

# ROSEBEL GOLD MINES N.V.

## Analysts Tour Rosebel Mine

Management Rosebel  
Suriname

October 17, 2016

TSX: IMG NYSE: IAG



# Welcome

# Welcome to **IAMGOLD** ROSEBEL GOLD MINES N.V.



## OWNERSHIP:



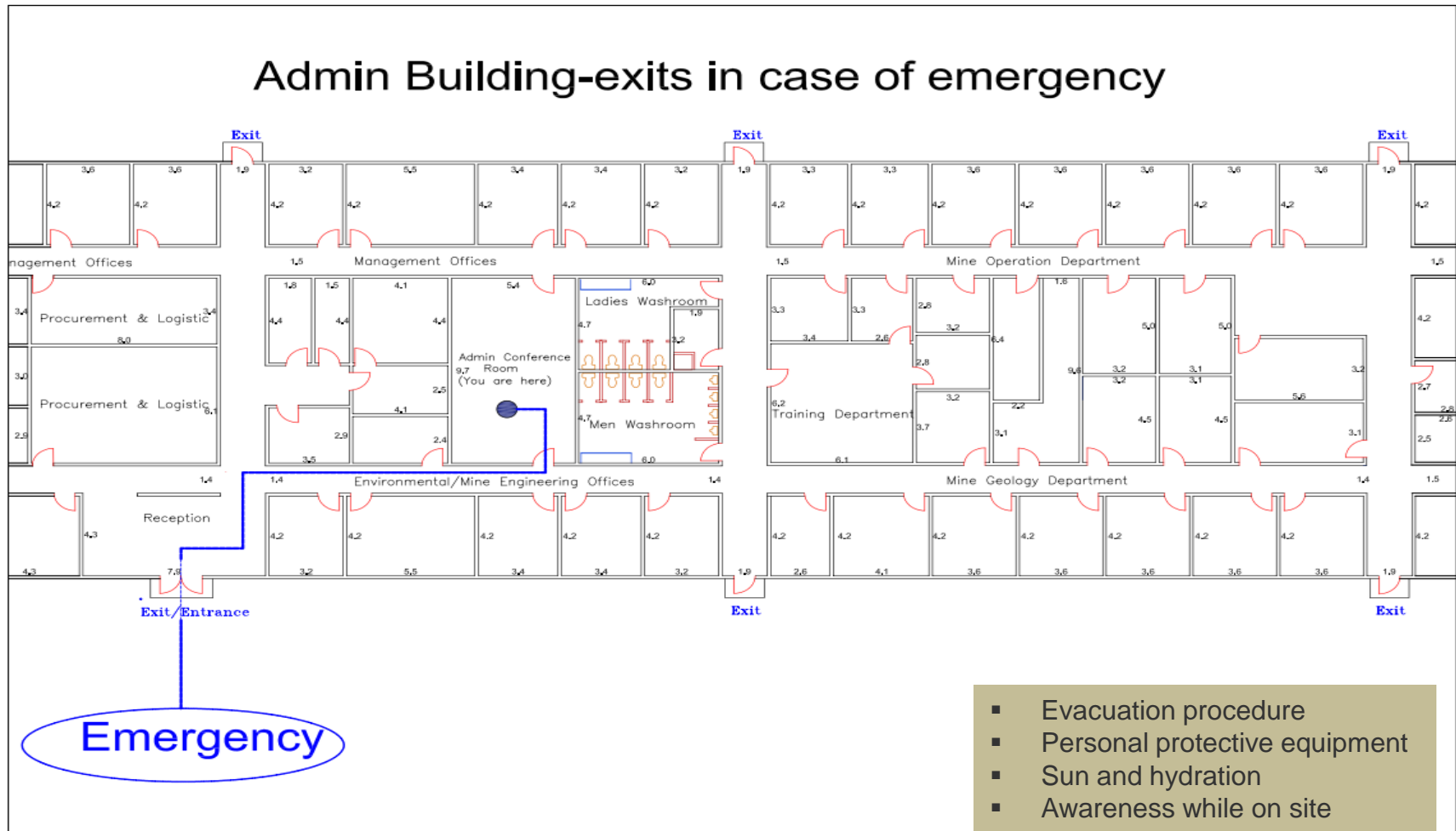
REPUBLIC OF SURINAME  
IAMGOLD CORPORATION



Empowering People,  
Extraordinary Performance

IAMGOLD  
**ZERO**  
HARM | DAÑO | INCIDENT | SCHADE | KGOBALO

# Safety Briefing Rosebel Mine Location





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# Introductions

## **IAMGOLD Executive Team**

Gord Stothart – COO

## **Rosebel Management Team**

Suresh Kalathil – General Manager

John Grignon – Mill Manager

Rémon van de Paal – Controller

Sharmila Jadnanansing – Legal & Corporate Affairs Manager

Jerry Finisie – Sustainability Manager

Ricardo Rojas – Mine Manager

Soetjipto Verkuijl – Risk Manager

Ian Stockton – Regional Exploration

## **Investor Relations**

Bob Tait

Shae Frosst



# Presentation Outline

- **Safety at Rosebel**
- **General Highlights**
- **Performance Highlights**
- **Mine Operations**
- **Grade Reconciliation**
- **Mill**
- **Exploration**
  - Near Pit
  - Regional Exploration





# Cautionary Statement

*All information included in this presentation, including any information as to the Company's future financial or operating performance, and other statements that express management's expectations or estimates of future performance, other than statements of historical fact, constitute forward looking information or forward-looking statements and are based on expectations, estimates and projections as of the date of this presentation. Forward-looking statements contained in this presentation include, without limitation, statements with respect to: the Company's guidance for production, cash costs, all-in sustaining costs, depreciation expense, effective tax rate, and operating margin, capital expenditures, operations outlook, cost management initiatives, development and expansion projects, exploration, the future price of gold, the estimation of mineral reserves and mineral resources, the realization of mineral reserve and mineral resource estimates, the timing and amount of estimated future production, costs of production, permitting timelines, currency fluctuations, requirements for additional capital, government regulation of mining operations, environmental risks, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage. Forward-looking statements are provided for the purpose of providing information about management's current expectations and plans relating to the future. Forward-looking statements are generally identifiable by, but are not limited to the, use of the words "may", "will", "should", "continue", "expect", "anticipate", "estimate", "believe", "opportunities", "intend", "plan", "possible", "suggest", "guidance", "outlook", "potential", "prospects", "seek", "targets", "strategy" or "project" or the negative of these words or other variations on these words or comparable terminology. Forward-looking statements are necessarily based upon a number of estimates and assumptions that, while considered reasonable by management, are inherently subject to significant business, economic and competitive uncertainties and contingencies. The Company cautions the reader that reliance on such forward-looking statements involve risks, uncertainties and other factors that may cause the actual financial results, performance or achievements of IAMGOLD to be materially different from the Company's estimated future results, performance or achievements expressed or implied by those forward-looking statements, and the forward-looking statements are not guarantees of future performance. These risks, uncertainties and other factors include, but are not limited to, changes in the global prices for gold, copper, silver or certain other commodities (such as diesel and electricity); changes in U.S. dollar and other currency exchange rates, interest rates or gold lease rates; risks arising from holding derivative instruments; the level of liquidity and capital resources; access to capital markets, and financing; mining tax regimes; ability to successfully integrate acquired assets; legislative, political or economic developments in the jurisdictions in which the Company carries on business; operating or technical difficulties in connection with mining or development activities; laws and regulations governing the protection of the environment; employee relations; availability and increasing costs associated with mining inputs and labour; the speculative nature of exploration and development, including the risks of diminishing quantities or grades of reserves; adverse changes in the Company's credit rating; contests over title to properties, particularly title to undeveloped properties; and the risks involved in the exploration, development and mining business. With respect to development projects, IAMGOLD's ability to sustain or increase its present levels of gold production is dependent in part on the success of its projects. Risks and unknowns inherent in all projects include the inaccuracy of estimated reserves and resources, metallurgical recoveries, capital and operating costs of such projects, and the future prices for the relevant minerals. Development projects have no operating history upon which to base estimates of future cash flows. The capital expenditures and time required to develop new mines or other projects are considerable, and changes in costs or construction schedules can affect project economics. Actual costs and economic returns may differ materially from IAMGOLD's estimates or IAMGOLD could fail to obtain the governmental approvals necessary for the operation of a project; in either case, the project may not proceed, either on its original timing or at all.*

*For a more comprehensive discussion of the risks faced by the Company, and which may cause the actual financial results, performance or achievements of IAMGOLD to be materially different from the company's estimated future results, performance or achievements expressed or implied by forward-looking information or forward-looking statements, please refer to the Company's latest Annual Information Form, filed with Canadian securities regulatory authorities at [www.sedar.com](http://www.sedar.com), and filed under Form 40-F with the United States Securities Exchange Commission at [www.sec.gov/edgar.shtml](http://www.sec.gov/edgar.shtml). The risks described in the Annual Information Form (filed and viewable on [www.sedar.com](http://www.sedar.com) and [www.sec.gov/edgar.shtml](http://www.sec.gov/edgar.shtml), and available upon request from the Company) are hereby incorporated by reference into this presentation.*

*The Company disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise except as required by applicable law.*

*All monetary amounts are in US dollars, unless otherwise indicated.*



# Safety at Rosebel



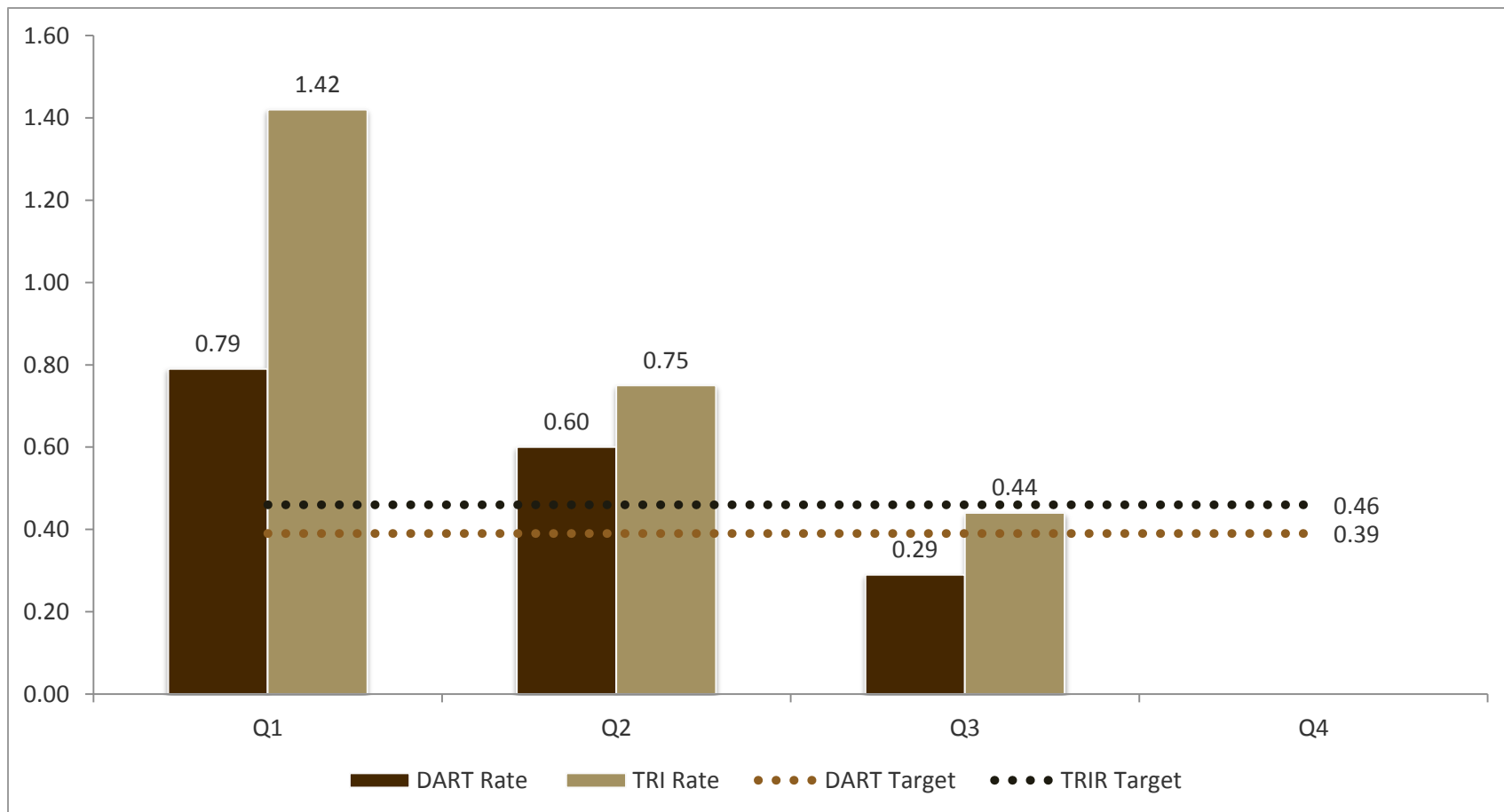
**Shalini Kesarsing**  
**Safety at Rosebel**  
**Slides 9 – 14**

# H&S Accomplishments 2016 YTD

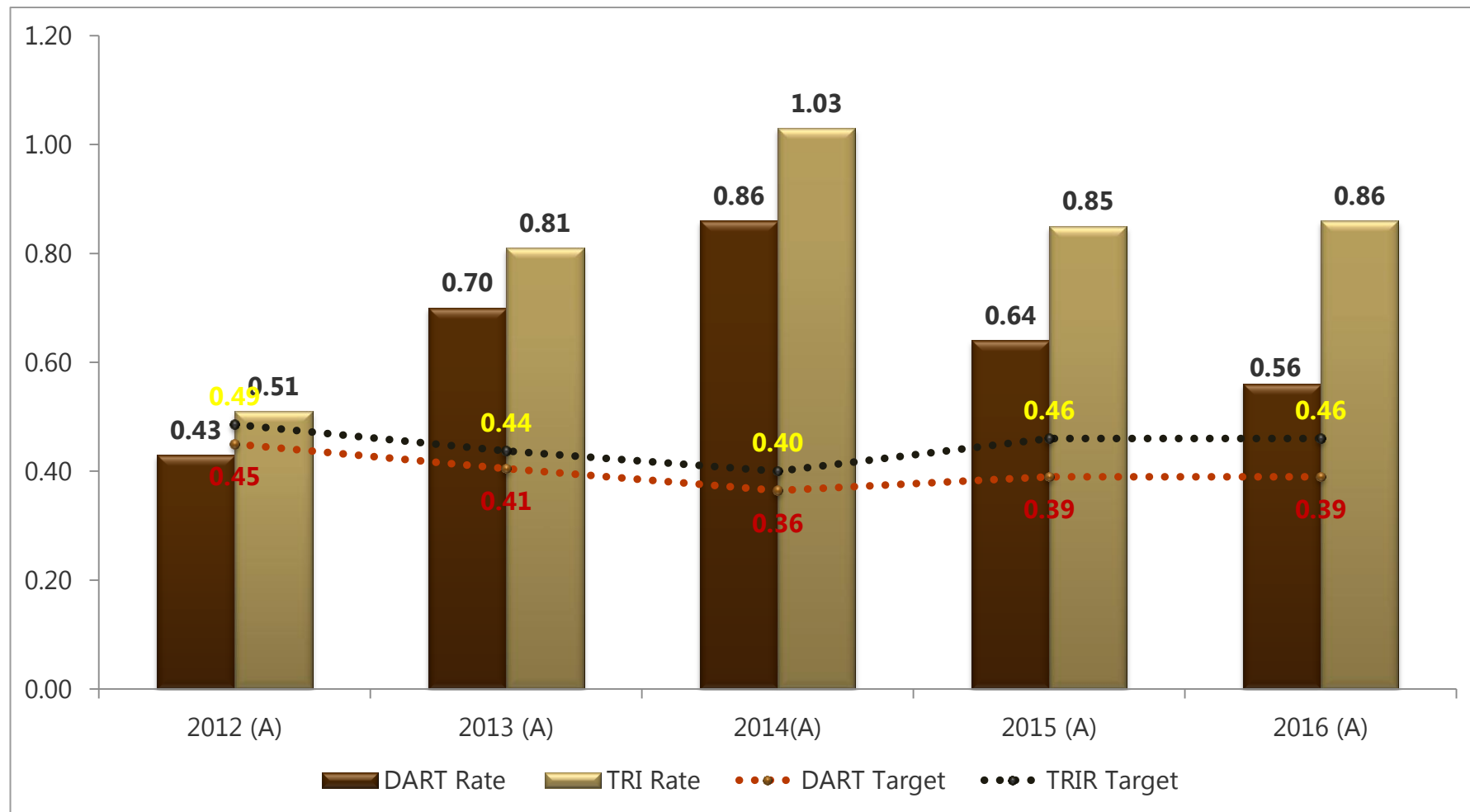
- **Safety Achievements**
  - Triple Zero in April & July (site wide)
  - > 6.9M worked man-hours LTA free
  - 45% improvement in DART severity rate
- **Approximately 1,300 hours spent in safety training**
- **Contractor Audits against Safe Work Plan**
- **Industrial Hygiene Risk Register developed**
- **Fire Suppression Systems Audits: AFEX & Fire Trace**
- **OHS Committee for Mine Ops + Mine Technical Services operational**
- **Gap Analysis of Emergency Management & Response Plan completed**
- **June: successful Safety Campaigns in June**



# DART & TRIR 2016 YTD

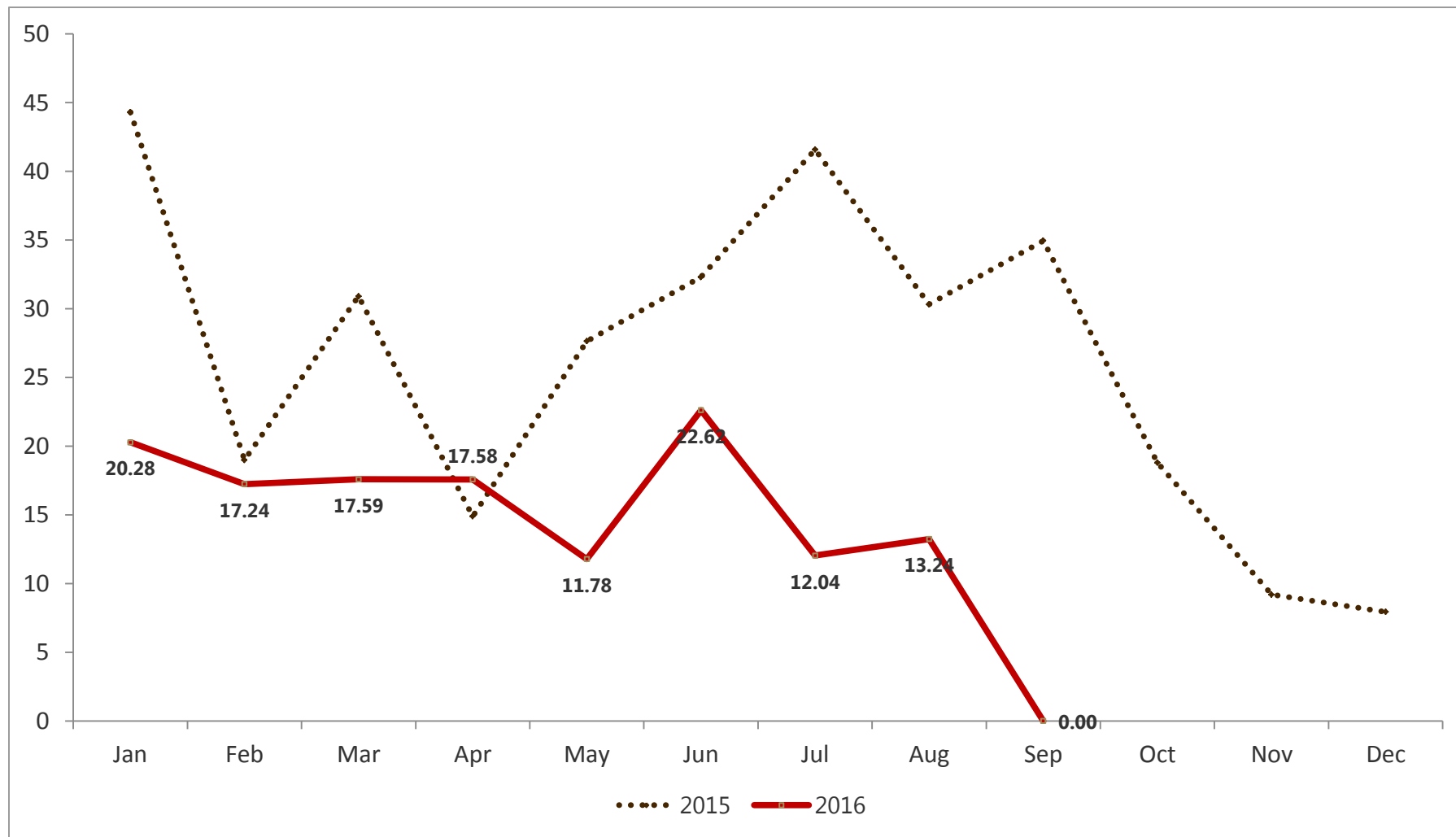


# DART & TRIR Trend: 2011 – 2016





# DART Severity Rate



# Safety Day – June 2016

- Engagement with the workforce
- Promotion H&S department objectives
- Safety Awareness
- 54% more participation compared to 2015





