



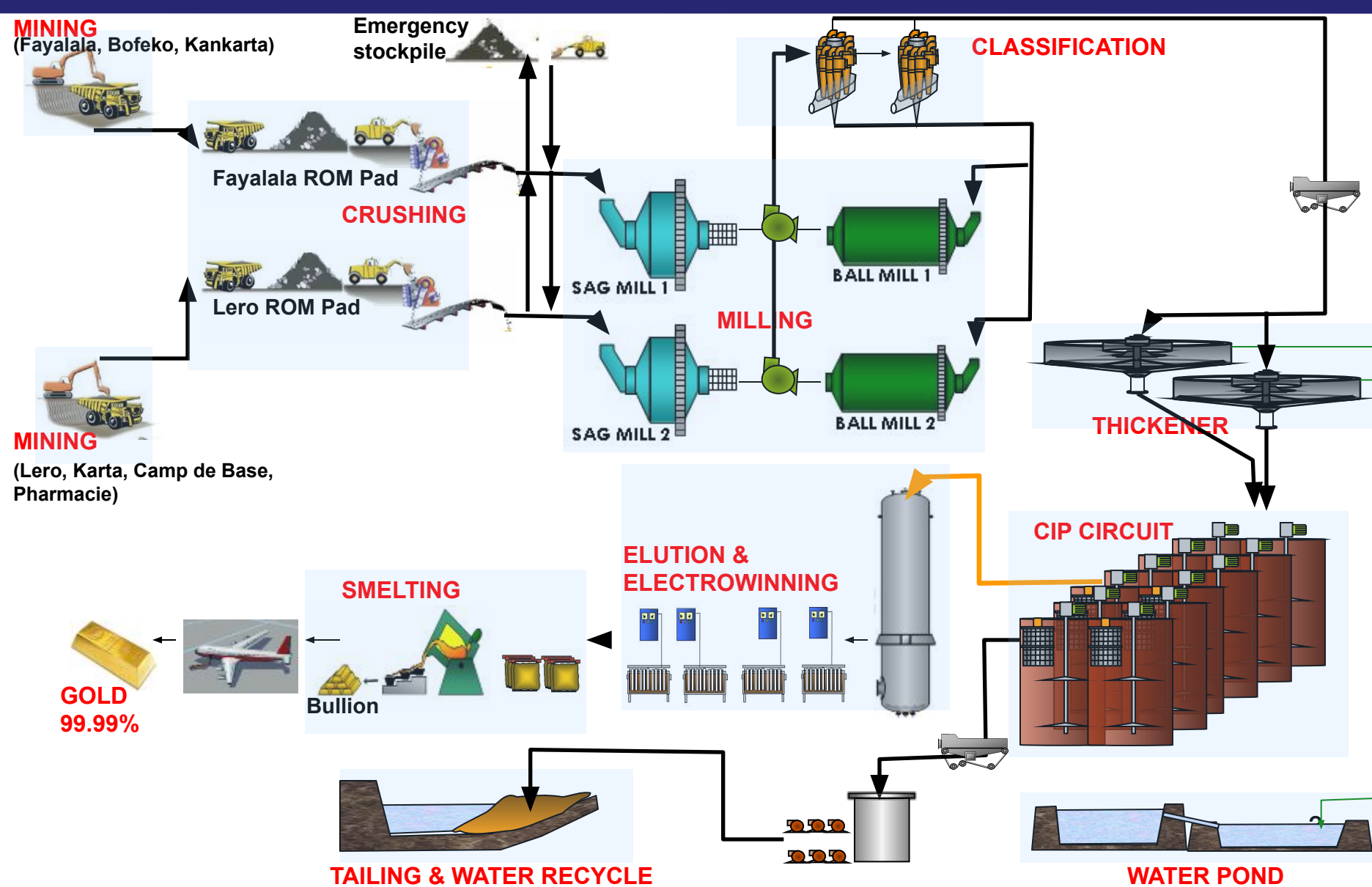
LEFA Operations - Maintenance March 2010

Overview of Current Status



- Both SAG and both ball mills are now fully operational.
- All the basic machinery that supplies ore to the mills or pulp coming from the mills is running, although reliability remains below optimum.
- The de-bottlenecking projects will continue to ensure that reliability of all machinery is at acceptable levels.
- It is expected that maintenance will normalise in early 2010 and throughput appears to confirm this.
- There remains some minor risk of interruption to production well into 2010, until all of the ordered insurance spares are on site.

