

PAL – THE GREAT SURVIVOR PART II

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**In Part I at ALTA 2011 the survival of PAL was
likened to a great survivor from
the world of movies.....**

JAMES BOND



**We saw that like Bond, everyone seemed to be
trying to kill PAL off
but in 2011 it was
STILL ALIVE!!!!!!**

**In Part II we pick up the story in 2013 and PAL
is likened to another great survivor
from the movies.....**

JASON BOURNE



Many are still saying that PAL is.....

Dead in the water



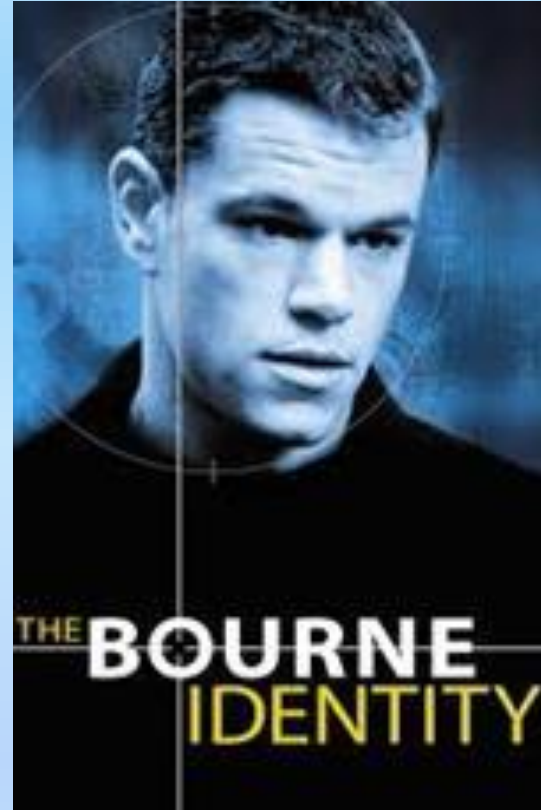
However, in 2013 it is still.....

hanging on



But, like Bourne PAL has an.....

identity problem



to identify the optimum downstream option

Commercially applied options are:

- Mixed sulphide precipitation (MSP) for shipping
- Mixed sulphide precipitation (MSP)m + on-site refining
- Mixed hydroxide precipitation (MHP) for shipping
- Mixed hydroxide precipitation (MHP) + on-site refining
- Direct solvent extraction (DSX)

Jury is still out – case by case selection

Meanwhile, significant efforts are being made to replace PAL by potentially lower cost alternatives including.....

Sulphuric acid based processes:

- Atmospheric agitated tank leaching (AL)
 - One commercial application of AL in association with PAL at Ravensthorpe, Western Australia (EPAL)
- Heap leaching (HL)
 - One commercial application on scats in association with PAL at Murrin Murrin, Western Australia

No standalone operations as yet

**Other leaching mediums are being
developed to further lower costs
including.....**

Chloride based processes:

- Neomet in Canada
- Process Research Ortech in Canada
- SMS Siemag in Austria
- Anglo Research in South Africa
- Nichromet in Canada

Nitric based processes:

- DNi Process in Australia

All at pilot plant stage

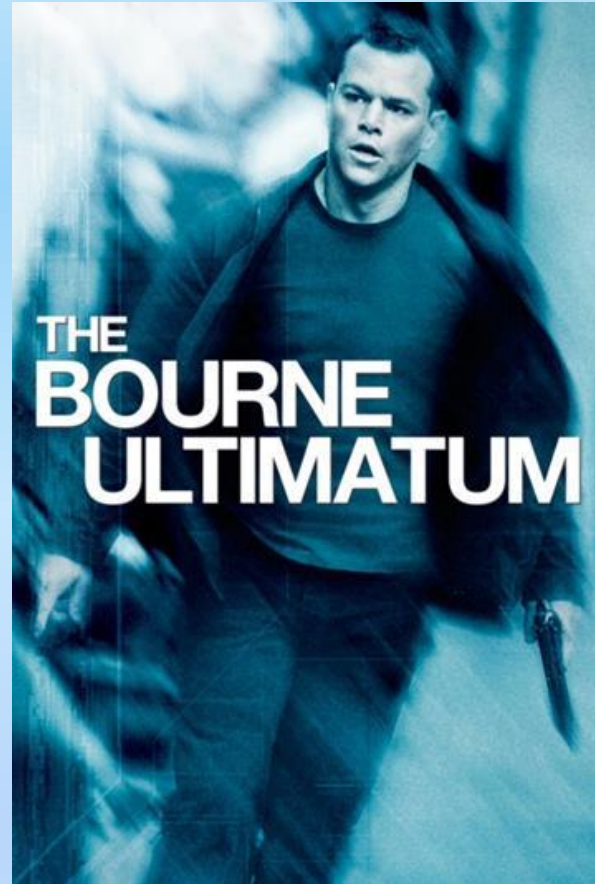
**At this stage PAL, like Bourne
PAL still has the**

supremacy



But is facing an

ultimatum



That the current new projects.....

Ambatovy

(Ref: Ambatovy Website)



Goro

(Ref: Goro Website)



Ramu

(Ref: ALTA 2011)



must be successful !!!!!!!!!!!!!!!!!!!!!

**The big question is whether
like Bourne its.....**

legacy



**will be a new look
or
a completely new process**

Part III?