

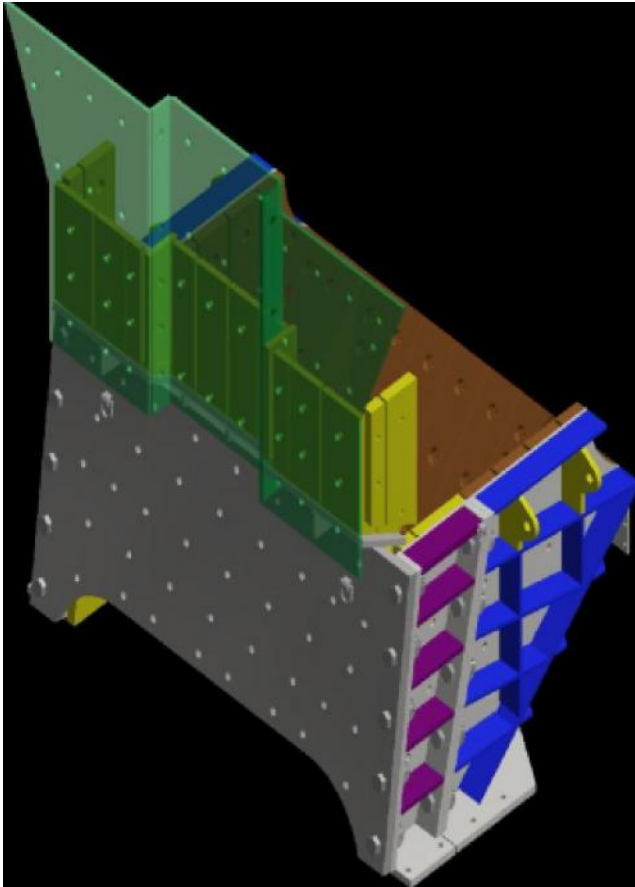


ENDURA

Fixed Plant Applications 50 to 100% +
Service Life Improvement



Cadia Mine -Upper Feed Chute – ENDURA 80mm



ENDURA 80 mm liners Installed to replace failed 28% Cr Iron liners and delivered **3 Month service**
500 HB water quenched liner set worn out after **1.5 Month service**



ENDURA Wear Service Update 2013

Application : Hard Rock Gold Mine Ore



Cadia High Grade Stock Pile Bath Liners
2008 - ENDURA replaced NiHard
Replaced in 2012 after **4 years in service.**





Perilya – Broken Hill – Lead / Zinc / Silver Mine 13 tonne ore skips



Bobos Engineering in Broken Hill previously were lining Perilya Mines 13 tonne skips with BIS500 material using 20mm thick liners these were lasting **approximately 1 month** and had to be changed out with half worn liners, this had to be done to prevent liners wearing through skips which will cause jamming of skips in shaft.

ENDURA liners are now being used utilizing 12mm, 16mm and 20mm plate to reduce weight thus increasing tonnage output lasting **approximately 2 months** with the top side plates all being replaced, the floor plates are left in skips to be fully changed out in the next scheduled change out in 2 months time. Due to ENDURA controlled cooling you have a through hardened plate.



Increase service life of **100%** + increased tonnage output



ENDURA – Wear Plate Service Data Fixed Plant Application : Grizzly – Yandi Iron Ore



500 HB Water Quenched Wear Plate after 3 months service
Primary Crusher Vibratory Grizzle Deck- Handling ROM Ore- Hard Lump combined with High Silica Abrasive Fines



ENDURA – Grizzle Finger after 3 months service – June 2003

2006 Service Update

ENDURA Grizzle Deck Fingers are now used extensively throughout the Pilbara, delivering significant service life improvement across the iron ore industry. **100% plus** service life improvement





ENDURA Wear Plate Service Data – Fixed Plant

APPLICATION: Cadia Gold Mine – Gyrotory Deflector Discharge Plate Liner



Originally using 8 on 12 weld overlay supplied to cover complete circle suffering spalding on outside of ring, chock block bars welded to outside of ring which was costly and time consuming only lasting 16 weeks complete rebuild of discharge plate at second shutdown.