LEFA Operations - Process



Major Components of Process



- Crushers at Lero Karta and Fayalala.
- Overland conveyor (CV4) from Lero Karta to process plant.
- SAG mill 1 and SAG mill 2.
- Cyclone feed pumps and cyclones.
- Ball mill 1 and ball mill 2.
- Thickeners.
- Gold leaching and carbon adsorption circuit.
- Elution, electrowinning and smelting.
- Tailings disposal

Major Issues resolved

- Both crushers had the bin support structures reinforced to stop movement, which interfered with the apron feeder operation causing through-put interruptions. The work was substantially more at Fayalala.
- Apron feeder major components have been replaced at the Lero crusher.
- Vibrating grizzly replaced at Lero

Lero & Fayalala Crushers



The ROM bin support structures were reinforced to stop movement.



Lero & Fayalala Crushers



Apron feeder chains & pans have been replaced at the Lero crusher, pans and chains will be replaced in 2010 at the Fayalala crusher.



Major Issues remaining:

- Fayalala bin has tendency to block due to design fault. This limits direct tipping. This is scheduled to be resolved in the course of the year.
- Pans and chains on the Fayalala apron feeder and a new vibrating grizzly is scheduled in **October** 2010. The current unit is under a strict condition monitoring program to mitigate any propagating maintenance issues. Chains and half the pans on the Fayalala apron feeder were previously replaced in January 2008. The replacement of the pans is now required and the chains are also being replaced to reduce the overall downtime to the crusher for this job. The chains that are removed will be kept as spares for the future.

Major Issues resolved

- Replacement of the drive gearboxes as design faults were limiting the performance. The gearboxes were modified to solve lubrication problems associated with bearings. Original gearbox assemblies shall be overhauled in-house and maintained as Insurance Spares.
- Damaged belt renewed.
- Modification to feed chute to reduce jams and damage to belt.
- Cover of belt to reduce saturation of the ore during the wet session.
- Installation of belt tracking frames to reduce belt damage.

CV4 Overland Conveyor

- Covers over belt.



Major Issues remaining

- The only remaining concern is the construction of the conveyor system which can be described as cheaply built, with little clearance between carry and return belt support structure. This remains a threat as rock spillage from feed belt onto the returning belt can be trapped within the support frames, resulting in belt damage. However there are no plans to replace this structure due to cost constraints.
- **April 2010 a major rip in CV04 of 3572 metres occurred, 1300 metres has been replaced with belt that was in stock, the remaining 2272 metres of damaged belt was clipped at 500mm intervals and also had a Bandage strip glued to the underside to reduce spillage, this bandage strip will be inspected weekly and replaced as required**
- **Replacement belt is being sourced and expedited to site to replace the remaining damaged section of belt.**

