

## ENDURA IN MINING APPLICATIONS

### MINES AND CONTACTS

CUSTOMER	PLATE SIZE	APPLICATION	RESULTS	CONTACTS
I.O.C Iron Ore Company Canada Labrador, Nfld.	2" thick	#28 Bucket Floor & Side Liners	Showing minimal wear after 2 years compared to Q&T A/R plate which lasted 1 year.	Through distributor RM&S, Brian Spinney: 709-282-3644
Barrick Gold Mine Kirkland Lake, Ont.	1" thick	A) Loader Bucket Lip	Replacing 1-1/4" thick A/R500 which lasted average 30, 000 tons. ENDURA lasted 48, 500 tons.	Rick Hamilton, Maintenance Planner: 705-567-9251 Ext. 128
Barrick Gold Mine Kirkland Lake, Ont.	3/4" thick	B) Crusher Step Plate Bolt Protector	Installed to protect heads of bolts holding Crusher step plate. Very pleased with performance. Also on Crusher Feeder Fingers.	Gratien Pelletier, Maintenance Supervisor: 705-567-9251 Ext. 152
Cambior Inc. Val D'Or, Que.	3/4" thick			Gerard Leblanc: 819-637-2075 Fax: 2208
Falconbridge Ltd. Onaping, Ont.	3/8" thick 1/2" thick 1" thick			
Anico- Eagle Div. Cadillac, Que.	1" thick			
Wabush Mines (Cliffs Mining) Sept Iles, Que.	5/8" thick			Yves Pelletier: 418-964-3043 Fax: 962-0714 Larry Power (Buyer): 418-964-3009 Fax: 968-5402
ABF Mines Sullivan, Que.	1-1/2" thick			Daniel Bergeron: 819-874-5289 Fax: 5290
Noranda Mines				Richard Michaud: 819-762-7764
Noranda Mine Matagami, Que.	1/2" thick 3/4" thick			Monique Cossette: 819-7392511
Placer Dome South Porcupine, ON		Truck Box Liners	Testing vs. AR 500	Jim Litke: 705-235-6709
Ontario Power Generation Nanticoke GS, ON	1/4" thick	Wear Liners, CAT coal scraper	Installed to increase wear life of scraper.	Keith Chambers: 519-587-2201 ext.3357
Falconbridge Ltd. Sudbury, ON	1/4" thick 5/8" thick	Prototype conveyor	Reduced gauge of liners by 1/8" – reduce weight	Eric Frank: 705-692-0303

# TITUS

TELEPHONE: (905) 564-2446

FAX: (905) 564-2450

## STEEL COMPANY LIMITED

6767 INVADER CRESCENT, MISSISSAUGA (GREATER TORONTO) ONTARIO, CANADA L5T 2B7

### TRIPPER CAR LINERS

Reprint of E-mail sent between **IRON ORE COMPANY OF CANADA**  
and **R.M.S.** a local Fabricator

**FROM:** Wayne Pottie (RMS)  
**TO:** Lawrence Stanley (IOC)  
**Date:** March 12, 2004

Lorne

Listed below is some information regarding the north panel that that I installed on 2B tripper car.

The cost for us to build a panel for 2B tripper is as follows:

1. 6 liners (AR 450 16"x 18" x3") at a cost of 361.00 each..... \$ 2,166.00
2. Other steel cost including angle ..... \$ 300.00
3. Total cost for one panel ..... \$ 2,466.00

This doesn't included the wages of a welder (8 hrs) to make the liners and a mechanic ( 4 hrs) to install.

The (old) panel when installed last roughly 3 months

The (new) panel we purchased is made out of 2" ENDURA plate and 2" manganese plate for a total thickness of 4". The cost was..... \$ 9,750.

**IT (ENDURA/MANGANESE) LASTED MORE THAN 2 YEARS AND IS STILL WORKING.**

**It would have cost us \$ 19,248 plus wages of the welders and mechanics to assemble 8 panels to do the same job of one panel.**

**We saved roughly \$ 10,000 on the material alone not counting the wages to make 8 panels.**

**We also saved a lot of downtime ....8 hours per change multiplied by 8 changes....and that saved us a lot of money and downtime.**

WAYNE

# Memo

**To:** RMS sales  
**From:** Mike Ryan  
**Date:** 12/04/2004  
**Re:** Endura Plate

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**Mr. Spinney**

In May of 1998 a test was conducted by IOCC on the bowl of an 18 cubic yard bucket. This bowl was in later stages of its useful life and cost restrains at the time did not allow IOCC to replace this particular bowl.

To extend the life of this dipper the bowl was lined with two sheets of 2" Endura plate, the sheets were cut into 4" by 24" strips and were applied to replace the manufactures liner kit. In June of 1998 this dipper was applied to a 295BII shovel and was put to work with the expectation of lasting only 6 months as this was the expected arrival of a new dipper.

The bucket only lasted the 6 months but also once inspected it was decided that the wear rate of the Endura plate would allow at least 6 months of useful life. After inspection of the bucket at the end of 12 months and approximately 2.25 million cubic meters of material moved. The Endura plate had only worn to half of its original thickness and the bucket was left on for another 4 months. The bucket was removed from service in December 1999 to repair damage after 16 months in service.

The reason for removing this bucket after the 16 months was to repair cracks of the back of the bucket and not due to the bowl being worn out. In short the Endura plate exceeded all expectations and unfortunately was never tested to see how long it would have gone due to the cracks and wear to the back.

Mike Ryan

# TITUS

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Feb. 3, 2004

Resistant Materials & Supply

Attention: Brian Spinney.

Reference: **ENDURA WEAR STEEL PLATE**

Brian:

As requested, we have obtained the Charpy information from the mill.

In addition to the published information at -20 deg.C you have now:

**ENDURA 2" THICK charpy values -40degC (-40degF)**

**Typical value, longitudinal direction: 50 J/cm<sup>2</sup> (29.5 ft/lbs)**

**Guarantee, longitudinal direction: we do not have sufficient values at -40 deg to give a formal guarantee. We can assume that 30 J/cm<sup>2</sup> (17 ft/lbs) min. is a good estimate.**

Trust this is what you require. Let me know.

Regards,



W. R. (Bill) Hack  
(Visit our website: [www.TitusSteel.com](http://www.TitusSteel.com))  
email: [Bill@Titussteel.com](mailto:Bill@Titussteel.com)

**FAX**



**BARRICK  
Gold Corporation**

**Holt McDermott Mine**

P.O. BOX 278, Kirkland Lake, Ontario, Canada  
P2N 3H7 Tel.: (705) 567-9251  
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**TO: BILL HACK**

**TITUS STEEL COMPANY LIMITED**

**FROM: Rick Hamilton**  
Maintenance Planner  
EXTENSION #128  
rhamilton@barrick.com

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**REFERENCE:           ENDURA STEEL BUCKET LIP**

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Bill, the lip we purchased is standing up quite well, 33,202 Tonnes with very little wear, and our supervisor would like another lip, same as last time.

We will stay with 1" ENDURA instead of previous bucket lips which were 1-1/4" thick.

Our standard pin-to-point when we install a new lip is 62", as of last Friday, the pin-to-point on the ENDURA lip was 56". We usually change a lip when it reaches 53", so we will keep you posted as to the results.

Addendum

Final Results - ENDURA 1" thick lasted 48,500 Tonnes, compared to 1-1/4" A/R500 at 30,000 tonnes.

Actual thickness-to-thickness comparison result:

<b>ENDURA</b>	-	60,625 Tonnes
<b>A/R500</b>	-	30,000 " "

**Regards,  
Rick Hamilton**