ENDURA 50 mm redesigned outer ring allows change out of outer ring at third shut 18 weeks suffering from high impact and wear giving approximately 40 weeks prior to complete rebuild.

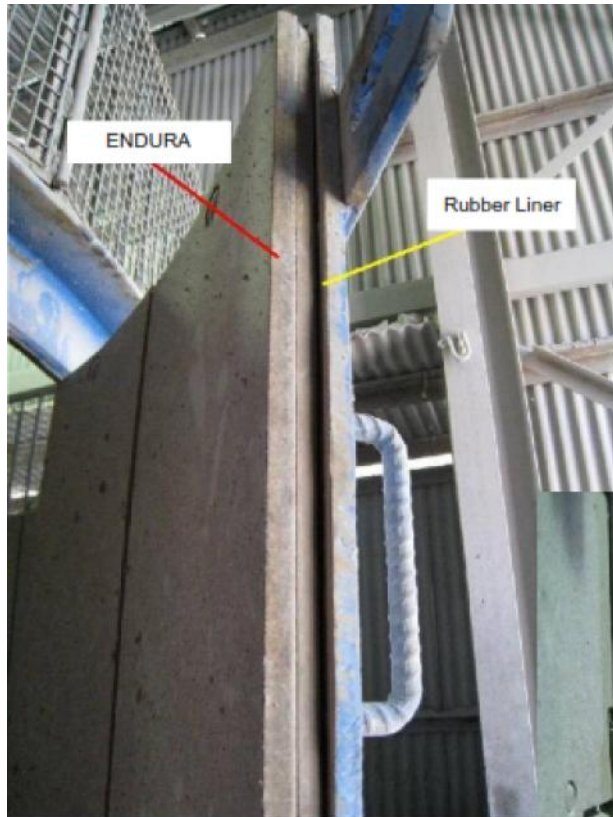
Saving cost of downtime giving **100% life.**





Brisbane City Works Mt. Coota Quarry Liner

Jacques 4 ft Gyratory crusher – Secondary Crusher– Crushed Granite/ Quartz



Secondary Crusher– Crushed Granite / Quartz
ENDURA vulcanized rubber backed liners to reduce noise from gyratory crusher





ENDURA Liners - Under Ground Ore Transfer System - Olympic Dam - 2006



The Top Row of the liners are subjected to Heavy Impact as the Ore is Discharged from the Skip. The Bottom Row of the Liner Plates are subject to Sliding Abrasion.

ENDURA 50 mm liners installed as standard in underground chutes based on improved service life and cost / tonnes savings detailed below.

ENDURA has delivered significant long term maintenance cost savings and reliable planned change outs due to consistent uniform wear rates – **50 % above weld overlay liners.**

AREA	LOCATION	LINER MATERIAL	COST	TONNES OVER	COST PER TONNE
BN001	SKIP TIPPING CHUTE TOP ROW	ENDURA 50mm THICK.	\$2,200.00	597906 Tonnes (STILL IN SERVICE . APPROX 25mm OF WEAR)	0.367c PROJECTED
BN001	SKIP TIPPING CHUTE TOP ROW	17 ON 12mm WELD OVERLAY D80	\$2,400.00	440085 Tonnes (TAKEN OUT OF SERVICE. WORN OUT.)	0.545c ACTUAL
BN001	SKIP TIPPING CHUTE BOTTOM ROW	ENDURA 25mm THICK	\$1,240.00	682952 Tonnes (STILL IN SERVICE APPROX 11mm OF WEAR)	\$0.08c PROJECTED
BN001	SKIP TIPPING CHUTE BOTTOM ROW	17 ON 12mm WELD OVERLAY D80	\$2,400.00	440085 Tonnes (TAKEN OUT OF SERVICE . WORN OUT.)	\$0.545c ACTUAL



ENDURA / ENDURA Dual Vibrating Feeder

Delivered **30% longer service life** compared to weld overlay