CV4 Overland Conveyor

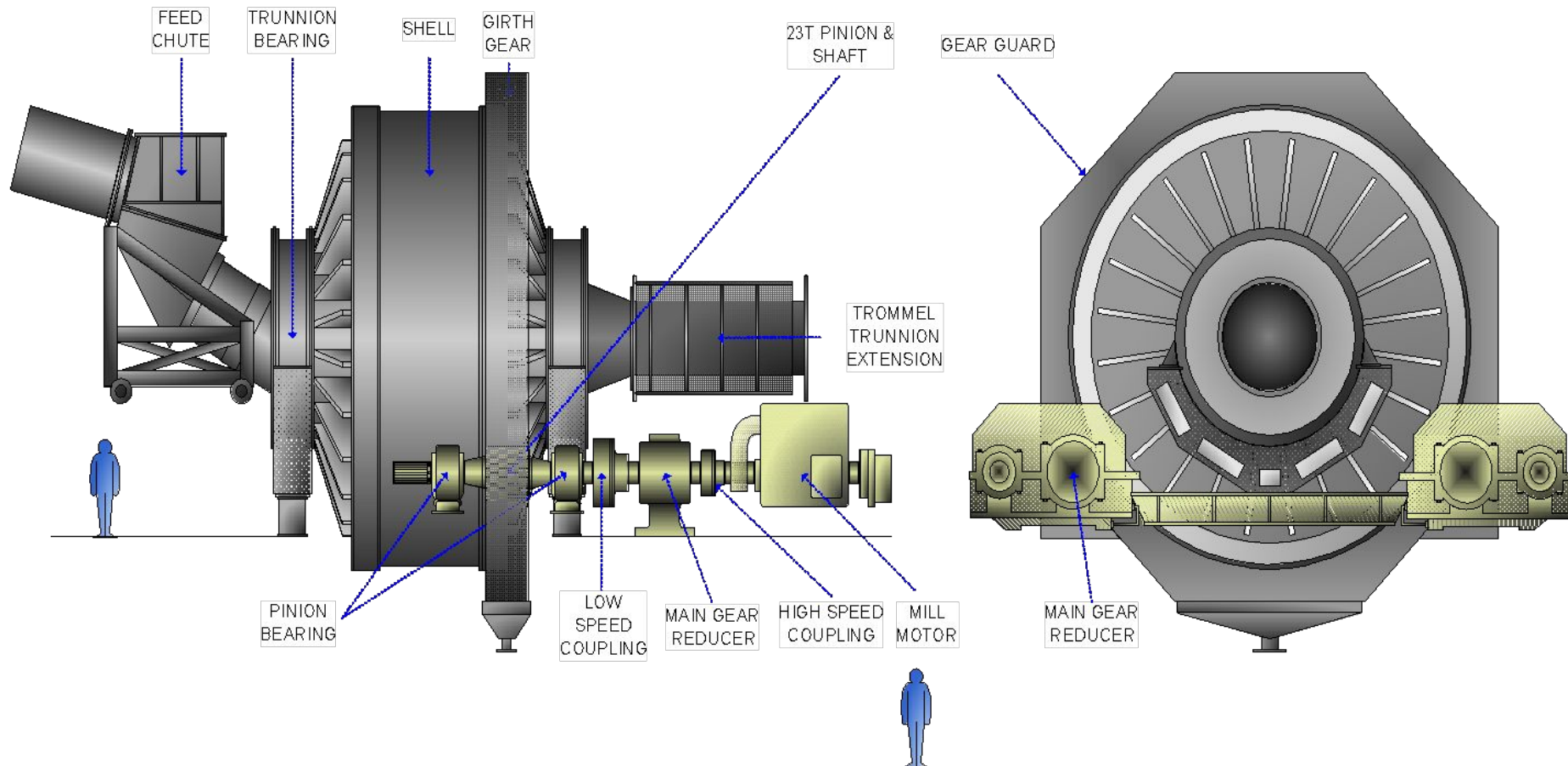
CV04 clip repair



Major Issues resolved

- In June 2009 extensive damage to the bearing mating surface on the Discharge End trunnion was discovered. This damage was similar, but less severe, to that of SAG 2.
- Grinding and polishing of the trunnion in situ by external contractors, (“Hoffmans”), was initiated to provide a temporary repair and SAG Mill 1 was reinstated into full operation in early September providing the site with two operating SAG mills.
- The repair is expected to allow the mill to operate until the replacement of the trunnions in **fourth** quarter of 2010.
- Two spare SAG mill gearboxes (left and right) are on site and will be installed on SAG 1 in 2010, as the current unit’s service life is unknown. The units removed will be overhauled and changed out on SAG 2. At the completion of this program the two overhauled spare gearboxes from SAG 2 will be held as insurance spares.
- A spare SAG mill motor is on site as an Insurance Spare. A second will be ordered, cash flow permitting in 2010. Electric motors of this size have a considerable long lead time for delivery which can exceed 52 weeks.

SAG Mill General Arrangement



SAG Mill 1

- Two spare gearboxes (left and right) are on site.
- Scheduled to be installed on SAG 1 in July / August 2010.



Major Issues remaining

- New trunnions from REMAS in Turkey have been completed and ready for shipping. The completed trunnions are expected to be installed in the planned October shutdown. The existing Discharge trunnion will be scrapped due to cracks in journal surface, the Feed end Trunnion will be repaired for Insurance spare.