# Emergency Response Gap Analysis – Aug. 2016



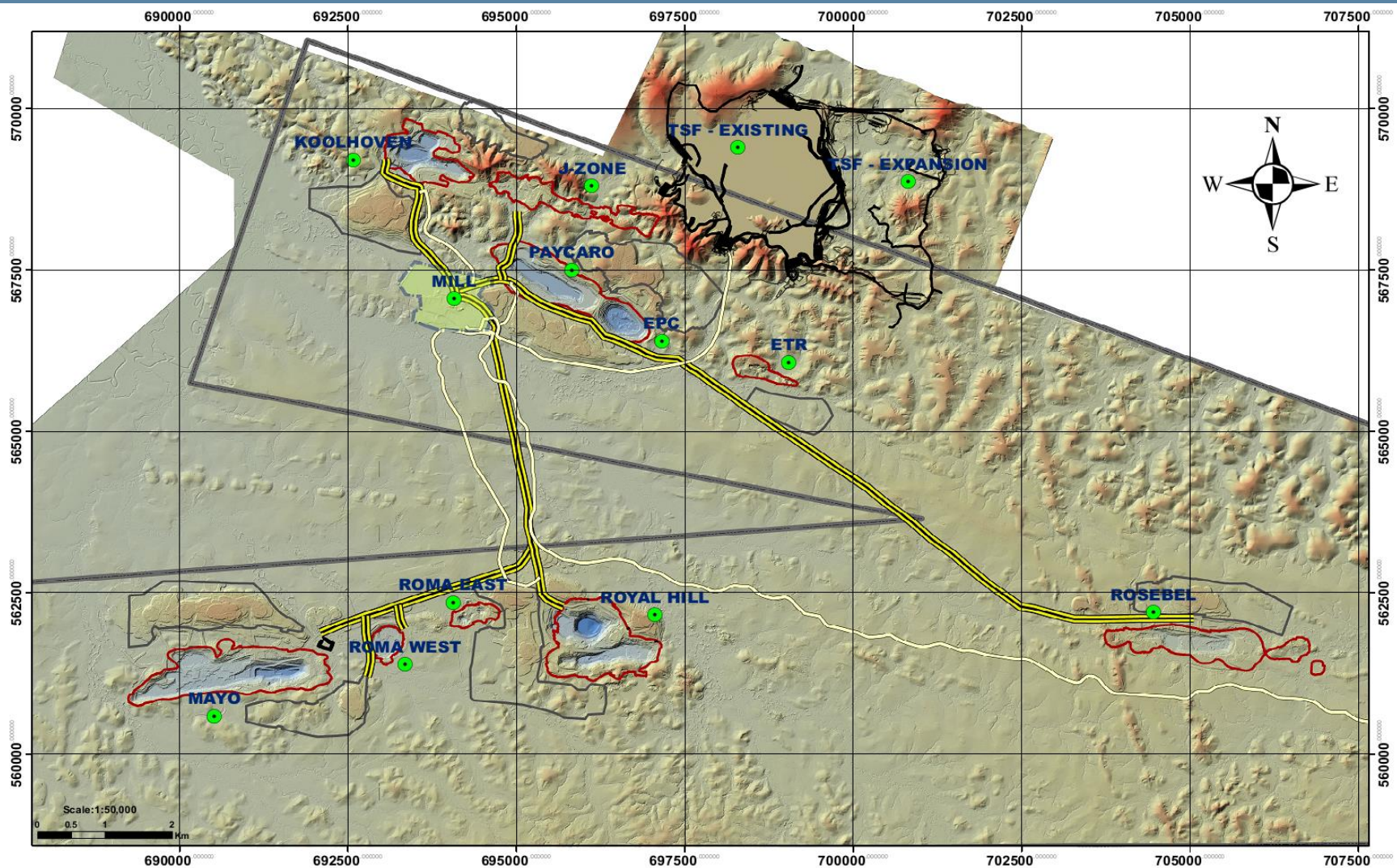
# General Highlights



**Suresh Kalathil**  
**General Highlights**  
**Slides 16 – 21**



# Operations Layout



# Objectives

- **Focussing on ZERO HARM**, Empowering People, Operational Excellence and building on Stakeholder Relations to maximize operating margin
- Making the transition from **Continuous Improvement to sustainable Business Excellence**
- **Step-change innovation** – Significant departure from business-as-usual processes, shift to technology is a critical part of enabling substantial value creation.  
(Dynamic dispatch, Secondary Crusher, Electronic detonators, CAT Vision link, Six sigma, etc.)
- **Unleashing value by establishing Mine-of-the-Future Mining Practice** and achieve operational excellence in core mineral extraction and recovery processes by leveraging big value drivers.  
(Money Mining/Whittle Optimization, Safety systems, Dilution control, Maintenance practices, Mine to Mill, etc.)
- **Structured Control and Governance** to Improve business processes, reduce non-value-added tasks and accelerate effective decision making to decrease average unit costs.  
(Right sizing, Tracking and monitoring costs, Dashboard, WTW & Six Sigma initiatives)



# Budget 2016: Objectives

- **To safely achieve 2016 Business Plan by producing 300 – 310k/oz gold at an AISC \$1,096/oz, treating 11 Mt of ore and mining 63 Mt of Waste + Ore**
- **Key Drivers**
  - Zero Harm (HSS)
  - Production Levels
  - Costs of production
  - Cost Optimization & Cost Preservation
  - WTW & Six Sigma
  - Availability & Utilization
  - Efficiencies – OEE
  - Productivities
  - Optimization
  - Best Practices
  - Benchmarking (3<sup>rd</sup> Qtr.)

# Strategic Imperatives and Implications

## Strategic Imperatives

1. Engineered Stockpile
2. Reverse Circulation Drilling
3. Mill Optimization initiatives
  - a. Solution Losses
  - b. Reagent Consumption
  - c. Grinding Media consumption
4. 8 meter benches
5. Blast Measurement Monitor's (BMM) and Electronic Blasting
6. Restructuring, SBU's, Real time Monitoring, Wenco Bench Managers
7. We Tjaring Waka (we will do it now) Initiative

## Implications

1. Stable process parameters and plant performance
2. Reduce per Unit Operating Cost
3. Reduce grade variation and increase confidence in estimated grade
4. Improved Grade Control
5. Increase equipment and manpower productivity
6. Decrease & control dilution
7. Safety and maintain stable pit walls
8. Train, develop and build a competent and technically sound senior leadership team and workforce



# Key Enablers

## Internal process

- WTW & SIX SIGMA tools driven improvement engines across all Strategic Business Units
- Structured review of high impact projects
- Improving technology to make the operation “Best in Class”
- Compliances to safety and environmental norms

## Employees

- High motivation and morale of employees at all levels
- Team building and leadership development

## Stake Holder Satisfaction

- On time service delivery
- Quality
- Engagement, Social License to Operate

## Suppliers

- Long-term partnership – strategy with suppliers – contractors in explosives/tires/grinding media/cyanide

## External – Government

- To be perceived as best in Class Gold Mine
- High impact CSR projects
- To build a strong & positive image with Government & Society at large

# Disciplined Approach Going Forward

- **Focus on economic returns**

- Return on capital is the main criteria for investment decisions

- **Cost containment**

- Focus on managing costs in the current gold price environment

- **Innovation**

- Apply innovation where possible to generate superior return

- **Positioning for the future**

- Develop pipeline of exploration and development projects

**Low gold price environment demands  
that we look for ways to secure our future  
and create long-term value**

# Performance Highlights

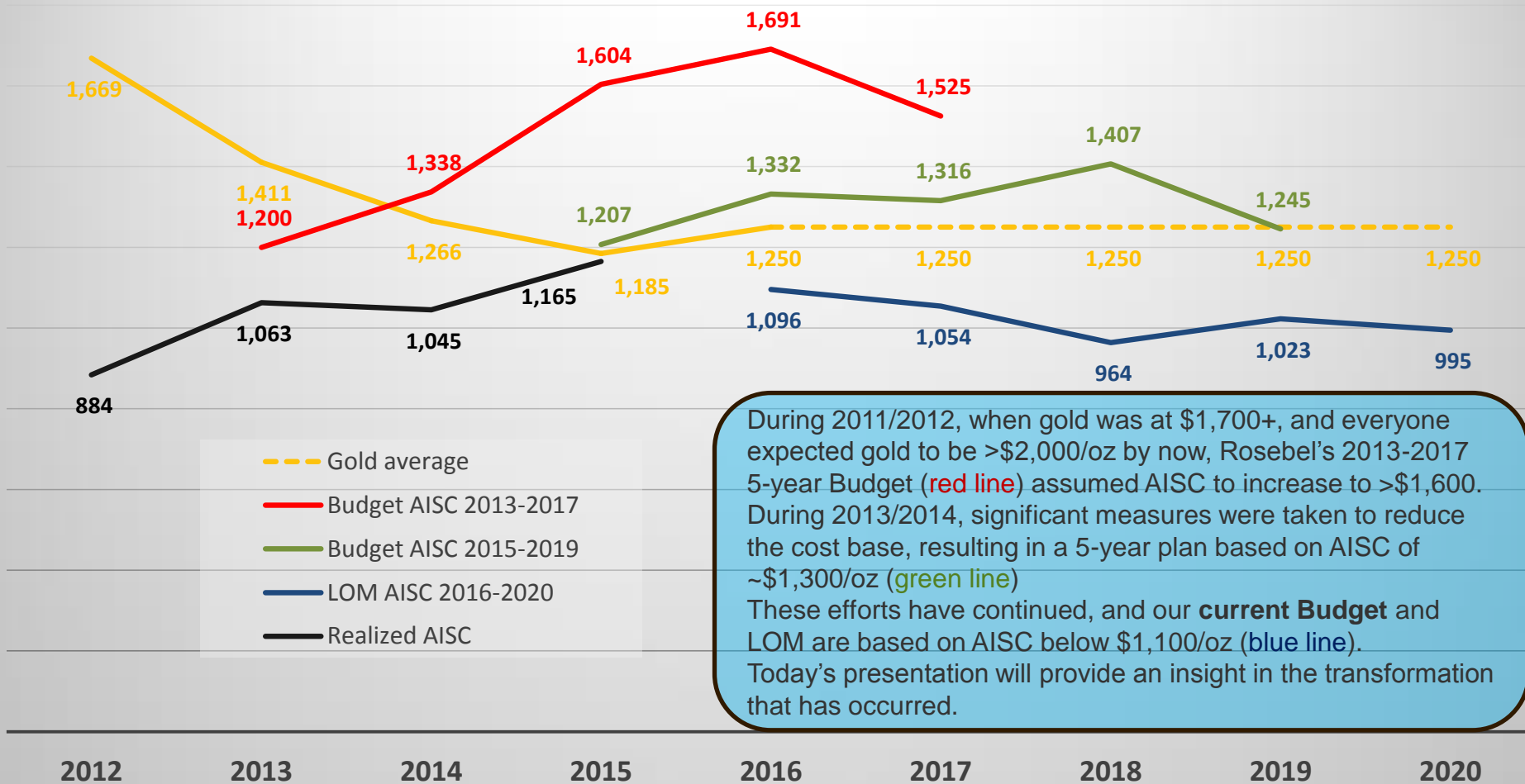


**Rémon van de Paal**  
**Performance Highlights**  
**Slides 21 – 33**



# Rosebel's Transformation

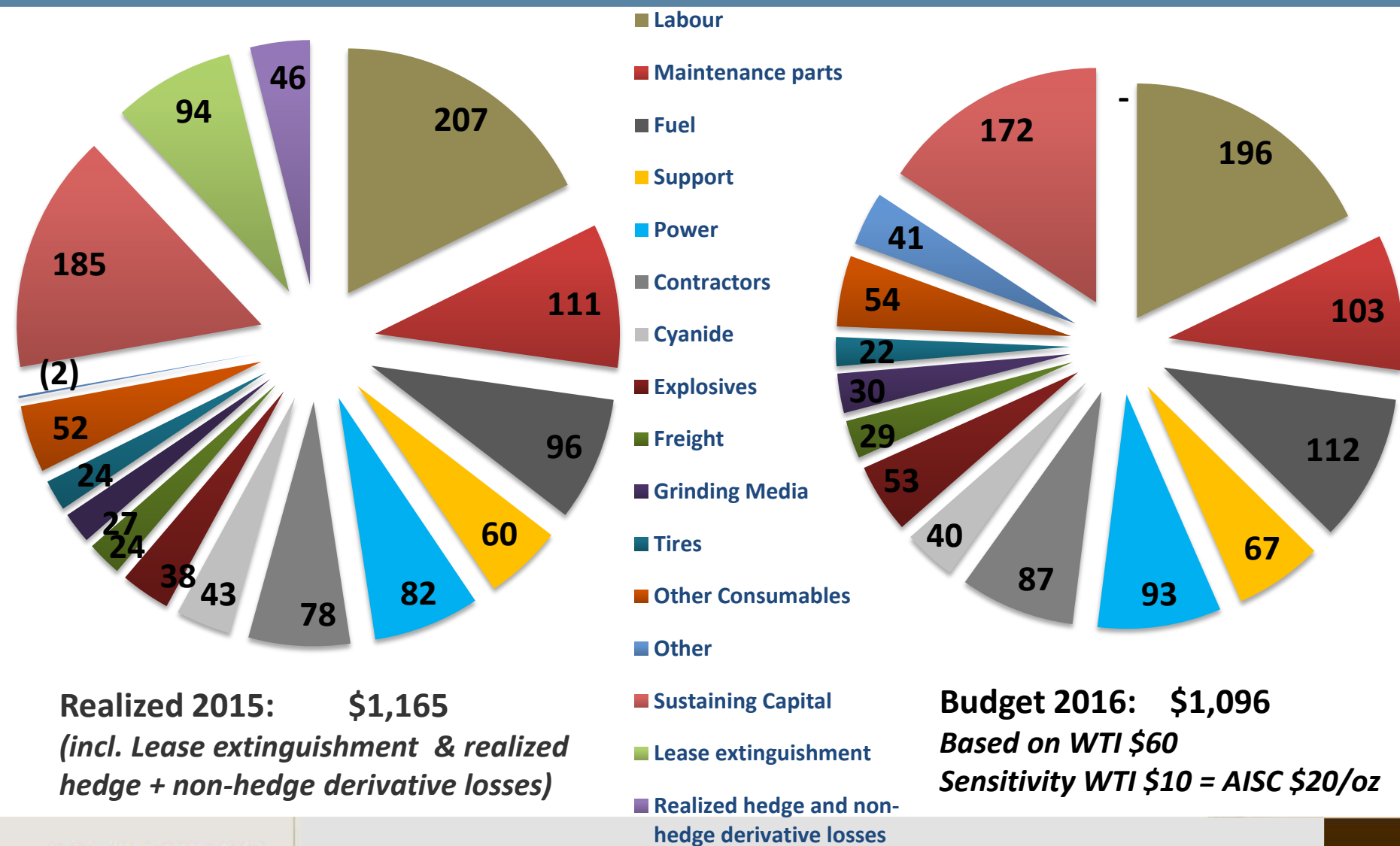
## AISC-trend Rosebel Gold Mines N.V.



## Realized 2015 AISC

vs

## Budget 2016 AISC



# Accomplishments

- **Reduce AISC from > \$1,500 to < \$1,100/oz** *(like for like)*
- **Create the foundation for long-term future**
  - Productivity improvements through Business Excellence
  - Workforce rationalization -10% reduction
  - Collective Labor Agreement to create goal alignment
  - Debottlenecking of the plant to improve hard rock throughput
  - Engineered stockpile
  - Pit slope optimization
  - Reverse Circulation Drilling
  - Reduction operating working capital > 35%
- **Introduce best practices across operation**
- **Empowerment and talent development; Strong focus on Nationals**

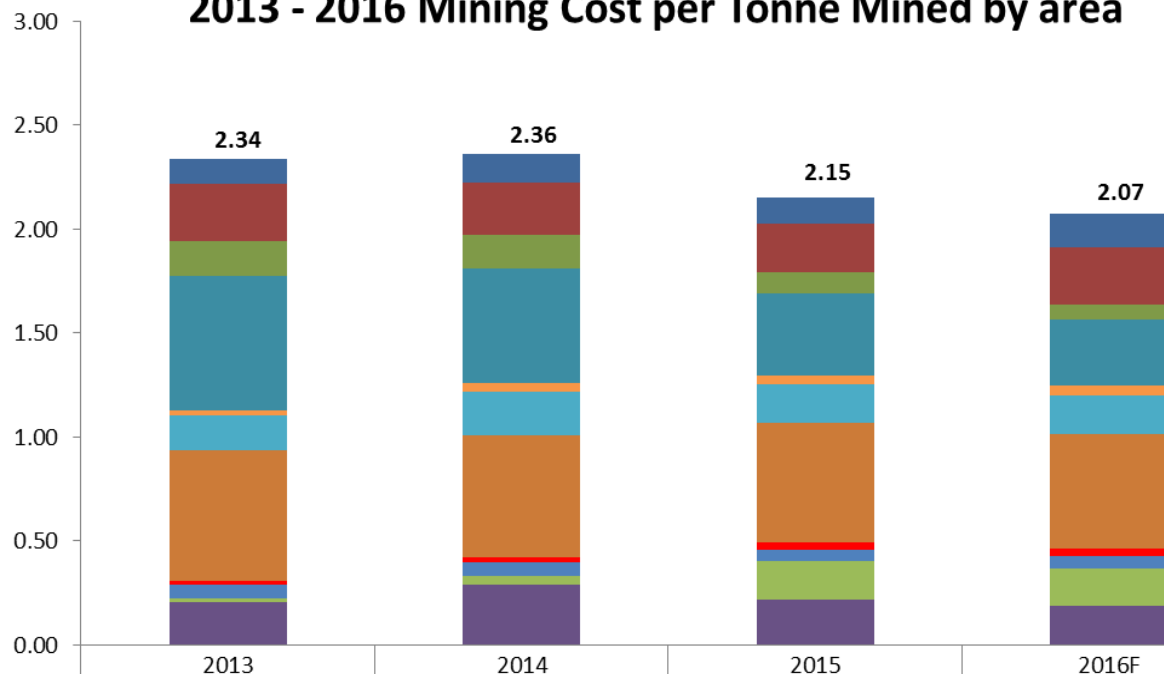


# Priorities

- **Mine Operations optimization**
- **Mill throughput model optimization**
- **Grade control**
- **Covert to 8 meter benches, rather than 5/6m**
- **Six sigma implementation**
- **Workforce and community engagement**
- **Exploration**
  - Near Mine: Saddles, East Roma
  - Regional Exploration: Saramacca, Sarafina, Overman etc.

