

## INCIDENT ALERT

<b>LOCATION:</b>	Quarry	<b>ALERT STATUS:</b>	Normal
<b>ACTIVITY:</b>	Production and Processing	<b>DATE ISSUED:</b>	21/07/06
<b>SUB ACTIVITY:</b>	Aggregate processing	<b>INCIDENT No:</b>	00078

<b>TITLE</b>
Lost time incident involving Fuller Traylor gyratory crusher
<b>ACCIDENT / INCIDENT DETAILS</b>
<p>Contractors were undertaking the tenth re-metal of the primary crusher, there being no problems reported with stored energy (hoop stress) within the Manganese concaves (liner plates) during these previous re-metals. Hoop stress (stored energy) is caused by the plates work hardening and peening (spreading)</p> <p>The contractors were highly experienced in re-metals and were following the safe method of work as detailed in Fuller Traylor's maintenance manual. Based on the manufacturer manual a detailed risk assessment and method statement had been prepared by the experienced contractors.</p> <p>Stored energy (vertical/hoop stresses) were identified as a hazard and dealt with in the safe method of work following Fuller Traylor's maintenance manual instructions.</p> <p>The liner plates (concaves) consist of three vertical rows sitting on top of each other. It was the top row of liner plates (16 in total) that were to be involved in a sudden and unexpected release of stored energy (Newton Cradle Effect - refer photo) that resulted in a contractor being hit by a heavy (worn) liner plate weighing 300 kg approx.</p> <p>Prior to the re-metal of the crusher regular monitoring of stress build up is measured in the body-shells of the crusher</p>
<b>ACCIDENT / INCIDENT IMAGES</b>
<b>LEARNING POINTS / ACTIONS TAKEN</b>
<p>CAUSATION OF THE INCIDENT</p> <p>No precise causation has been identified by either the manufacturer (Fuller Traylor) or competent re-metal contractors, however I offer the following root causes for consideration.</p> <p>1/ Only one dump hopper was being used for the last 3-4 months. The spider would have deflected the stone towards the top left/right quadrants which may have resulted in more stored energy/pressure in these plates as the Manganese work hardened and spread (peened)</p> <p>2/ Though the horizontal peening was mostly removed by scarfing (gouging out), there was visual evidence from the removed liner plates that peening (especially in the vertical plane) still remained. This may have accounted for the retention of stored energy (hoop stress) even though four of the liner plates had been removed. The top edge of the liner plates pushing against the raised retaining flange may also have retained stored vertical stress (energy) through peening.</p> <p>3/ As the free ends of the liner plates moved, shockwaved™ in both directions the epoxy resin backing showed signs of tearing, identifying that the resin backing (glue) still had sufficient strength to hold the remaining plates in situ until a</p>
<b>LEARNING POINTS / ACTIONS IMAGES</b>