SAG Mill discharge end trunnion bearings need to be replaced every 6 to 8 months due to excessive wear (normally last plus 10 years). The main reason for damage is thought to be loss of pressure to the oil separating the trunnion from the bearing during power outages and contamination of the oil due to poor design of the trunnion seals. A re-engineered seal and an accumulators will resolve these issues in 2010. In the meantime, a centrifuge is used to clean the trunnion bearing oil.

- The current girth gear and drive train is under a strict condition monitoring program to mitigate any propagating maintenance issues. Site management are currently working with major suppliers for replacement girth gear and pinion as these items have a long lead time, which is likely to be in excess of 55 weeks.

SAG Mill 1

Casting/forging of the SAG mill trunnions is completed in Turkey.



SAG Mill 1

LUBEMASTER Centrifuges have been installed on to both SAG Mill lube packs to assist in keeping the oil cleaner until a solution to the Trunnion sealing is sourced.

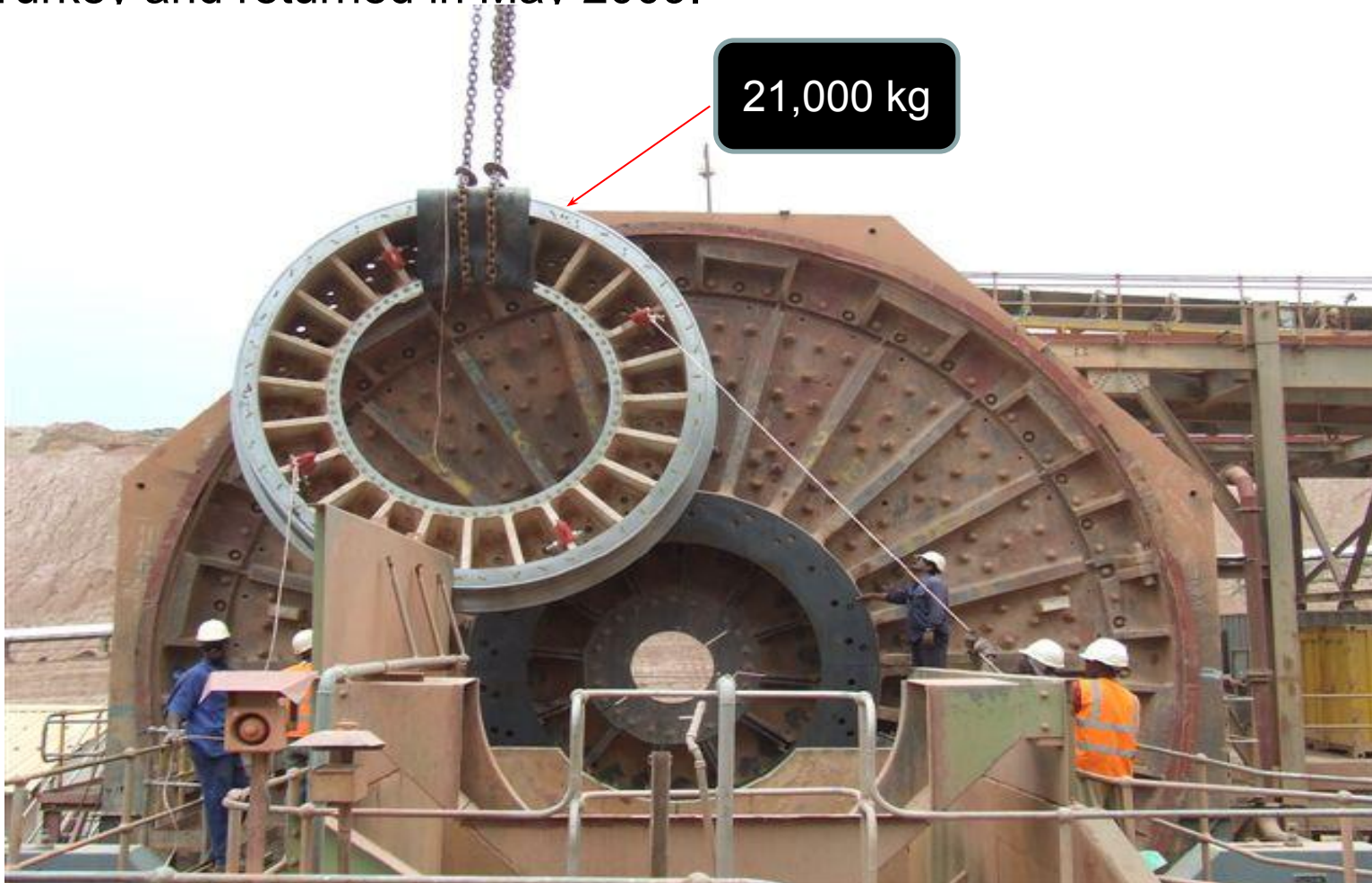


Major Issues resolved

- The discharge end trunnion for this mill was removed for machining by REMAS in Turkey and returned in May 2009.
- Two spare SAG mill gearboxes (left and right) are on site and will be installed on SAG 1 in 2010, as the current unit's service life is unknown. The units removed will be overhauled and changed out on SAG 2. At the completion of this program the two overhauled spare gearboxes from SAG 2 will be held as insurance spares.
- A spare SAG mill motor is on site as an Insurance Spare. A second will be ordered, cash flow permitting in 2010. Electric motors of this size have a considerable long lead time for delivery which can exceed 52 weeks.