# Continued Reduction Mine Costs: 15% below 2013/2014

**2013 - 2016 Mining Cost per Tonne Mined by area**



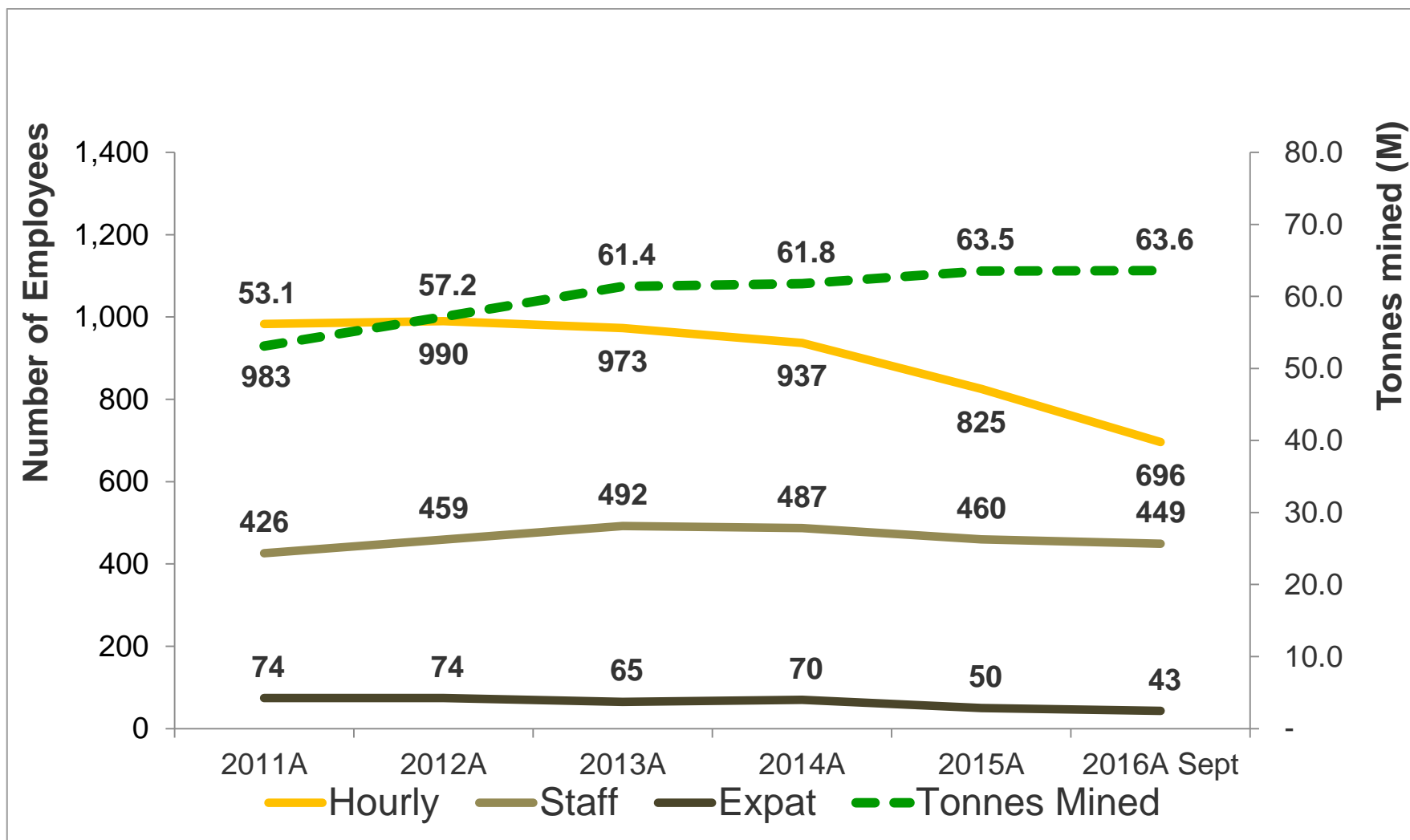
Continued reduction in mining costs by approx. \$0.28/t

Almost \$0.20/t of reduction due to lower fuel costs

Partly offset by +\$0.15/t due to RC Drilling

\$0.23/t improvement due to productivity initiatives

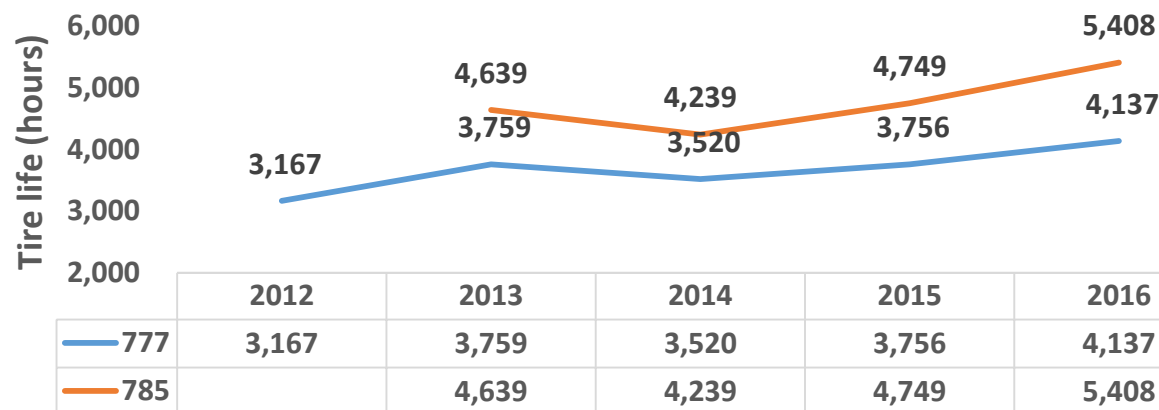
# Workforce Rationalization



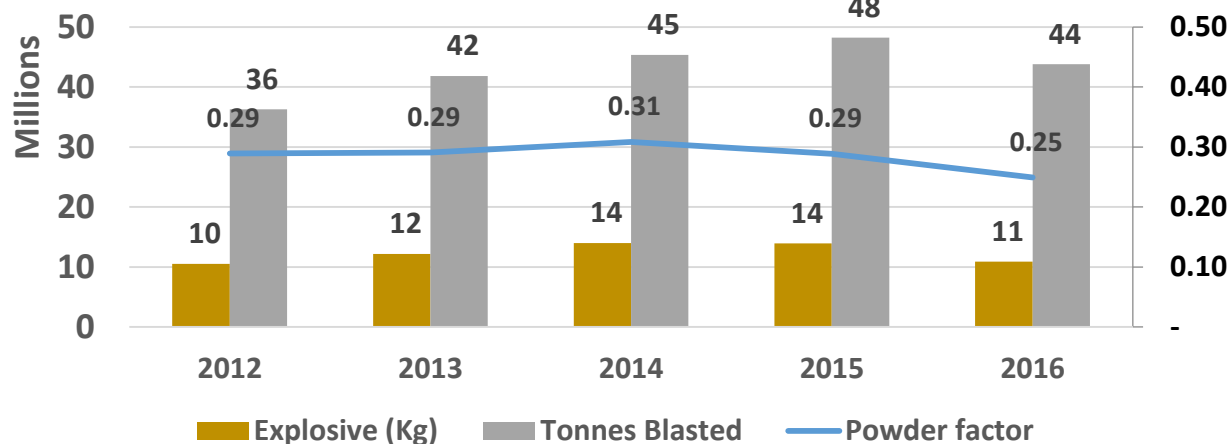


# Cost Optimization

Avg. Tire hours 2012 - 2016 YTD



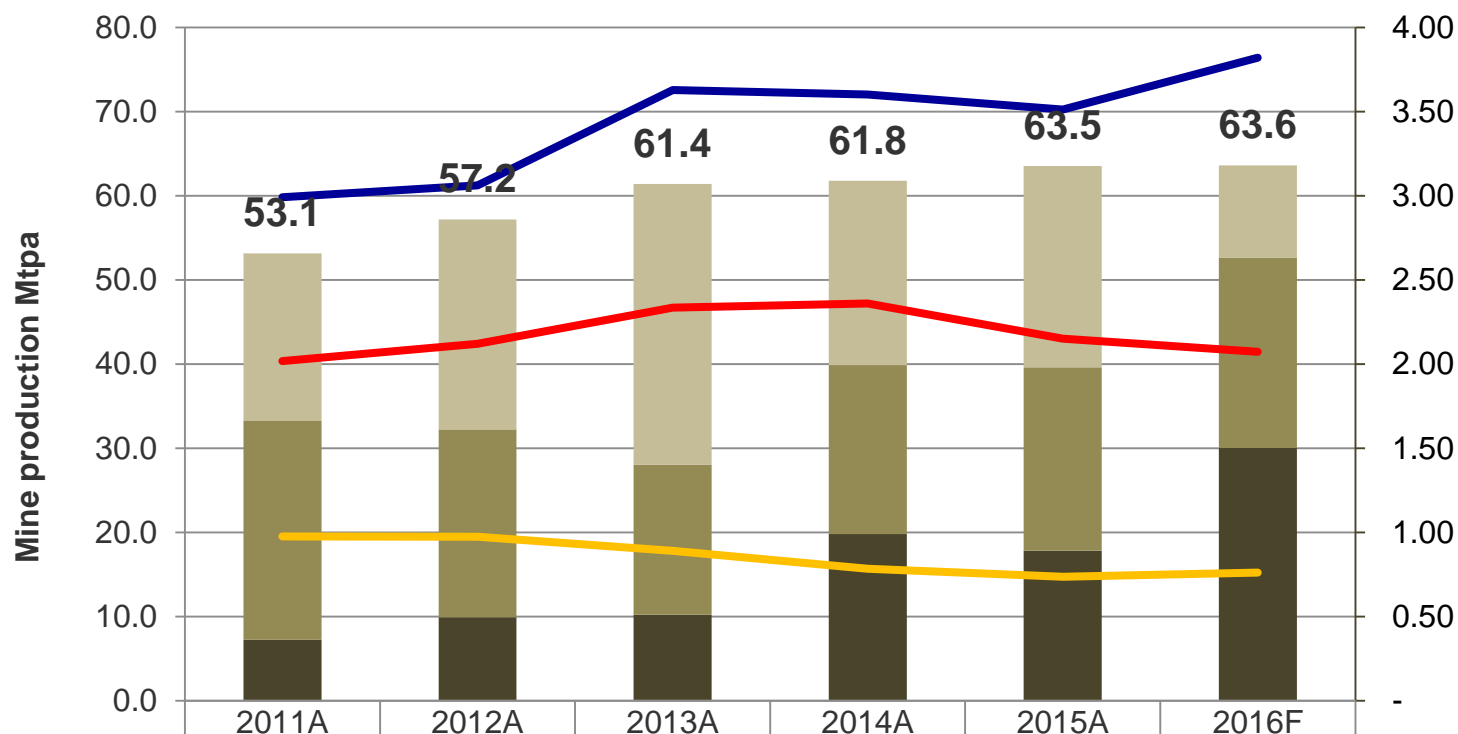
Explosives consumption



## Cost reductions across Operations including

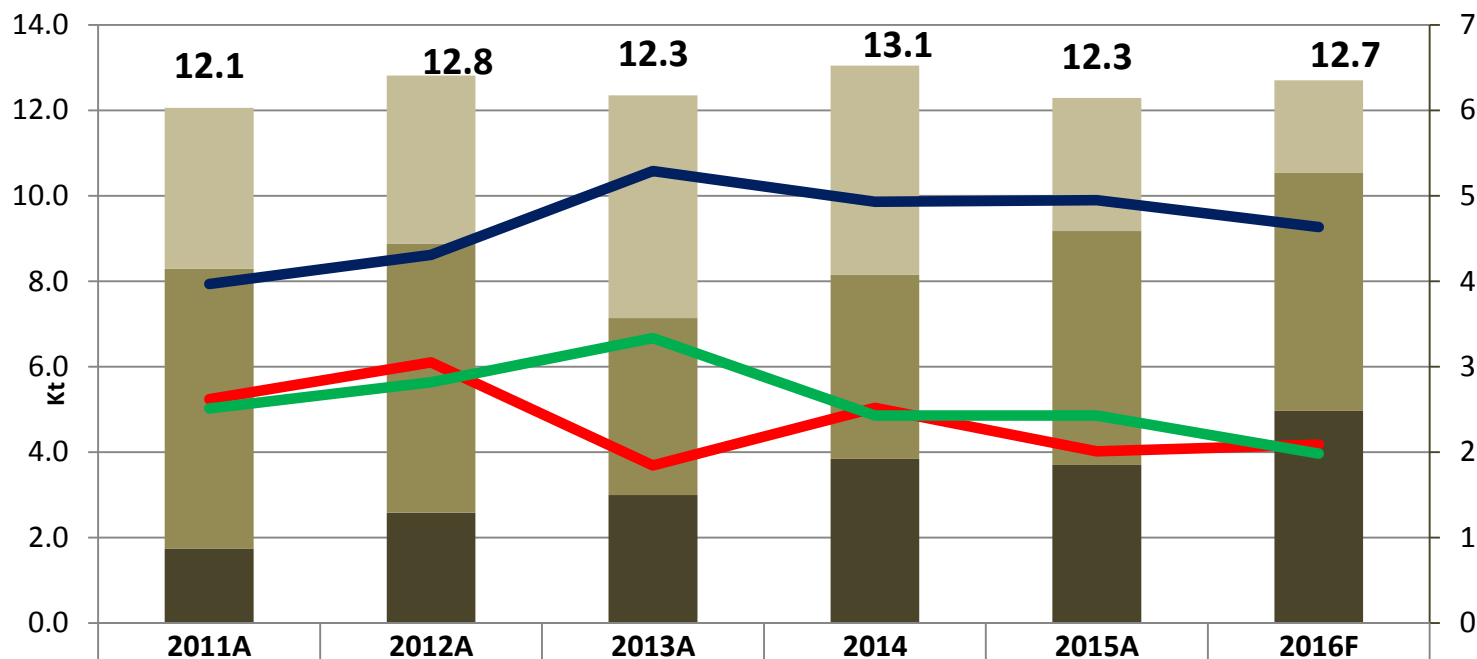
- Tire life
- Powder factor
- Cyanide consumption
- OEE's
- Truck loading
- Pit Slopes
- Mill availability

# Mine Production



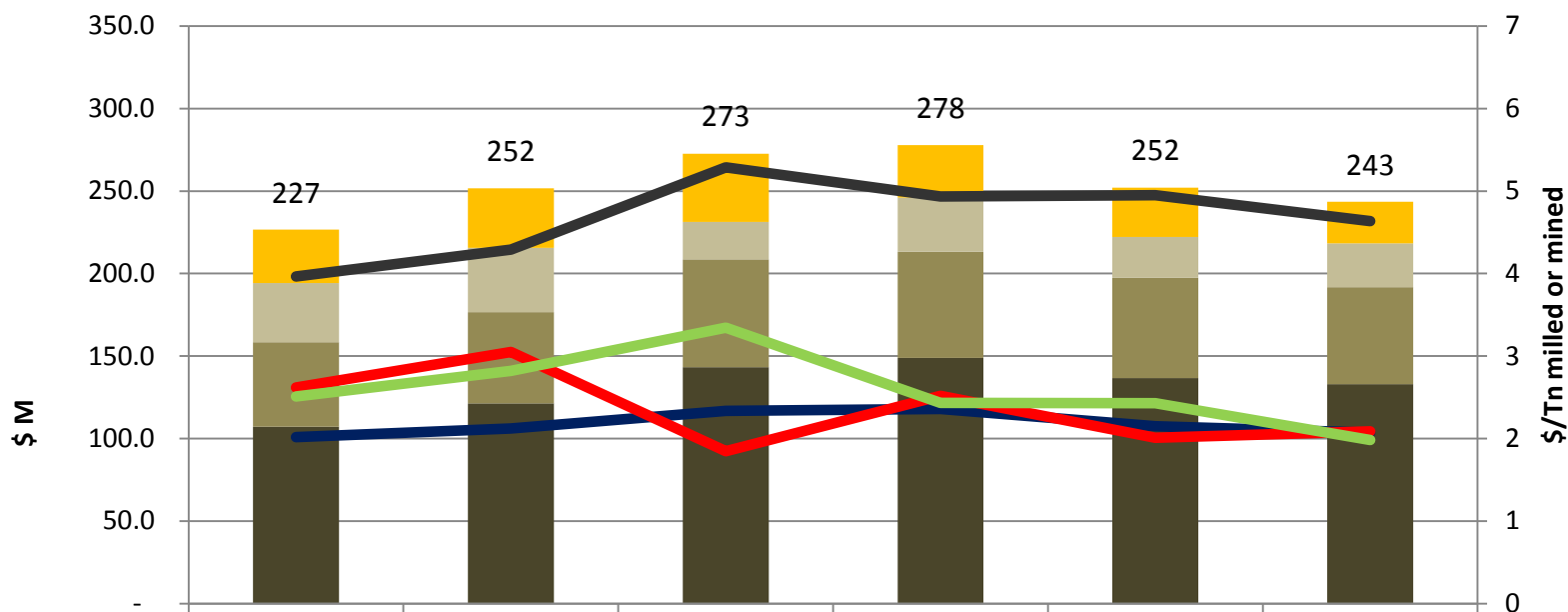
Soft rock (Mtpa)	19.8	24.9	33.3	21.9	23.9	11.0
Trans rock (Mtpa)	26.0	22.3	17.8	20.1	21.8	22.6
Hard rock (Mtpa)	7.3	9.9	10.2	19.8	17.8	30.0
Total mined (Mtpa)	53.1	57.2	61.4	61.8	63.5	63.6
Mined Grade (g/t Au)	0.98	0.97	0.89	0.78	0.74	0.76
Strip Ratio	3.0	3.1	3.6	3.6	3.5	3.8
Mining Unit Cost (\$/t mined)	2.02	2.12	2.33	2.36	2.15	2.07

