasing the locking ring.
- Modify the governing procedure with an addition to the drum preparation section that says **CAUTION EMPTY DRUMS MAY BE PRESSURIZED ALL DRUMS ARE TO BE PLACED IN THE LID RESTRAINING DEVICE WITH THE LID CATCHER SECURED ABOVE THE DRUM LID TO PREVENT INJURY WHILE REMOVING THE DRUM RING.**

Originator:

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None provided.

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**Priority Descriptor:**

Yellow / Caution

**Keywords:**

drums, pressurized system, altitude, heat, drum lid

**References:**

Information in this report is accurate to the best of our knowledge. As means of measuring the effectiveness of this report please use the "Comment" link at the bottom of this page notify the Lessons Learned Web Site Administrator of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is important and appreciated.

**DOE Function / Work Categories:**

Packaging & Transportation

**ISM Category:**

Analyze Hazards
Perform Work

**Hazard:**

Personal Injury / Exposure - Mechanical Injury (Striking / Crushing)
Personal Injury / Exposure - Other
Pressurized Systems

End of Lesson!