SAG Mill 2

The trunnion for this mill was removed for machining by REMAS in Turkey and returned in May 2009.



SAG Mill 2

SAG Mill 2, Trunnion being repaired by REMAS in Turkey. After machining, sub-arc welding to rebuild the surface.



SAG Mill 2

SAG Mill 2, Trunnion being repaired by REMAS in Turkey
Machining back to OEM dimensions.



Major Issues remaining

- The trunnion that was repaired by REMAS in Turkey still has a problem with the Thrust face which is causing elevated temperatures, we are working with REMAS for a solution.
- SAG Mill discharge end trunnion bearings need to be replaced every 6 to 8 months due to excessive wear (normally last plus 10 years). The main reason for damage is thought to be loss of pressure to the oil separating the trunnion from the bearing during power outages and contamination of the oil due to poor design of the trunnion seals. A re-engineered seal and an accumulators will resolve these issues in 2010.
- In the medium term this Mill will require new pinion cartridges, a new girth gear and the head plate removed and cleaned. Major components for this project are available on site. The current girth gear and drive train is under a strict condition monitoring program to mitigate any propagating maintenance issues. Girth gear and pinions have a long lead time in excess of 55 weeks.

SAG Mill 2

- Premature SAG Mill Trunnion Bearing failures remain a concern until new trunnion seals and accumulator for lubricating oil installed.
November 2009 SAG Mill 2 Discharge End.



SAG Mill 2

SAG Mill 2 bearings were hand scraped for the best possible contact with the trunnion Journal surface.