# Mill Production



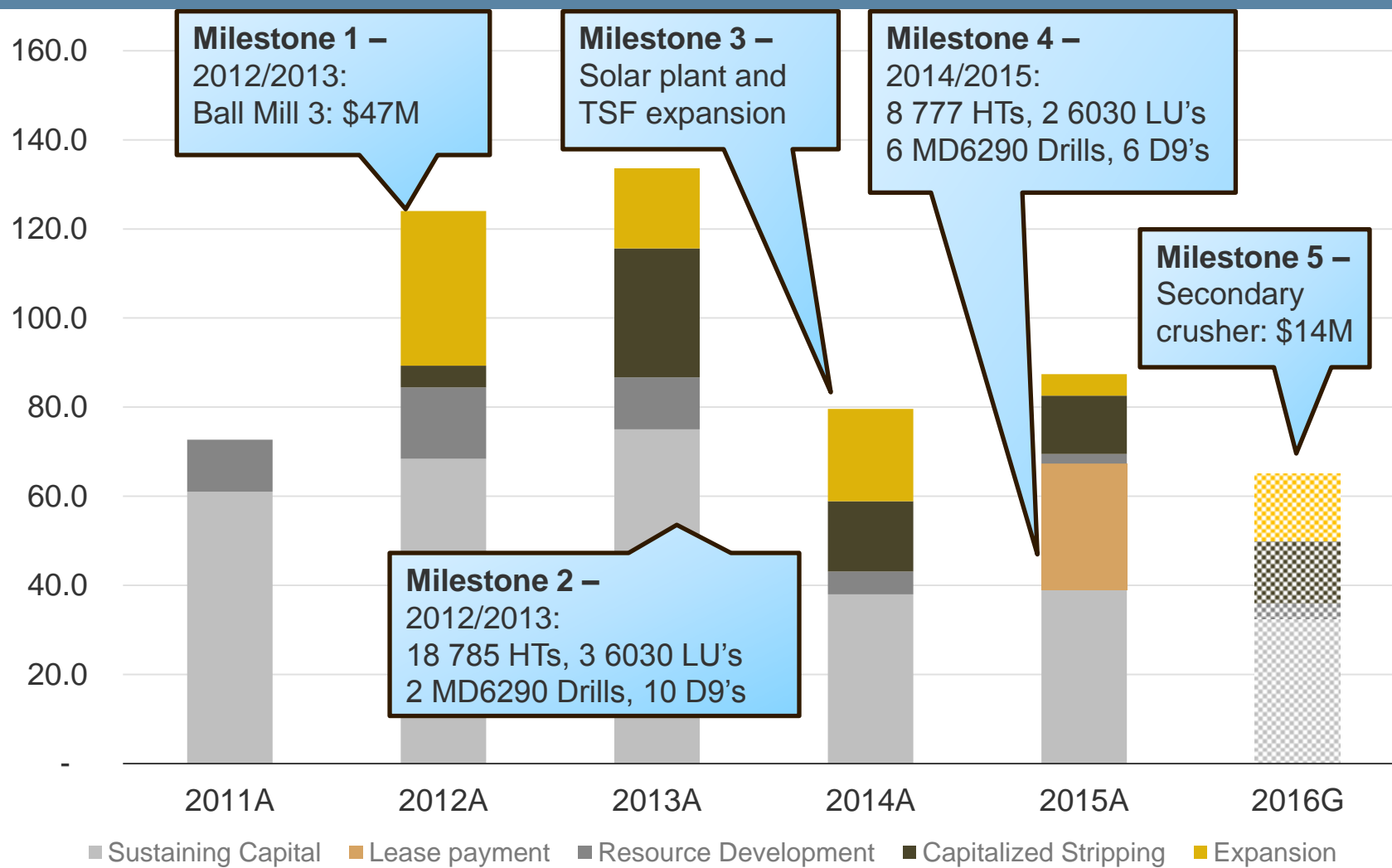


# Operating Cost Trend



<span style="color: yellow;">■</span> G&A Cost	32.3	36.1	41.3	31.7	29.9	25.2
<span style="color: brown;">■</span> Power Cost	35.9	39.1	22.8	32.9	24.7	26.5
<span style="color: olive;">■</span> Milling Cost	51.2	55.2	65.3	64.4	60.8	58.9
<span style="color: darkblue;">■</span> Mining Cost	107.1	121.4	143.3	148.9	136.7	132.9
<b>Total Operating Cost</b>	<b>227</b>	<b>252</b>	<b>273</b>	<b>278</b>	<b>252</b>	<b>243</b>
<span style="color: darkblue;">—</span> Mining Cost/tn mined	2.02	2.12	2.33	2.36	2.15	2.07
<span style="color: black;">—</span> Milling Cost/tn milled	3.97	4.29	5.29	4.93	4.95	4.63
<span style="color: red;">—</span> Power Cost/tn milled	2.62	3.05	1.85	2.52	2.01	2.09
<span style="color: green;">—</span> G&A Cost/tn milled	2.51	2.82	3.34	2.43	2.43	1.98

# Capital Costs



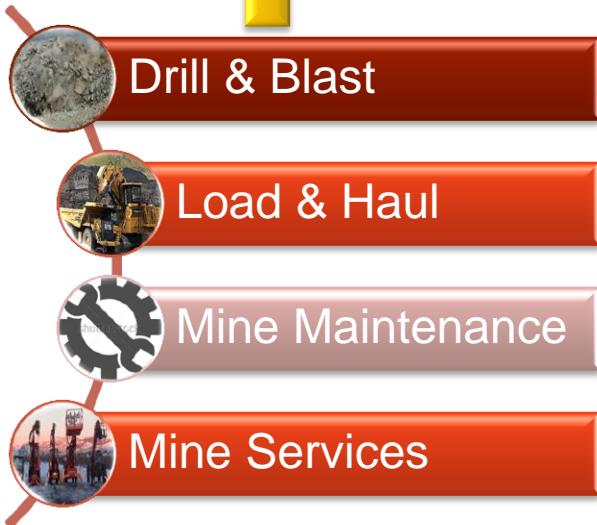
# Mine Operations



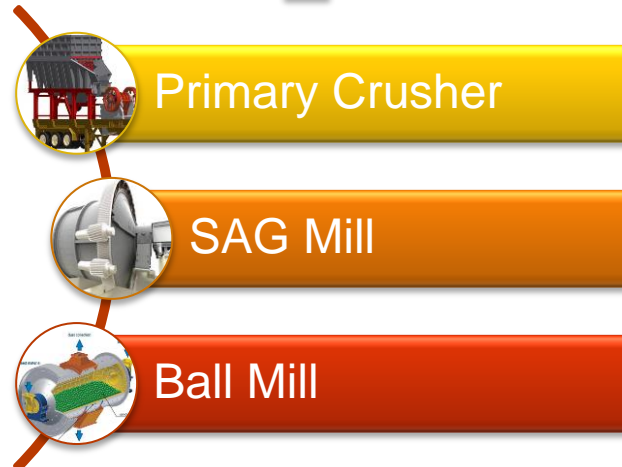
## Suresh Kalathil Mine Operations Slides 35 – 42

# Approach: Value Chain Optimization

## MINE – Supplier



## MILL – Customer



- More Ounces
- Higher Throughput
- Increased Recovery
- Cost Management





# We Tjaring Waka (we do it now) – Optimization Initiative

- **Objective**

- Improve productivity, lower costs and position Rosebel for a longer and healthier operating mine life

## We Tjaring Waka Project



# We Tjaring Waka Productivity Improvement

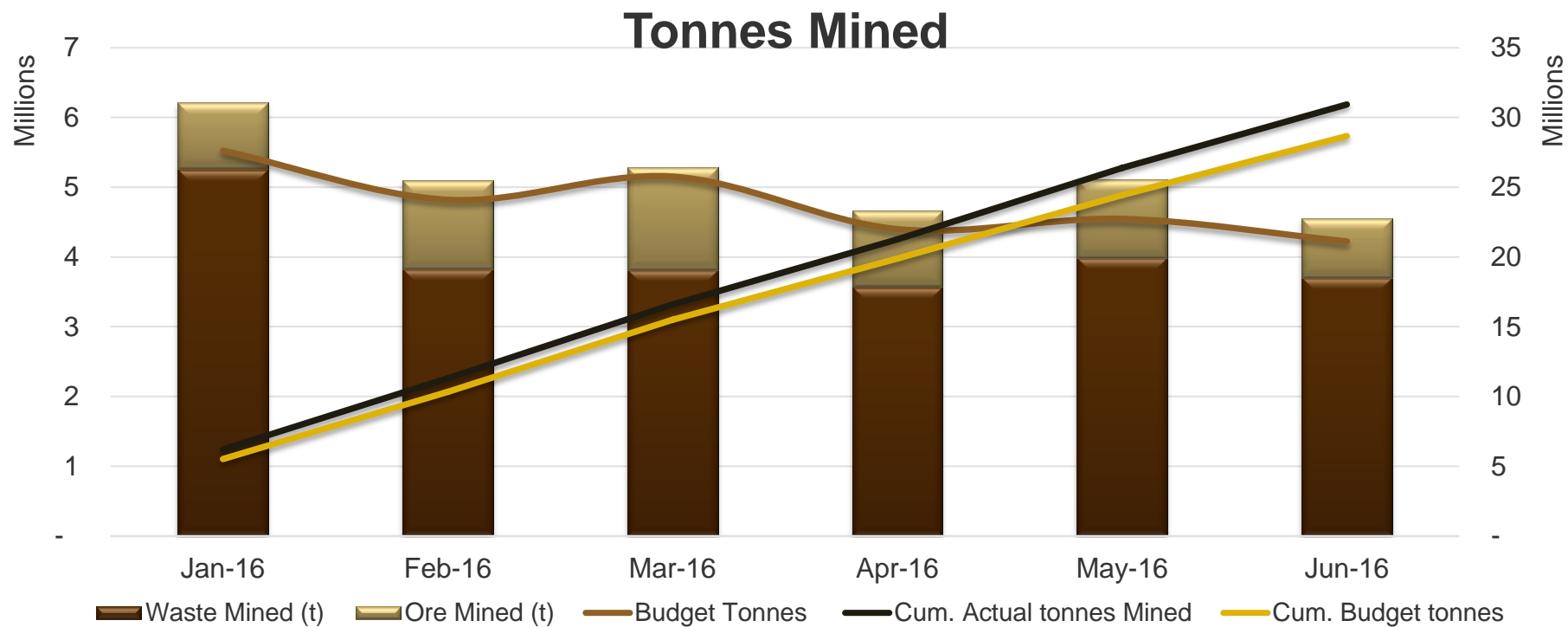
- **Improve productivity, lower costs and position RGM for a longer and healthier operating Mine Life**

- Removing operating barriers
- Improving communication within and between departments
- Reducing the causes of lost time to improve productivity
- Optimizing Mining Sequence to feed the mill effectively
- Streamlining management information and processes

*Formal alignment on sequences and communication*



# Tonnes Mined – June YTD



### Compared to Budget – 2016

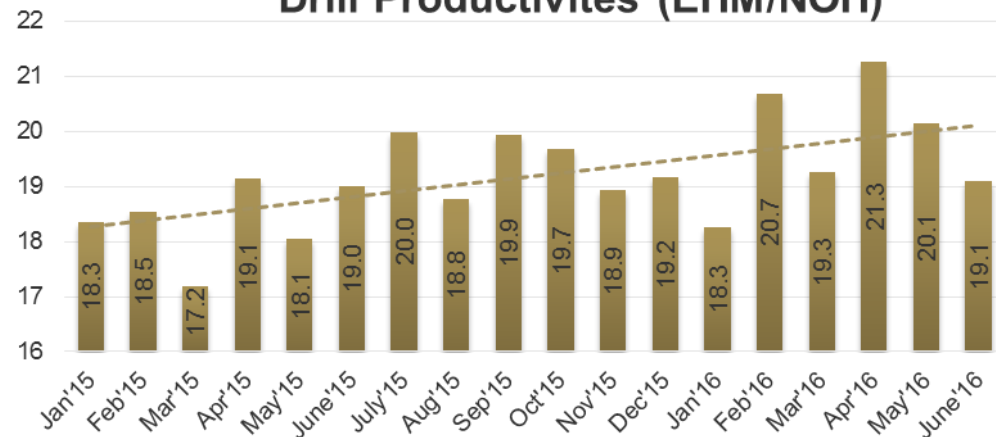
- Ore mined: 37% above
- Waste mined 2%
- Total Mined 8% above

Loading Unit productivity : 5% above

Hauling Unit productivity : 5% above

# Drilling (2015 – June 2016 YTD)

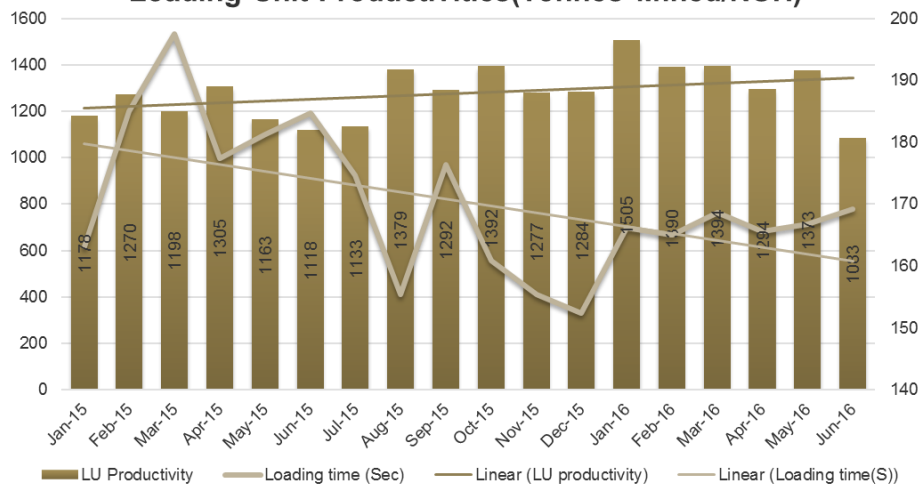
## Drill Productivities (EHM/NOH)



- Pattern sequencing and equipment scheduling resulted in 6% reduction in total delay
- 7.6% improvement in drill productivities compared to H1-2015

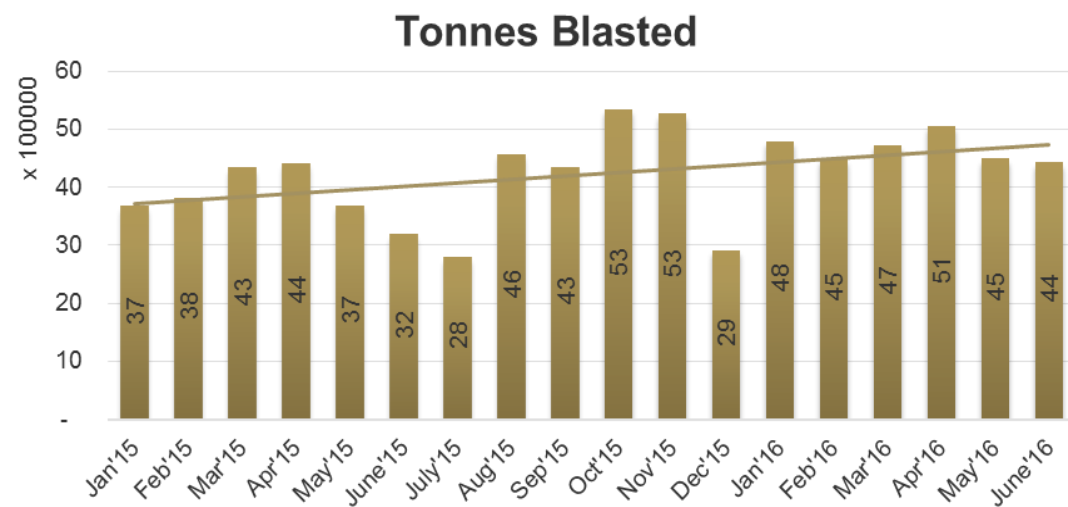
- Productivities 5% above the budget 2016
- 8% reduction in average loading time compared to H1 - 2015

## Loading Unit Productivities(Tonnes Mined/NOH)





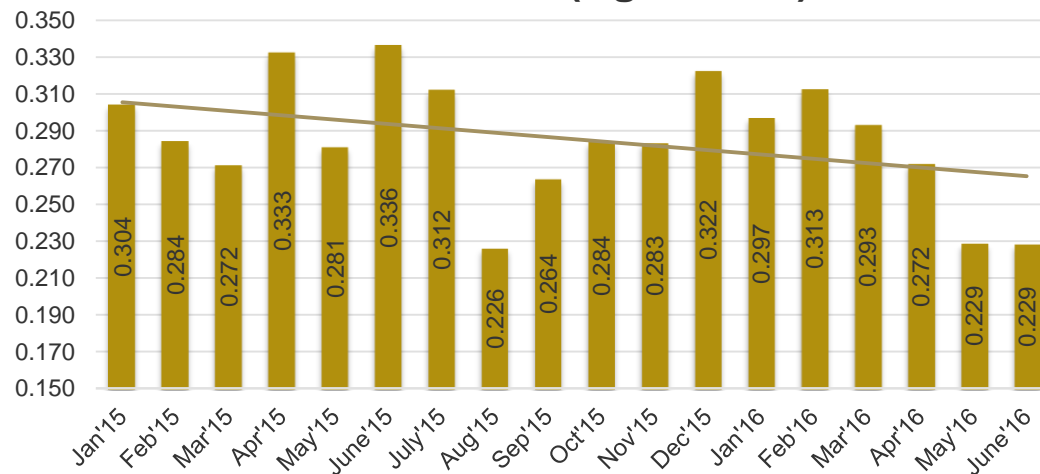
# Drill & Blast (2015 – June 2016 YTD)



- Total tonnes blasted: 10% above budget 2016
- Optimization of Drill & Blast designs to obtain higher yield/meter without compromising post blast results

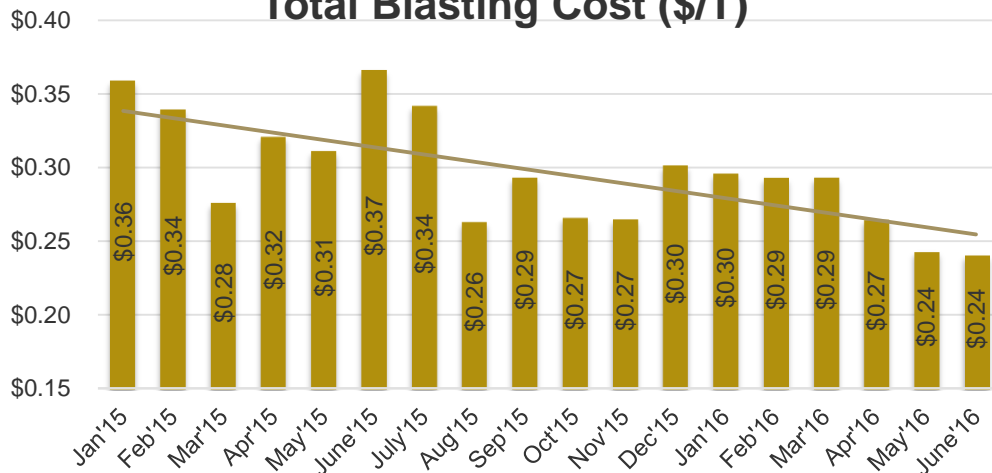
- Powder factor, 23% below budget 2016, with 14% reduction in explosive consumption
- Design optimization based on material type and Quality control initiatives in Drill & Blast being key drivers

## Powder Factor (Kg/Tonnes)



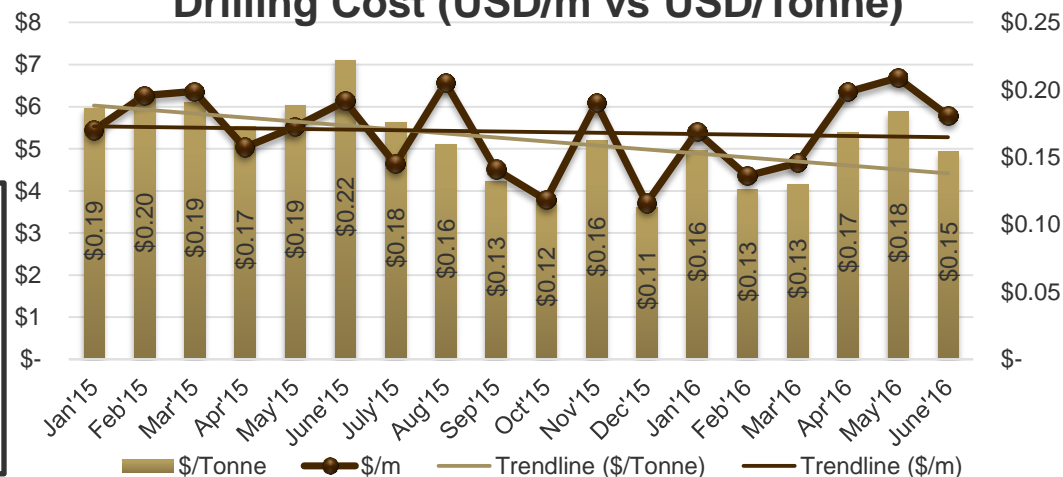
# Mine Operations Cost (2015 – June 2016 YTD)

## Total Blasting Cost (\$/T)



- 29% reduction in blasting cost compared to budget
- Cost Management Initiatives includes
  - Selective pattern expansion with optimized drill & blast design.
  - QA/QC in D&B processes
  - Blast accessory management
  - Selective emulsion blend

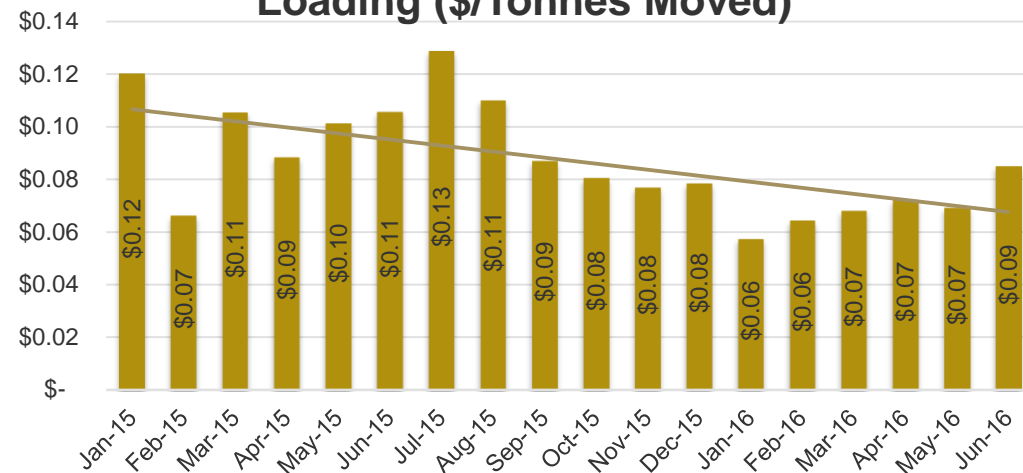
## Drilling Cost (USD/m vs USD/Tonne)



- 20.5% reduction in total drilling cost compared to budget 2016.
- Cost Management initiatives includes
  - Pattern expansion resulted in higher drill yield and reduction in drilling cost/tonne blasted

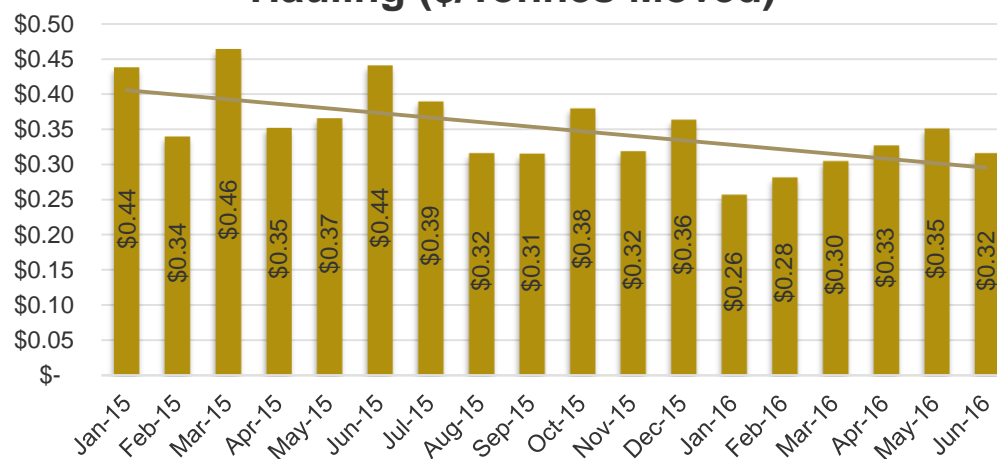
# Mine Operations Cost (2015 – June 2016 YTD)

## Loading (\$/Tonnes Moved)



- 30% reduction in average loading cost compared to H1-2015
- Major contributors includes
  - Higher loading unit productivities

## Hauling (\$/Tonnes Moved)



- 22.5% reduction in average hauling cost compared to H1-2015
- Major contributors includes
  - Higher Hauling unit productivities
  - 23% reduction in tire costs (\$/tonne) compared to H1-2015

# Grade Reconciliation

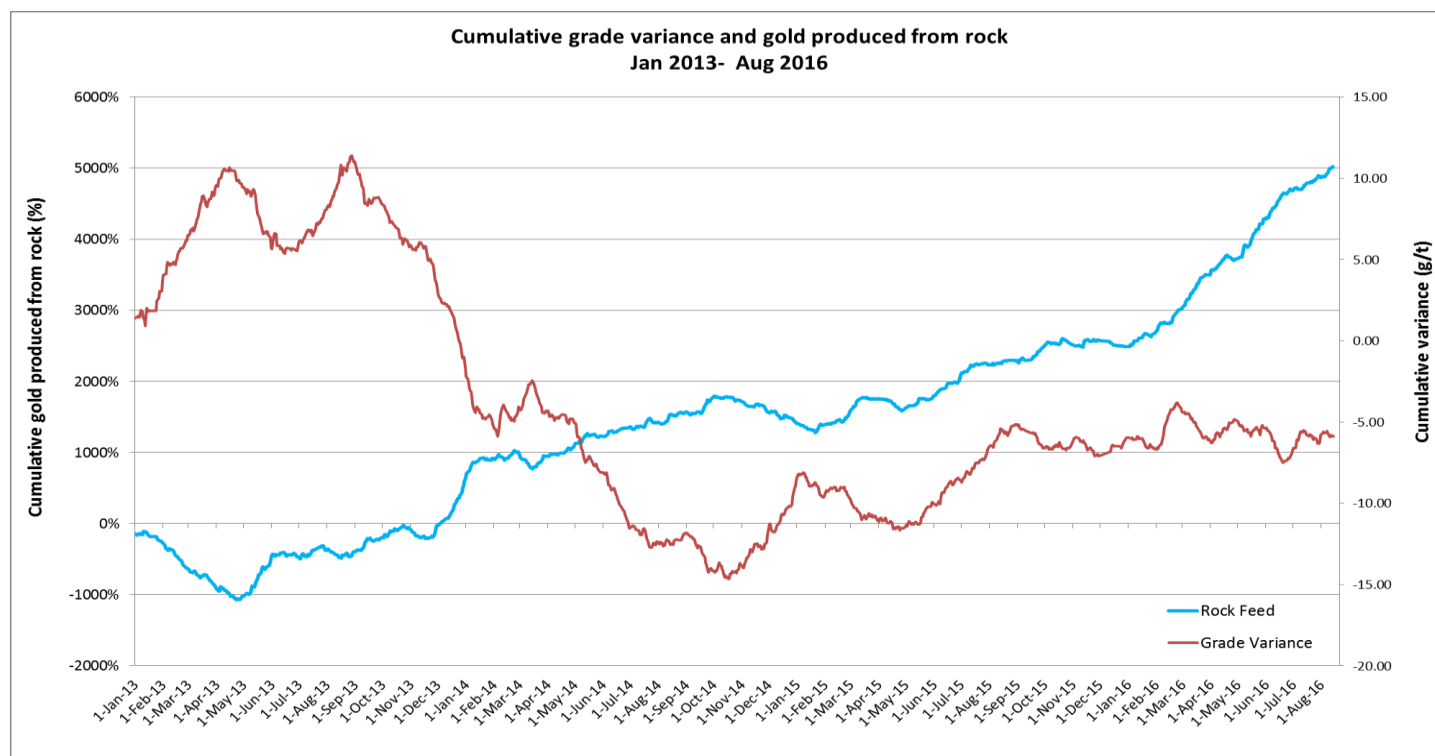


**Suresh Kalathil**  
**Grade Reconciliation**  
**Slides 44 – 47**



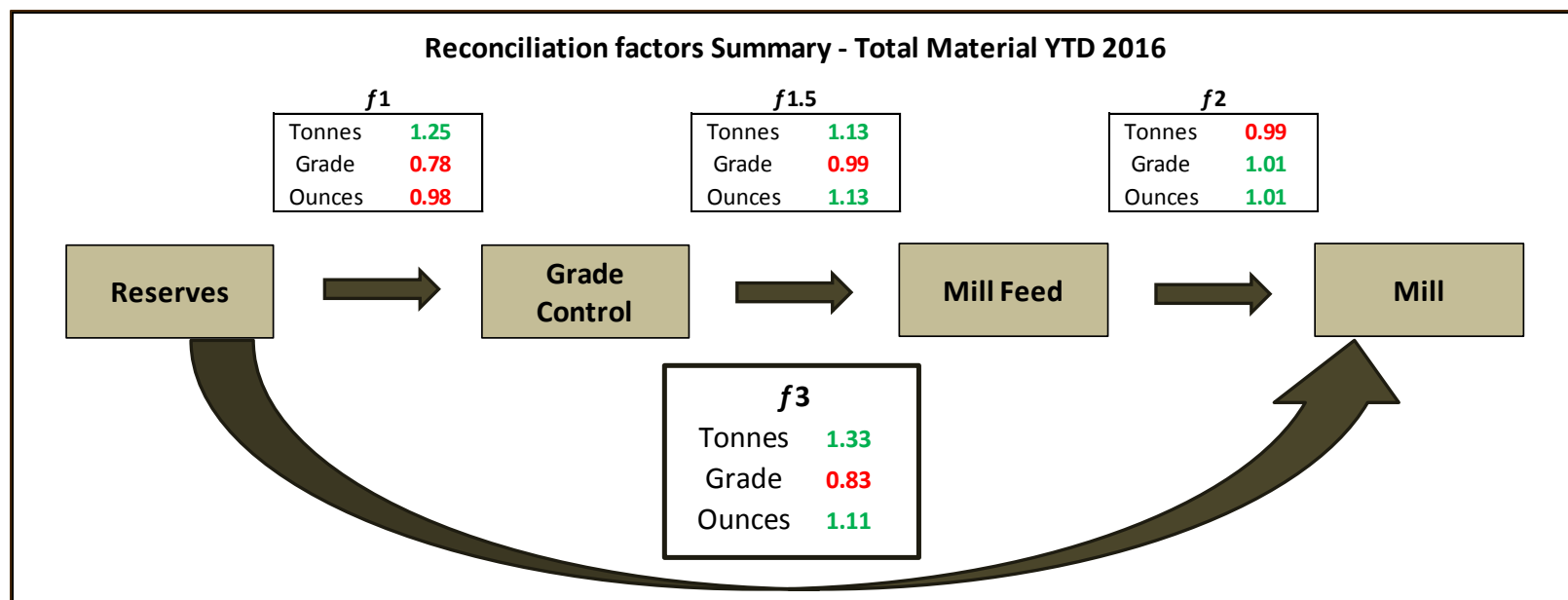
# Gold (Au) from Hard Rock: 2013 to present

- Negative variance between mill and mine became pronounced in 3<sup>rd</sup> Qtr.-2013
- Stabilization in H2-2014
- May 2015 (ROM stockpile & increased BMM usage) = improvement & stabilization



# Reconciliation – YTD

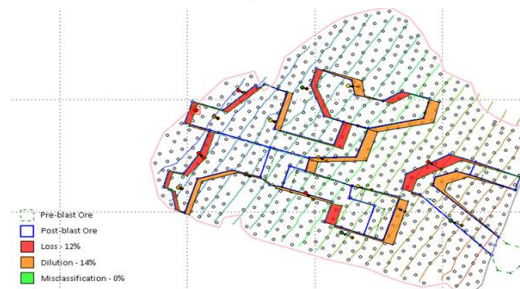
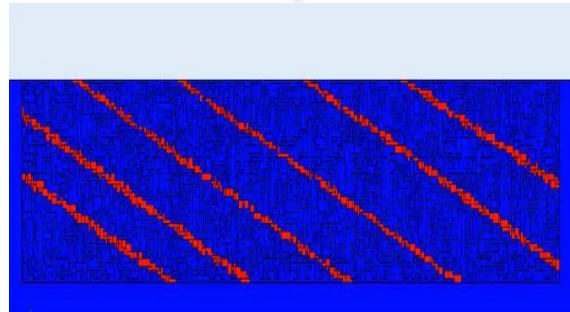
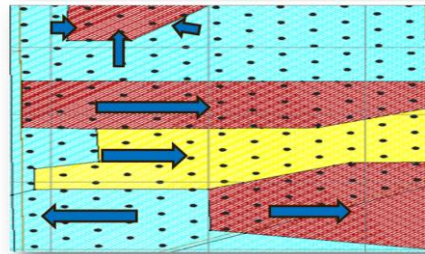
- **F1:** Reserves (undiluted) vs designed ore packets (diluted)
- **F1.5:** Designed ore packets vs mine production to mill
- **F2:** Mill feed vs Mill reported
- **F3:** Reserves (undiluted) vs Mill reported (diluted)



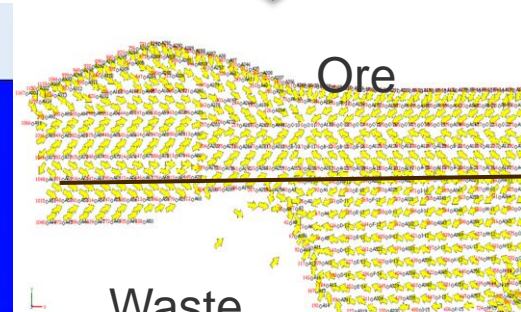
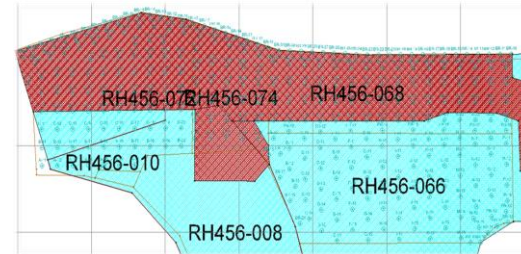
# Dilution Management Methodologies

- **Blast design and requirements are decided by size and shape of ore packets**
  - Uniform movement along the strike
  - Reduce movement in ore shots
  - Segregation of ore from Waste
- **Irregular shape ore bodies using blast movement monitors and standup blasts**
- **Wider ore packets can be separated effectively using segregation blasts**

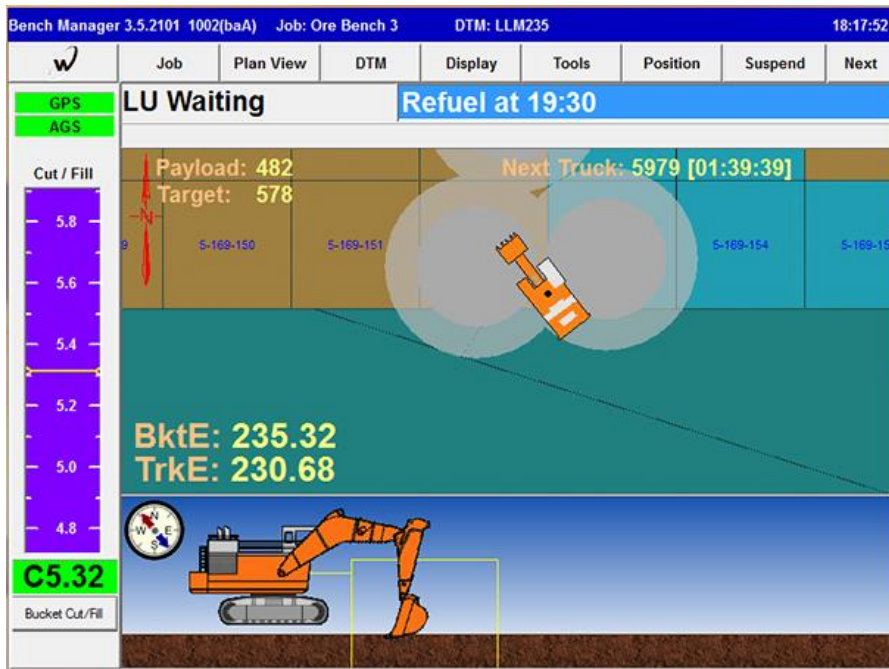
BMM + Standup blast



Segregation



# Wenco High Precision Positioning & Guidance



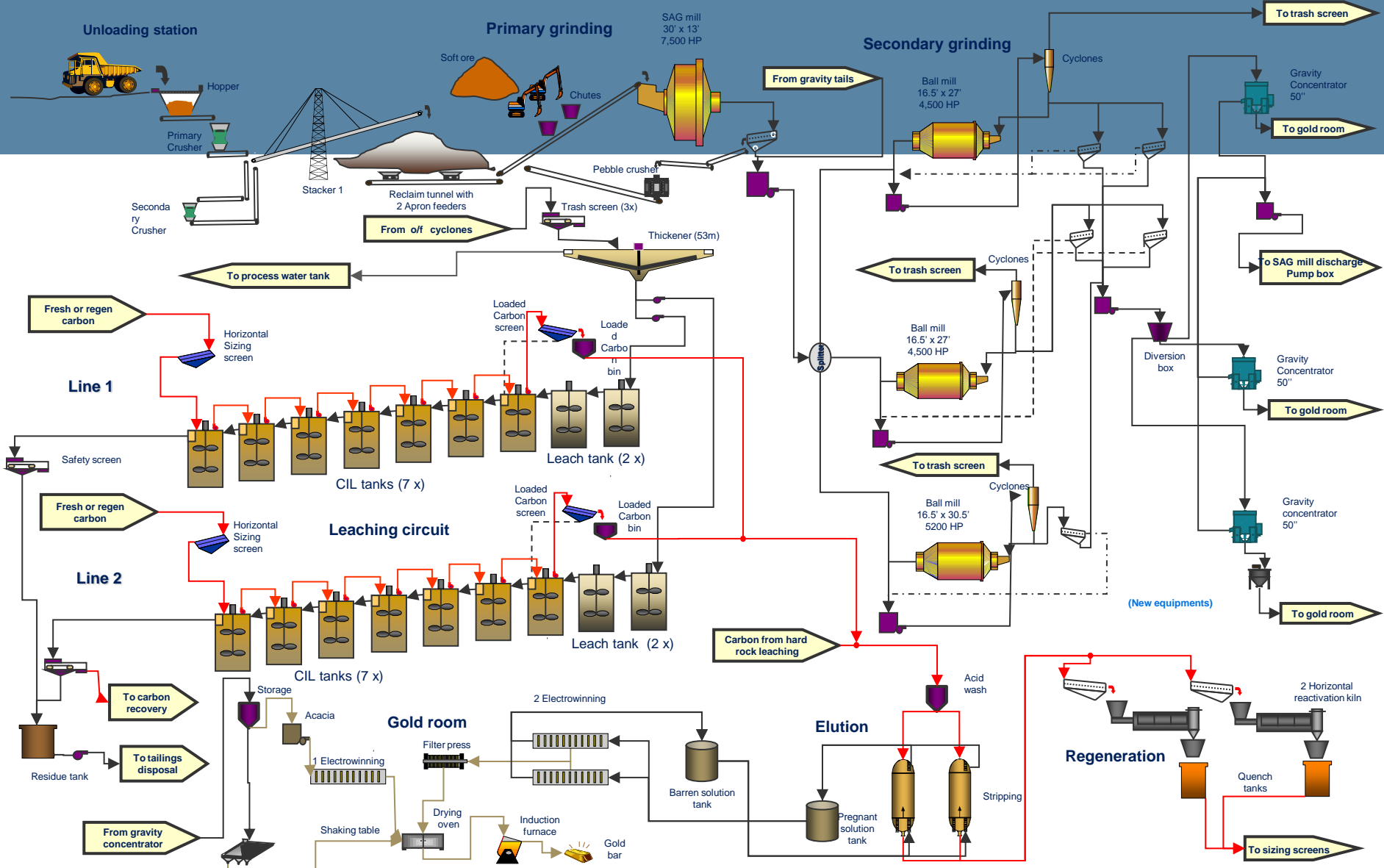
- Bench Manager + Arm Geometry System
- Precise, accurate positioning of bucket for automated declaration of material, real time face & floor survey, control of digging accuracy