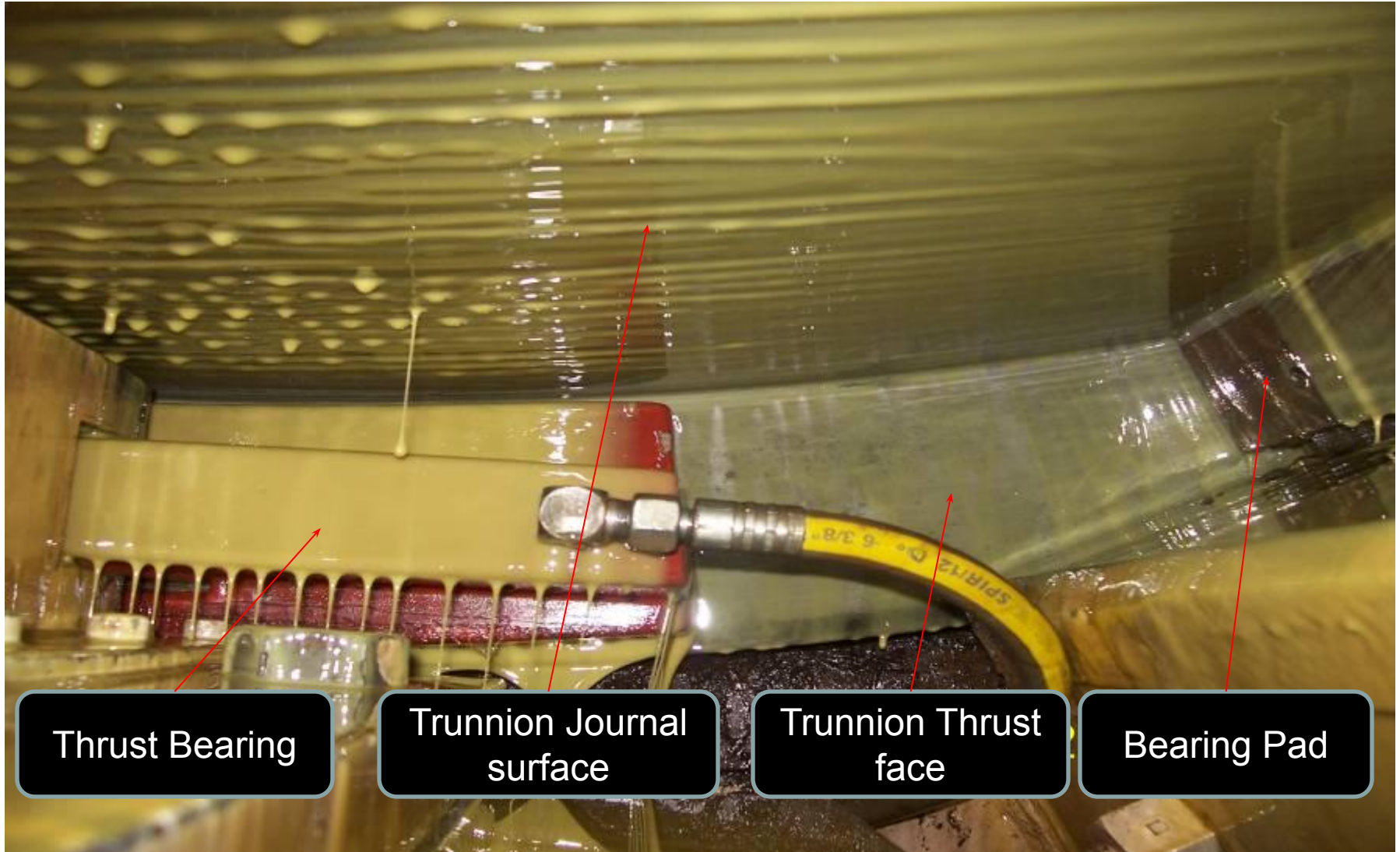
400 kg

SAG Mill 2

New Bearing Pads after installation showing excellent oil coverage.