# Mill



## John Grignon Mill Slides 49 – 64



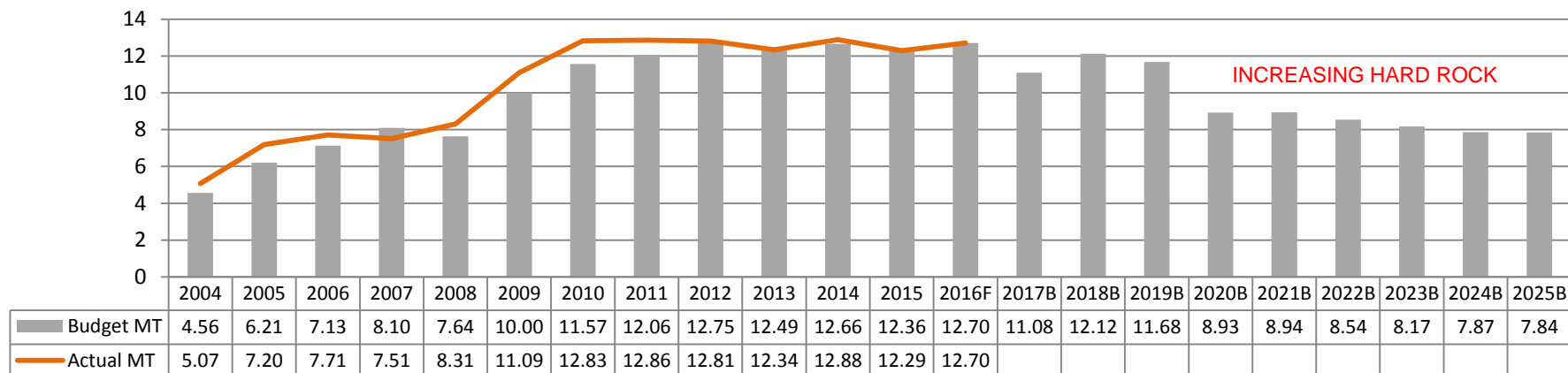
Designed:	P. Pelletier, ing.	2010-12-20
Drawn:	M. Deshaies, ing.	2010-01-08
Approved:	P. Pelletier, ing.	2010-12-20

<b>Project :</b>	Rosebel Mine
<b>Title :</b>	Base Case- Mixed Ore Circuit Third Ball Mill Addition

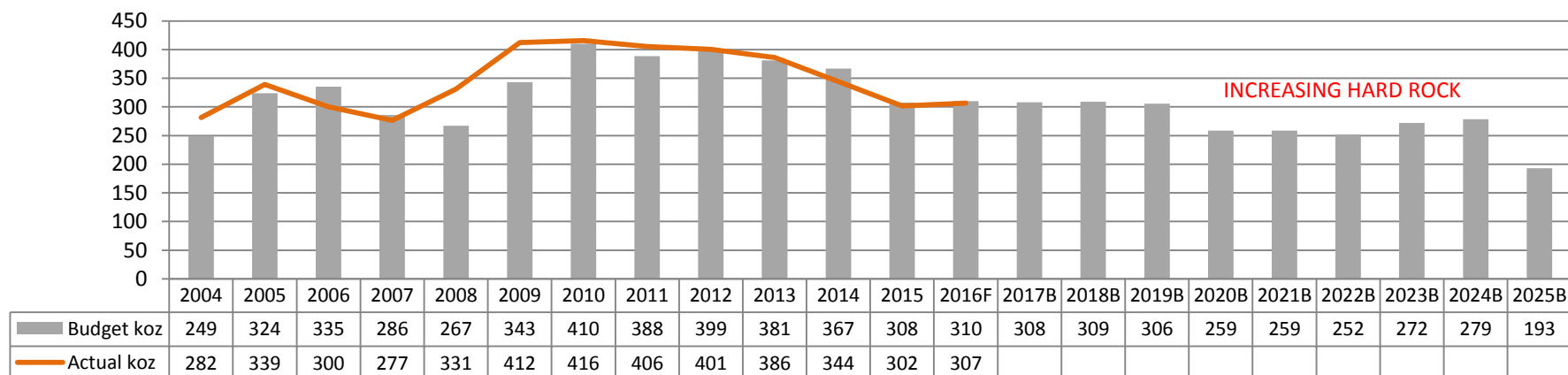
Rev.	Description	MO	DATE
0A	Modification of gravity	MO	12-20
1		By	DATE

# Historical Data – Mill Production

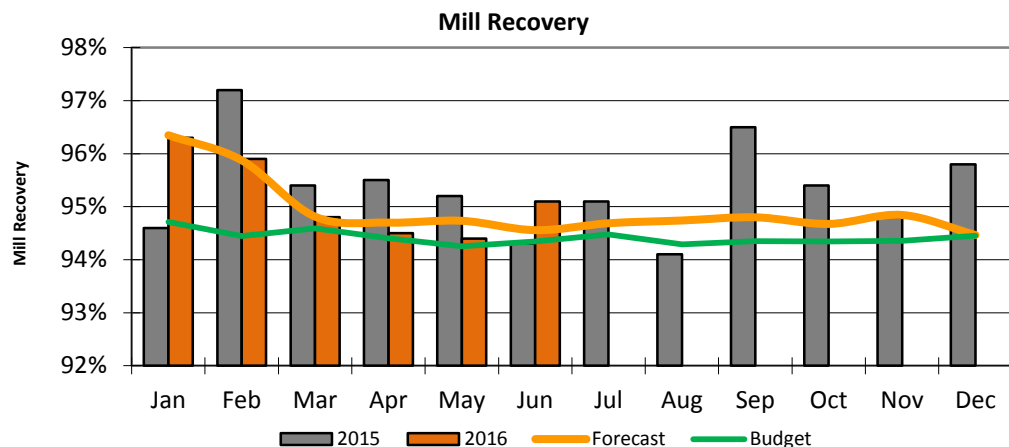
Mill Throughput (Mtpa) 2004 - 2025



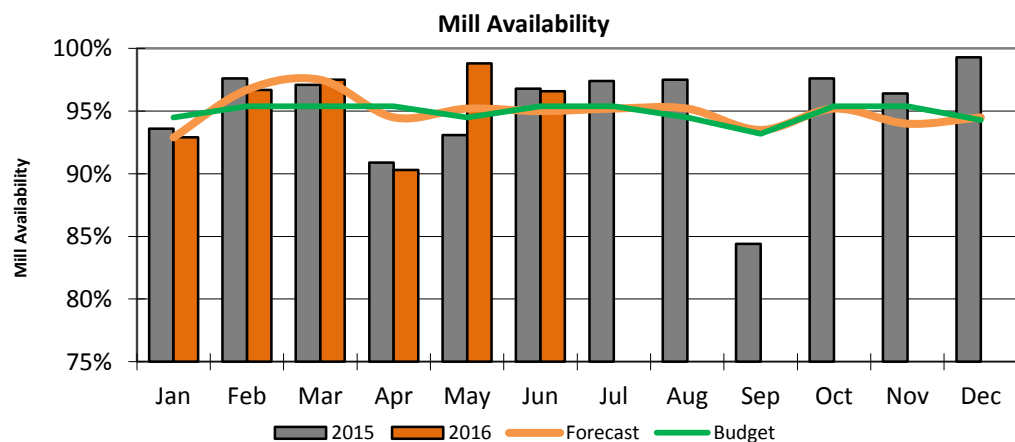
Mill Production (kcozs) 2004 - 2025



# Performance Highlights

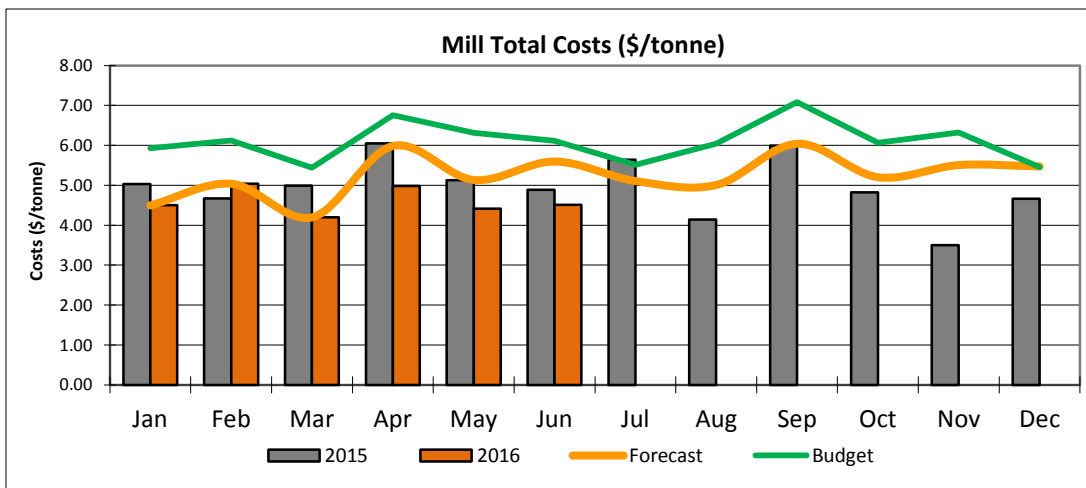


- Continued emphasis on acid wash, elution performance, gravity optimization and carbon handling is seeing benefits
- We Tjaring Waka” initiative, short interval controls and preventive maintenance



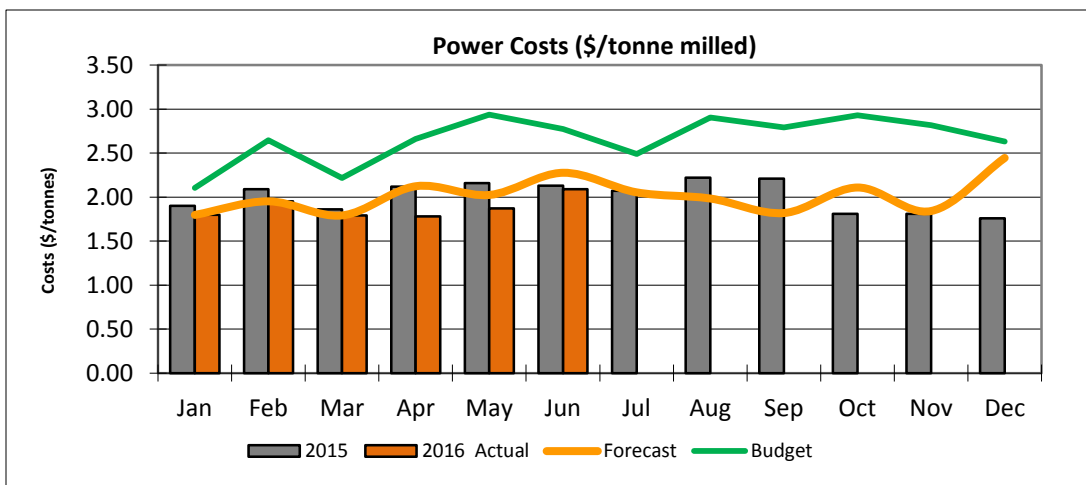


# 2016 Costs



## ■ Key Drivers

- Grinding media -\$1.2M, increased mill loads
- Freight +\$184K, reduced media / rates



## ■ Power flex drive

# Carbon Handling – Elution / Acid Wash Optimization

## ■ Audit Action Item Complete

### ■ Elution

- Optimize elution efficiency including,  
Cycle time – 1.7 strips / day to 2.0 strips / day : **COMPLETE**

### ■ Acid Wash

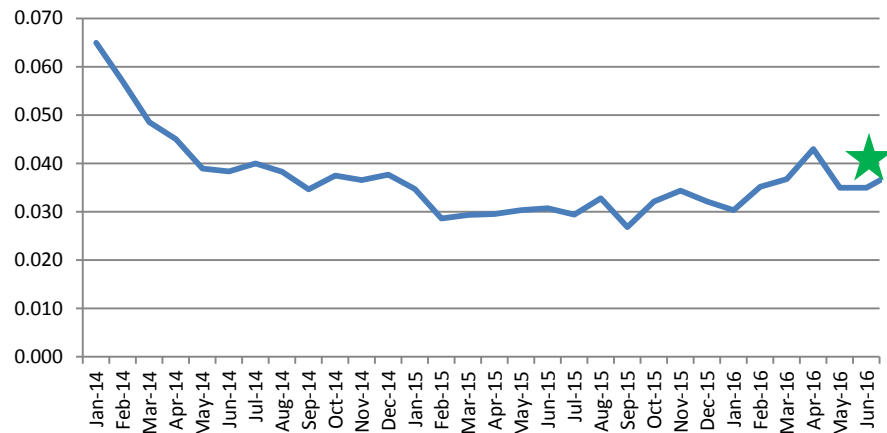
- Optimize wash efficiency through reagent mix protocols : **COMPLETE**
- Acid wash cycle and flush cycle and flow rate : **COMPLETE**
- Increase process capacity with installation of 10t vessel – with other initiatives complete, carbon calcium loading have decreased from 8% to 5<%

### ■ Observed Gains

- Reduced carbon inventory : 620t (Jan'14 to 450t June'16)
- Reduced circuit inventory : 22k oz (Jan'14) to 10k oz (June 16)
- Reduced solid losses : 0.065g/t (Jan'14) to 0.035g/t (June 16)
- Reduce solution losses : 0.102g/t (Jan'14 ) to 0.029g/t (June 16)

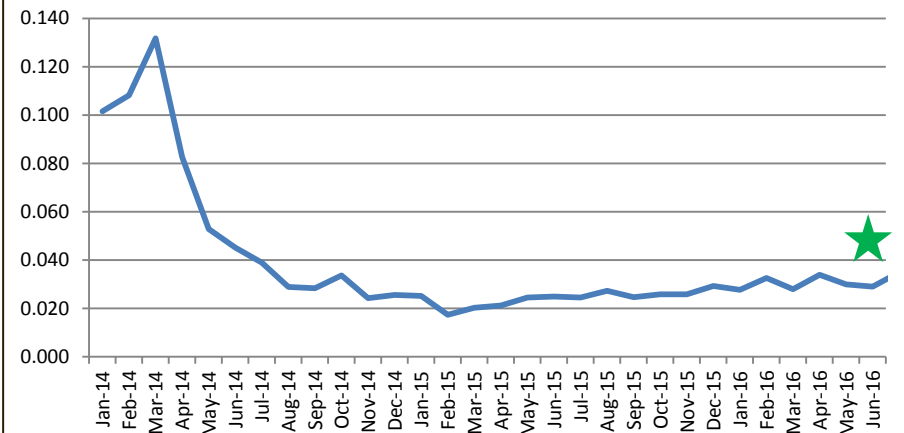
# Key Opportunities – Solid / Solution Losses

Process Solid Losses (Au g/t)



- Cyanide addition strategy – grinding vs leach addition.
- Engineered stockpile – stable feed conditions, stable mill charges at primary and secondary = grind consistency
- 0.050g/t to 0.030g/t = \$9M/year cash flow

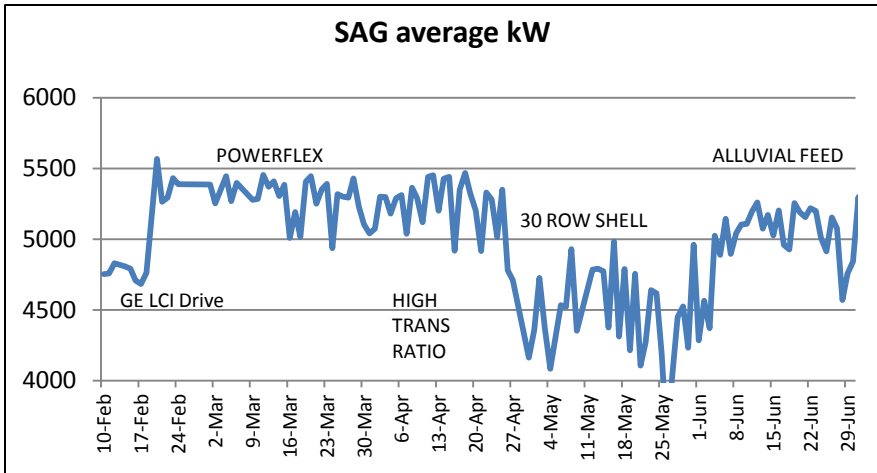
Process Solution Losses (Au g/t)



- Cyanide addition strategy / Engineered stockpile
- Carbon management – reduced carbon inventory, optimized acid washing, carbon profiling, elution performance
- 0.060g/t to 0.030g/t = \$14M/year cash flow

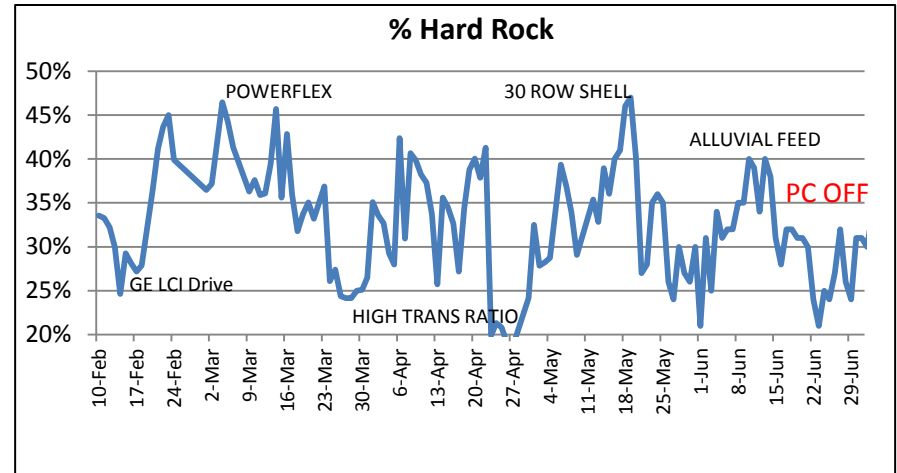
# Key Opportunities – SAG Powerflex Drive / 30 Row Shell

**SAG average kW**



- **Powerflex drive vector control allows for continued operation at increased torque over LCI at same current input**
- **30 row sees reduced power draw and increased bearing pressure – now operate to target pressure**

**% Hard Rock**

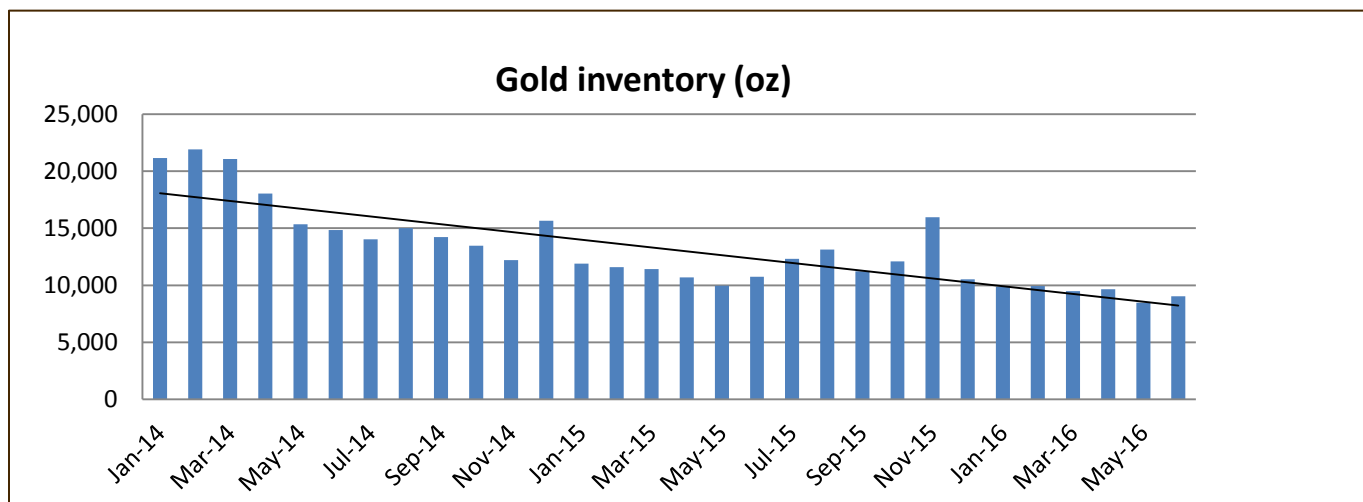


- **Conveyor 2 run rate has realized an increase of ~25%**
- **Mill hard rock feed has increased from ~10%**
- **30 row sees higher performance however increased run rate & transition ratio has not allowed for full potential**



## 2014 – 2016 Performance – Carbon – Elution / Acid Wash

- **Late 2013 seen deteriorating conditions with high carbon calcium loading (8%) resulting in CIL solution losses rising above 0.140g/t. In house initiatives including**
  - Acid wash optimization – multiple batch soakings with fresh reagent
  - Elution optimization – Loaded carbon pre-wash prior to stripping with extended wash has seen significant reduction on heat exchanger cleaning requirements.
  - Carbon inventory reduction – carbon circuit inventory reduction from 620t to 425t



- **Realized reduction in Working Capital**

- Reduced circuit gold inventory – 22,248 ounces (January 2014) to 9,039 ounces (June 2016)

# 2016 Achievements

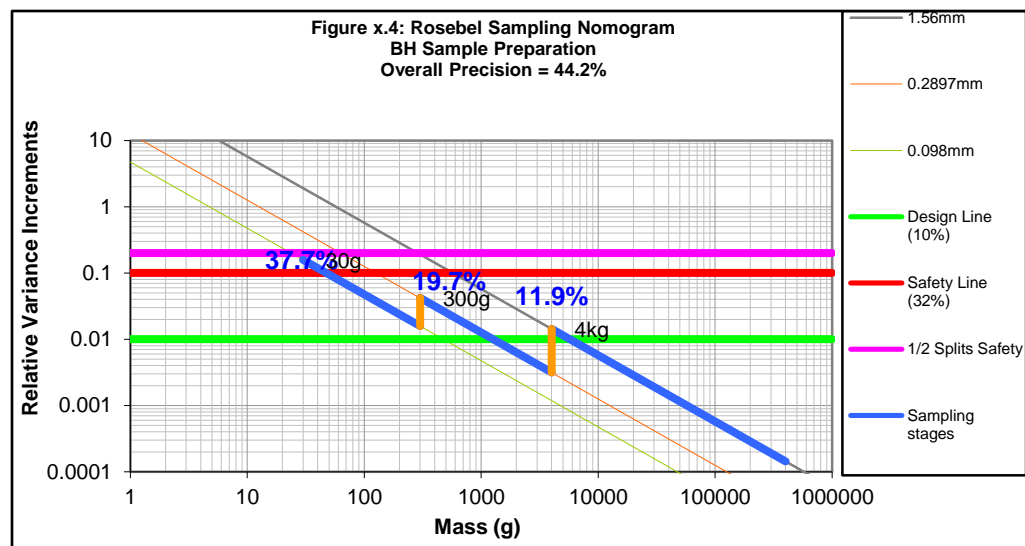
- **94% overall plant availability**
- **94 % recovery. Cyanide addition strategy and feed management being the contributors**
- **Costs: the Mill has seen significant forecast cost reductions for 2016 including**
  - Grinding media – \$2M – continued focus on expert system optimization and secondary grinding operating strategy to maintain maximized circulating loads is seeing advantage which represent a significant portion of the savings
  - Maintenance – \$800k – utilization of behavior model processes including; visual boards and short interval controls have continued to realize benefits
- **Secondary Crusher: on track and budget, commissioning in December**

# Mill Laboratory – Opportunities / Innovation

## ■ PAL

- Improved sample representation
- Increased sample size for processing 300g vs 30g fire assay
- Reduced analytical costs, \$1.00/determination vs fire assay \$3.00/determination
- Single PAL machine 416/ determinations/day with current (3) PAL machines at 1,248 determinations

## ■ Estimated direct cost saving of \$60k/month



# Mill Opportunities – Innovation

## COMMINUATION OPTIMIZATION

September 2015 – media change initiated

May 2016 – SAG 30 row installed

### Phase 1A

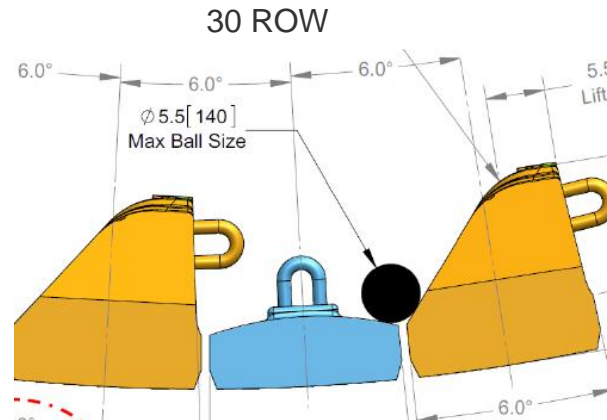
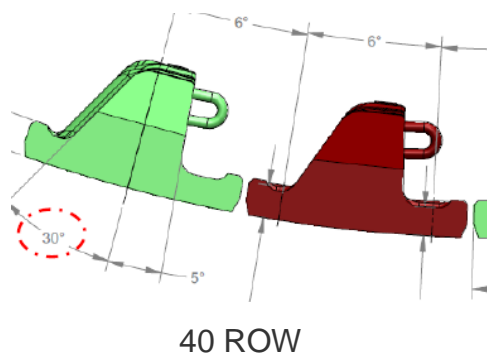
- Grinding Media
  - SAG move from 125mm to 140mm
  - Ball Mills, move from 63mm to 75mm
- SAG shell liners – move from 40 row to 30 row
- SAG pulp chambers to be modified (in process)

### 40 ROWS OF LIFTERS

- Lifter gap = 250 mm
- Bucket volume = 0.27 m<sup>3</sup>
- Volume per rev = 10.6 m<sup>3</sup>
- % of mill charge = 16%

### 30 ROWS OF LIFTERS

- Lifter gap = 490 mm
- Bucket volume = 0.54 m<sup>3</sup>
- Volume per rev = 15.6 m<sup>3</sup>
- % of mill charge = 24%
- Cost = nil
- Benefit: fit a bigger hammer into the gap
- Risks: if mill runs empty, you'll smash the liners
- Mitigation = Expert System



### BIGGER HAMMERS = REDUCED MEDIA AND CN CONSUMPTION

- 125 mm SAG ball = 8.8 kg = most commonly used ball
- 140 mm ball = 11.4 kg
- Risk Mitigation: Expert System, trajectory modelling, & microphones on SAG to monitor noise levels
- Additional benefit = bigger balls consumed at a lower rate: proportional to diameter, e.g. 152 mm ball consumption rate =  $1 \div (152/125) = 0.82$  = 18% fewer balls: opex savings for both balls and cyanide.



# Mill Opportunities - Innovation

## SECONDARY CRUSHING

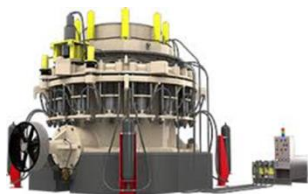
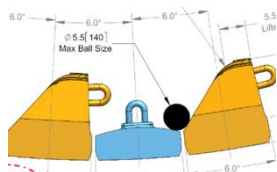
December 2016 – 7' in service



# 2016 Key Opportunities – Phase 1 Summary



**PowerFlex**  
700



- Base case - 1SAG + 3BM LCI Drive
- **6.9Mtpa at 90% Hard Rock**
- PowerFlex – Increased torque = +5% HR
- **7.5Mtpa at 90% Hard Rock – March 2016**
- 30 row SAG shell liner installation = +5%
- **8.0Mtpa at 90% Hard Rock – May 2016**
- Secondary Crusher installation = +10%
- **9.0Mtpa at 90% Hard Rock – December 2016**
- **Phase 1 total benefit = +20%**
- **At 0.9g/t, 94% Recovery & \$1250/oz = \$51M / year cash flow**
- **At \$1100/oz AISC & \$1250/oz = 6.0M / year -\$20/oz**

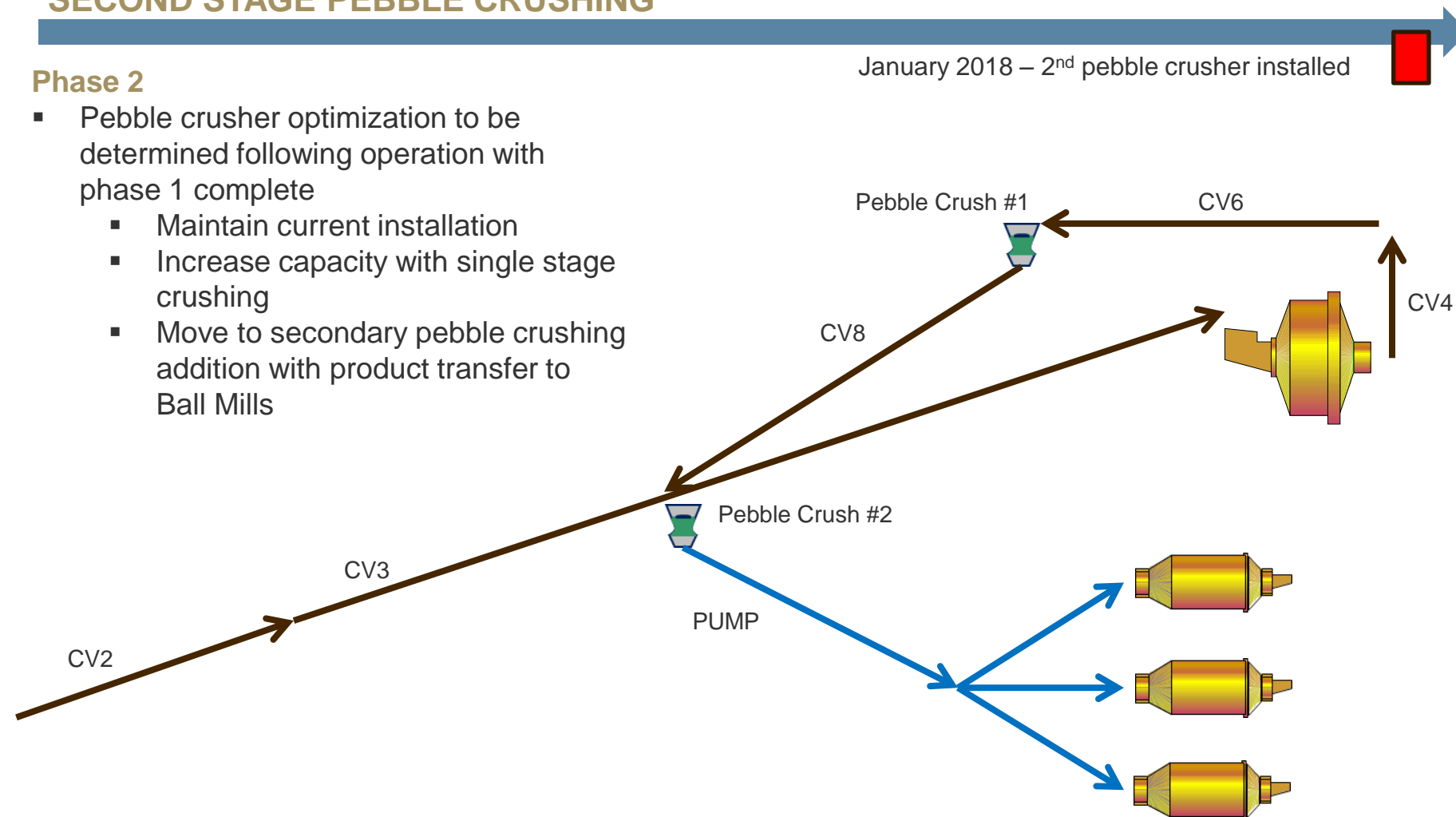
# Mill 2016 Opportunities – Innovation

## SECOND STAGE PEBBLE CRUSHING

### Phase 2

- Pebble crusher optimization to be determined following operation with phase 1 complete
  - Maintain current installation
  - Increase capacity with single stage crushing
  - Move to secondary pebble crushing addition with product transfer to Ball Mills

January 2018 – 2<sup>nd</sup> pebble crusher installed

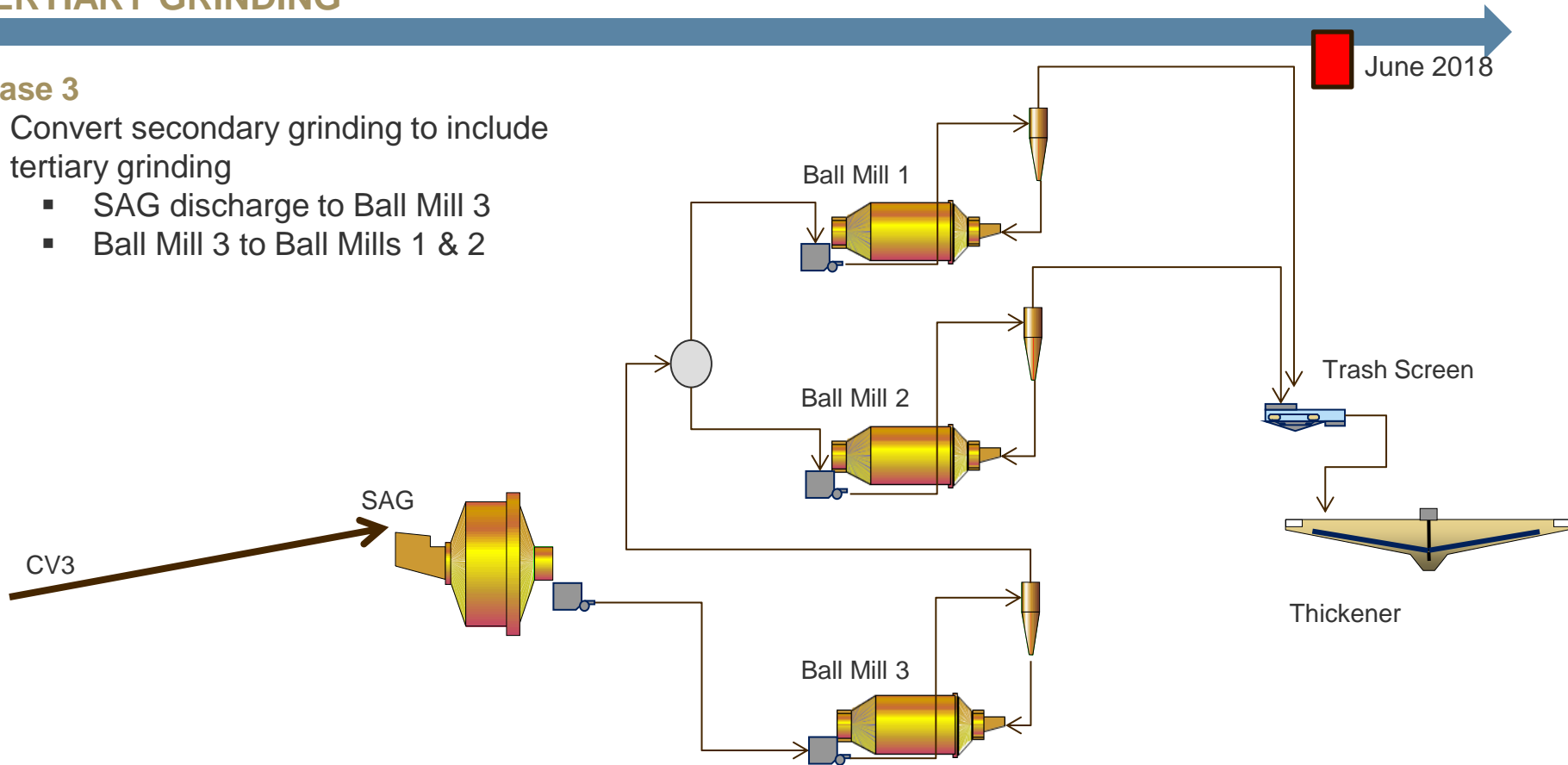


# Mill 2017 Opportunities – Innovation

## TERTIARY GRINDING

### Phase 3

- Convert secondary grinding to include tertiary grinding
  - SAG discharge to Ball Mill 3
  - Ball Mill 3 to Ball Mills 1 & 2



# Comminution Optimization – Phase 1, 2, 3



## ■ POTENTIAL GAINS

- 20 % increase in hard rock capacity – 9Mtpa at 90% HR vs 7.5Mtpa
- >5% reduction in media consumption
- >5% reduction in cyanided consumption
- = reduced unit costs
- = reduced unit power consumption
- = increased gold production