SAG Mill 2



Thrust Bearing

Trunnion Journal
surface

Trunnion Thrust
face

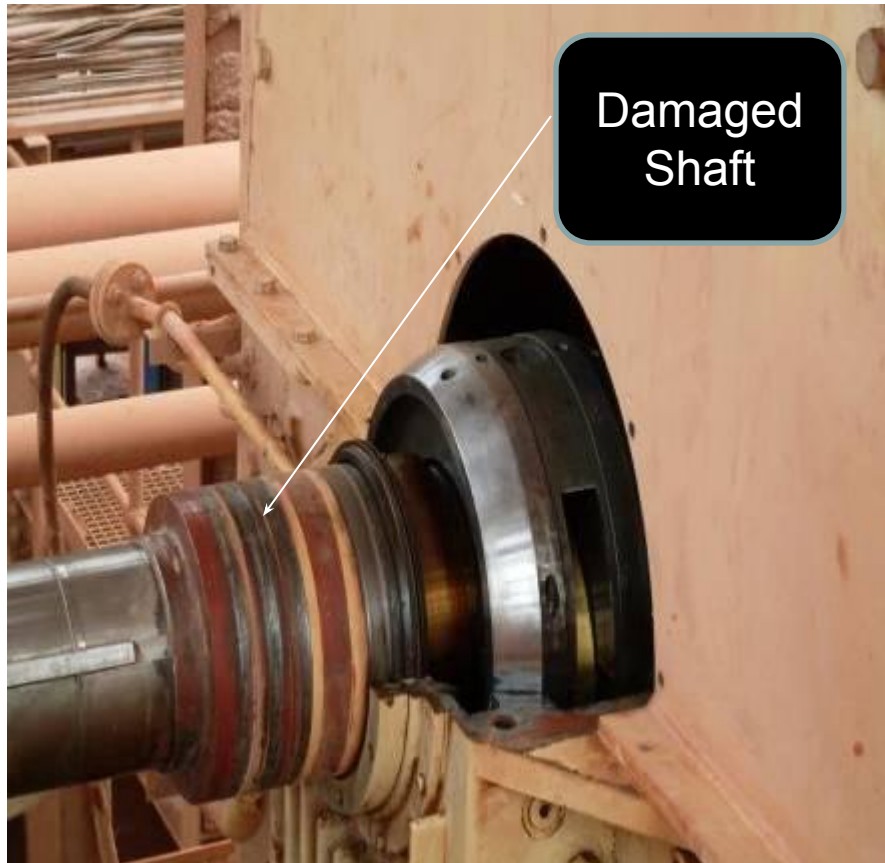
Bearing Pad

Major Issues resolved

- The electric drive motor was recently completely overhauled and is expected to provide a fully serviceable life.
- A new motor manufactured by ABB in South Africa and is on site as an Insurance Spare that is scheduled for installation into Ball Mill 2 and the existing motor will undergo refurbishment and returned as an Insurance Spare.

Ball Mill 1

The electric drive motor was recently completely overhauled and is expected to provide a fully serviceable life.



Ball Mill 1



Ball Mill 1 motor
being lifted away
from the Mill.
Motor weighs 28T



Ball Mill 1 Motor
being loaded onto
an Antonov
Aircraft bound for
Antwerp for
overhaul.

Ball Mill 2

New Ball Mill being loaded onto Truck for transporting to site.



Major Issues remaining

- A trommel needs to be **sourced and installed**. The current internal screen to contain balls gets clogged when 2 SAG Mills feed into it. By having a properly designed trommel it will allow more flexibility in operating the mills. This is currently under investigation, and an engineering solution is being sourced.
- There are no spare pinions or girth gears for these mills. Site management **have now raised AFE for for replacement girth gear and will be manufactured by Hofmann Engineering**. A pinion gear for the ball mill is presently **being manufactured by Hofmann Engineering**, scheduled for delivery in July.
- The current girth gear and drive train is under a strict condition monitoring program to mitigate any propagating maintenance issues. Girth gear and pinions have a long lead time in excess of 55 weeks.
- Critical and insurance spares have been ordered for both mills, including a spare gear box.

Major Issues resolved

- The motor on Ball Mill 2 went down in late August on High Temperature on the non drive end. The shaft was inspected and deemed OK and with no evidence of problems with the windings. A new set of bearings were installed and operating conditions monitored with no indications impending issues.
- As this is the second incident where the motor has drifted off magnetic dead centre and caused damage, the replacement of this motor would be recommended in July / August 2010 on a scheduled plant shutdown.
- A new motor manufactured by ABB is on site as an Insurance Spare that is scheduled for installation into Ball Mill 2 and the existing motor will undergo refurbishment and returned as an Insurance Spare.

Ball Mill 2

The motor on Ball Mill 2 went down in late August on high temperature on the non drive end. The shaft was inspected and deemed OK and with no evidence of problems with the windings.



Ball Mill 2

Failed set of white metal bearings. A new set of bearings were installed and operating conditions monitored with no indications impending issues.



Major Issues remaining:

- A Trommel needs to be **sourced and installed**. The current internal screen to contain balls gets clogged when 2 SAG Mills feed into it. By having a properly designed trommel it will allow more flexibility in operating the mills. This is currently under investigation, and an engineering solution is being sourced.
- There are no spare pinions or girth gears for these mills. Site management are currently negotiating with major suppliers for replacement girth gears and pinions, as these items have a long lead time, in excess of 55 weeks.
- Ball Mill 2 keeps breaking feed end flange bolts. This requires the mill to be shut down for a couple of days every two months. The end plate mating surfaces and trunnion require re-machining to reduce stress on the bolts. **This was done in May 2010 by Hofmann Engineering with good results.**
- Critical and insurance spares have been ordered for both mills. **A new inching drive has been installed** and a spare gear box is **being manufactured by Hofmann Engineering.**

Ball Mill 2

Ball Mill 2 was breaking feed end flange bolts. The end plate mating surfaces and trunnion **have been re-machined** to reduce stress on the bolts.



Major Issues resolved:

- The cyclones installed were obsolete and it had been difficult to maintain a stock of spare parts. New cyclones and new distributor and upgraded underflow pans have been installed in August 2009 for cyclone pack 1.
- A new second distributor and underpan was installed in February 2010 on cyclone pack 2. The Cyclones in this pack will be replaced by new generation Cyclones as they become available.

Cyclones

New cyclones cluster being installed in August 2009.



Cyclones

New cyclones cluster being installed in August 2009. New Cyclone Underflow pan before being lifted into position.



Cyclones



Major Issues remaining:

- The design and condition of the current cyclone feed pipe is poor and is considered at a considerable risk of failure. New pipe work has been scheduled for installation in **late** 2010 which will eliminate the design issues.

Elution, electrowinning and smelting.



Major Issues resolved:

- New thermal heaters, to resolve the downtime associated with the derelict glycol boilers have been installed.
- A second carbon regeneration kiln was recently delivered to site, which will be installed alongside the existing kiln.
- Two new electrowinning cells with increased capacity are scheduled to be installed in early 2010.
- A new gold room vault is under construction.

Elution, electrowinning and smelting.

New thermal heaters, associated pump packs, heat exchangers and prefabricated pipe work, to replace the Glycol boilers.



Reagent Mixing



Major Issues resolved:

- New cyanide mixing and holding tanks have been constructed.
- The caustic mixing tank, foundation and bunded walls is complete installation is in progress. The original infrastructure was designed for delivery of liquid caustic, however only solid caustic is available in country.
- The acid loading area was poorly designed which creates a safety, environmental and operational hazard. New facilities are complete.

Reagent Mixing

New Cyanide mixing and storage tanks



Reagent Mixing

New Caustic tank with Hopper structure being assembled.



Power generating plant



Major Issues resolved:

- Total capacity of eight 4.5 MW units, equivalent to 36 MW installed. Normal power draw is close to 20 Mw. Conversion to HFO reduced this capacity to 3.6 MW per unit or installed capacity of 29 MW.
- We operate between 80% and 90% on HFO, and 10% to 20% with LFO to periodically flush fuelling nozzles, which block with bitumen after prolonged use of HFO.
- The HFO storage capacity of 8 million litres provides an additional buffer against possible disruption to supply in the wet season.

Major Issues remaining:

- Fire suppression for the power generation systems has been **ordered** with an expected cost of in excess of \$600,000 USD **including installation**. As a stop gap measure, 24/7 fire watch is in place, with the emergency response team based at the powerhouse. This remains a vulnerable area for the site, and is classified as a high risk.
- Automatic voltage regulators will be installed by April 2010 improving the reliability of the powerhouse and engine load sharing.

Power generating plant



Training of Guinea Nationals



Fabrication training is leading the way with dedicated Trainers.
A training matrix has been developed and will be utilised site wide.



Remaining Major Issues



Crushers at Lero Karta and Fayalala.

October 2010 - Fayalala Crusher, replace Crusher Liners, overhaul Apron Feeder, new chains & pans.

Overland conveyor (CV4) from Lero Karta to process plant.

March 2010 - Overland Conveyor, replace 400 m damaged belt.

May 2010 Overland Conveyor, replaced 1300 m damaged belt, more belt to be replaced as it comes to site.

SAG mill 1 and SAG mill 2.

October 2010 - SAG Mill 1, replace DE & FE Trunnions.

October 2010 - SAG Mill 1, replace Pinions & Gearboxes.

October 2010 - SAG Mill 1, installation of New Trunnion sealing arrangement.

2011 - SAG Mill 2, Girth Gear replacement.

2011 - SAG Mill 2, Pinions & Gearbox replacement.

2011 - SAG Mill 2, DE Trunnion replacement.

2011 - SAG Mill 2, installation of New Trunnion sealing arrangement.

Cyclone feed pump and cyclones.

October 2010 - Replacement of Cyclone underflow distributor box (Boiler Box)

Ball mill 1 and ball mill 2.

May 2010 - Ball Mill 2, remove & machine feed end **and discharge end** Trunnion.

May 2010 - Ball Mill 2, install "Inching Drive"

August 2010 - Ball Mill 1, install "Inching Drive"

2012 - Ball Mill 1 & 2, Girth Gear & Pinion replacement.