# Exploration



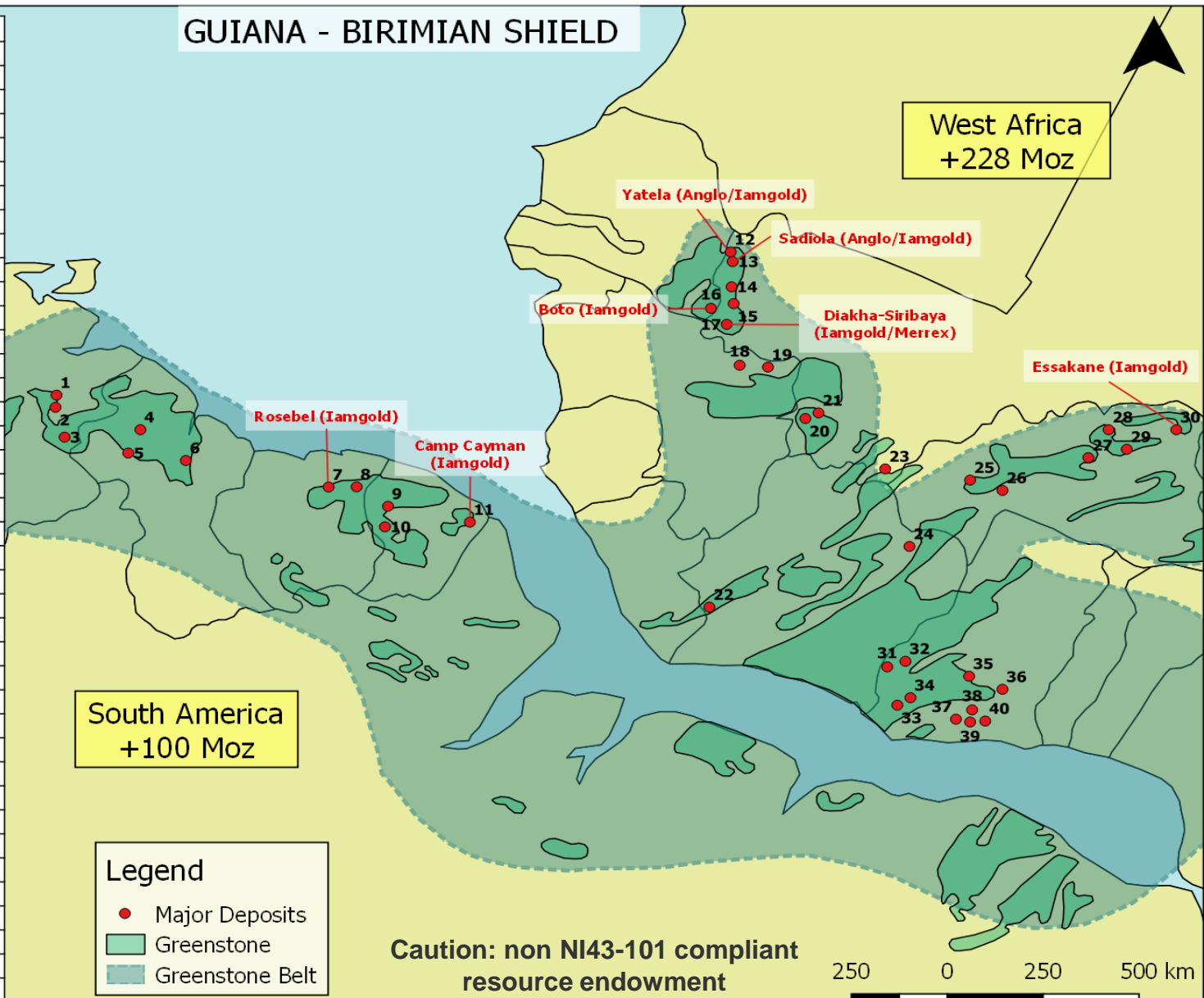
## Ian Stockton Exploration Slides 66 – 90

## Cautionary Statement

***Exploration target potential referred to in this presentation is conceptual in nature and insufficient exploration work has been completed to define a mineral resource. The targets will require significant future exploration to advance to a resource stage and there can be no certainty that the exploration target will result in a mineral resource being defined. The target ranges are consistent with deposits currently being mined at IAMGOLD's Rosebel operations.***

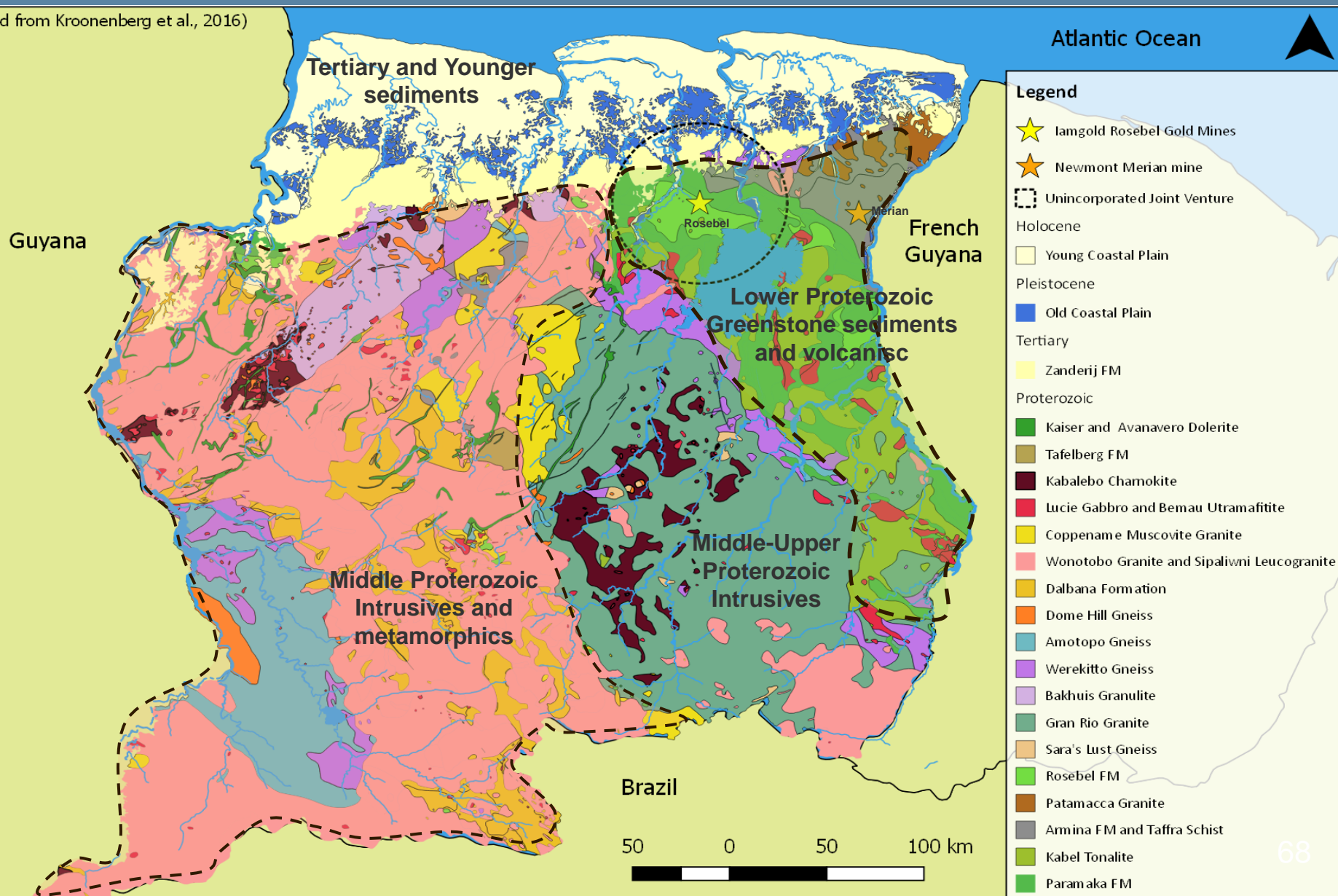
# Pangea Greenstone Belt

No.	Deposit	Company
1	La Victoria	Crystallex
2	Choco 10	Rusoro
3	Las Cristinas	Crystallex
4	Aurora	Guyana Goldfields
5	Toroparu	Sandspring
6	Omai	Mahdia
7	Rosebel	Iamgold
8	Merian/Nassau	New mont
9	Montagne d'Or	Columbus Gold
10	Yauu-Dorlin	Auplata
11	Camp Cayman	Iamgold
12	Yatela	Iamgold/AngloGold Ashanti
13	Sadiola	Iamgold/AngloGold Ashanti
14	Yalea-Tabakoto	Endeavour
15	Gounkoto	Randgold
16	Boto	Iamgold
17	Diakha-Siribaya	Iamgold/Merrex Gold Inc
18	Lefa	Nordgold
19	Singuiri	Anglo
20	Kalana	Avniel
21	Morila	Randgold/AngloGold Ashanti
22	Ity	La Mancha
23	Syama	Resolute
24	Tongon	Randgold
25	Mana	Semafo
26	Poura	New mont
27	Bissa	Nordgold
28	Inata	Avocet
29	Taparko	Nordgold
30	Essakane	Iamgold
31	Kenyase Ntotrosi	New mont
32	Ahafo	Goldfields
33	Chirano	Kinross
34	Bibiani	Noble Mineral
35	Akyem	New mont
36	Obuasi	AGC/AngloGold
37	Iduapriem-Teberebie	AngloGold Ashanti
38	Prestea	Golden Star
39	Tarkwa	Goldfields
40	Abosso/Damang	Abosso Goldfields



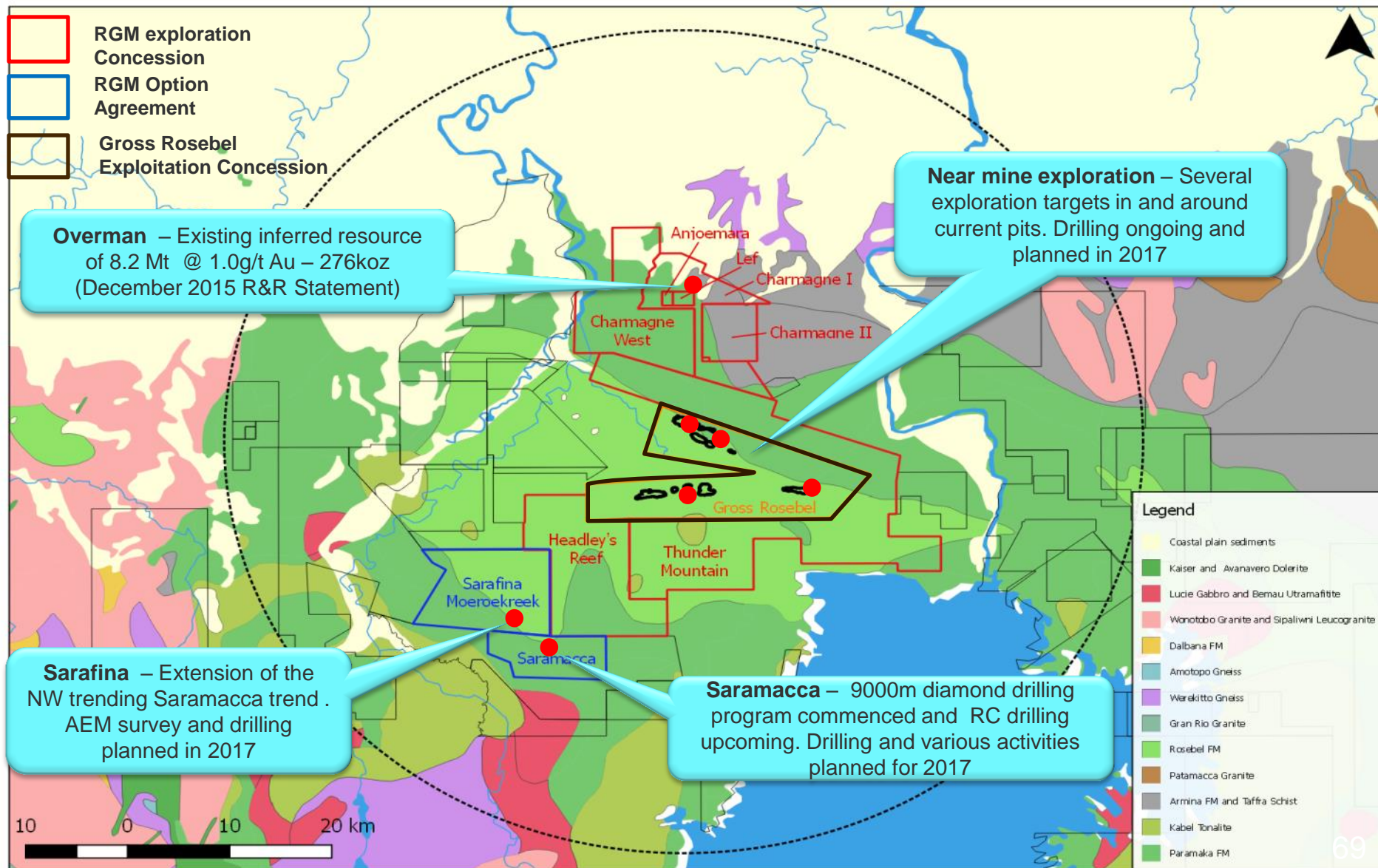
# Geology of Suriname

(Edited from Kroonenberg et al., 2016)





# Exploration Pipeline





# Near Pit

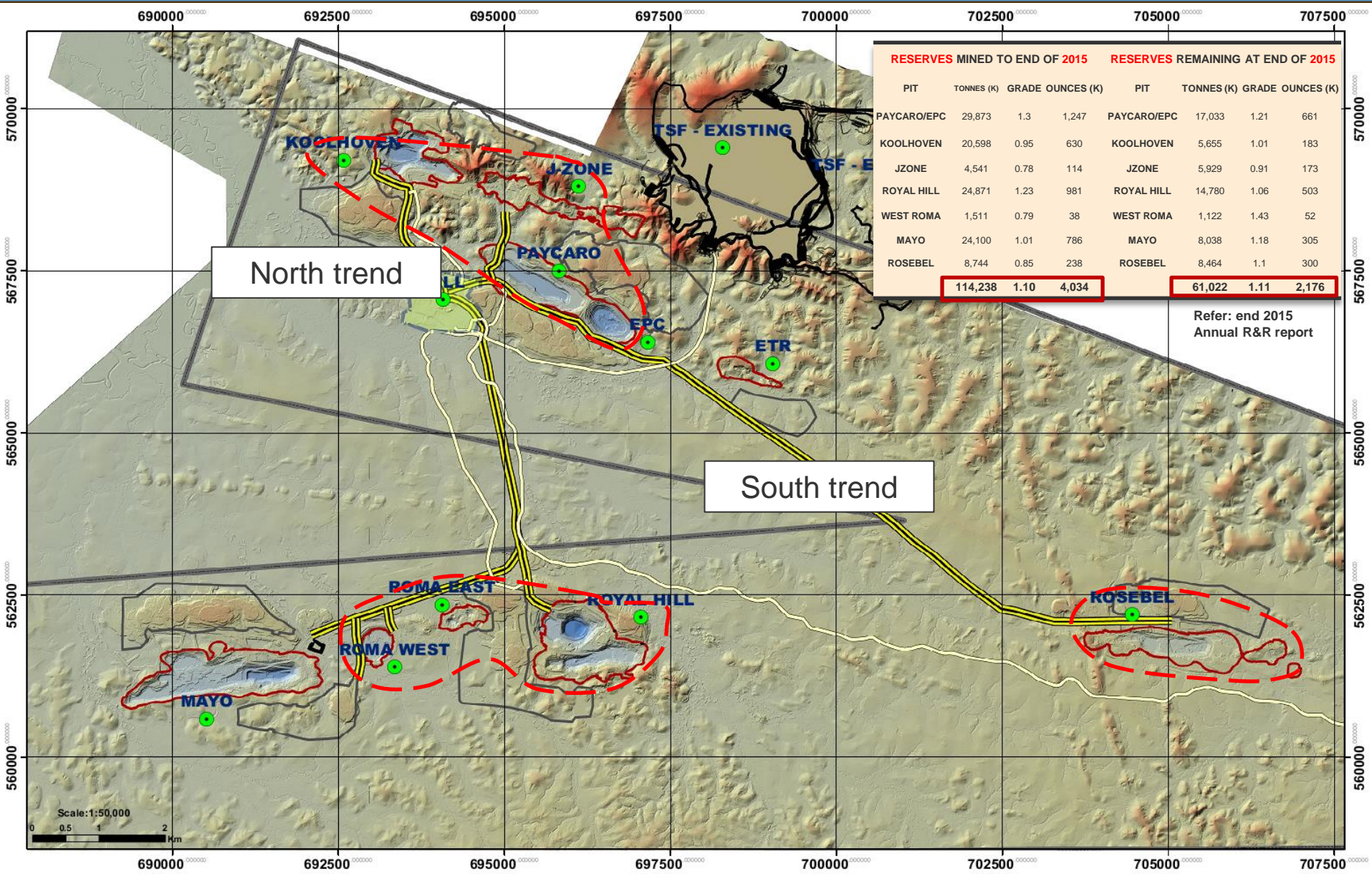


**Near Pit**

**Slides 71 – 78**

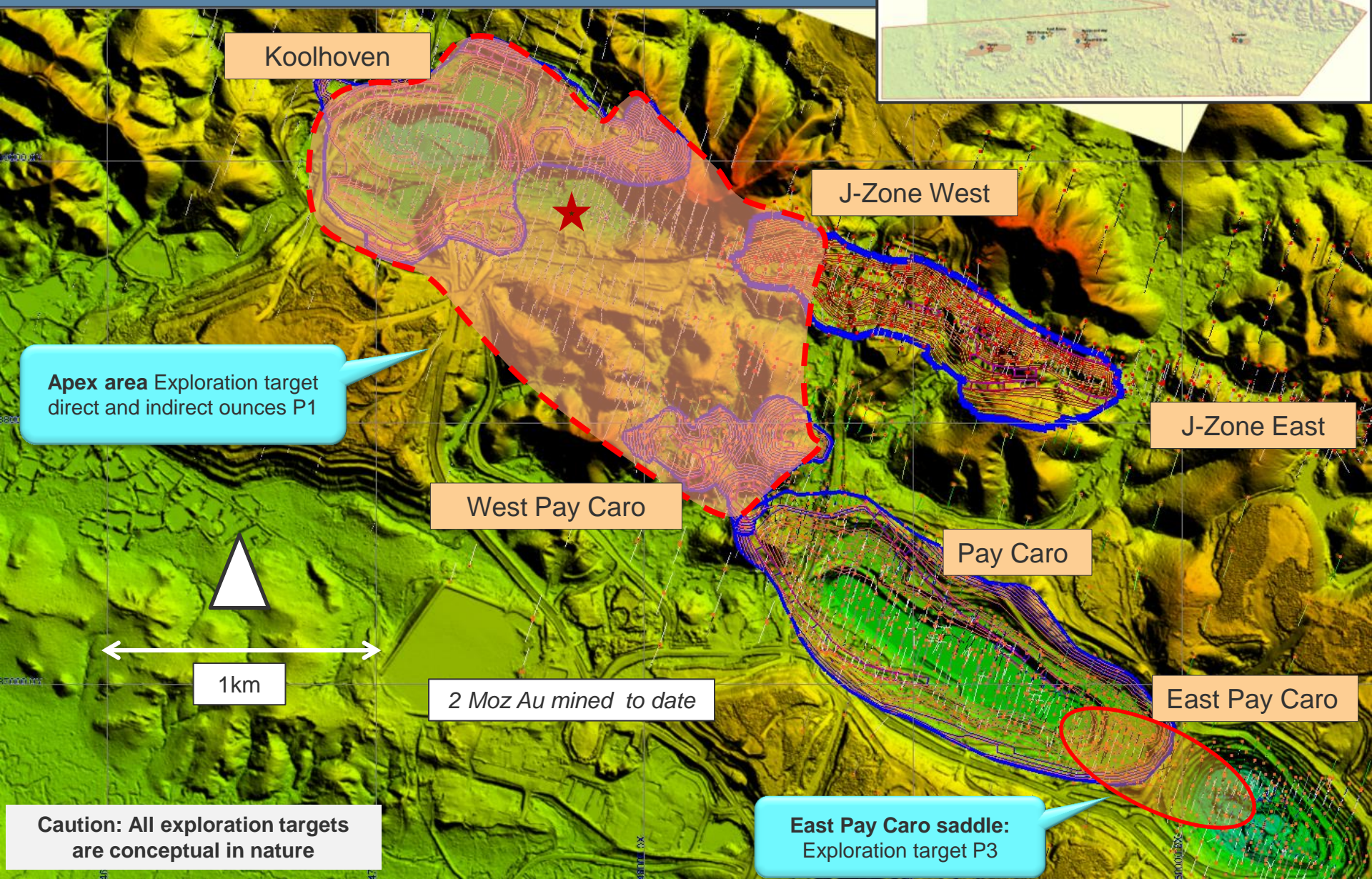


# Rosebel Exploitation Concession



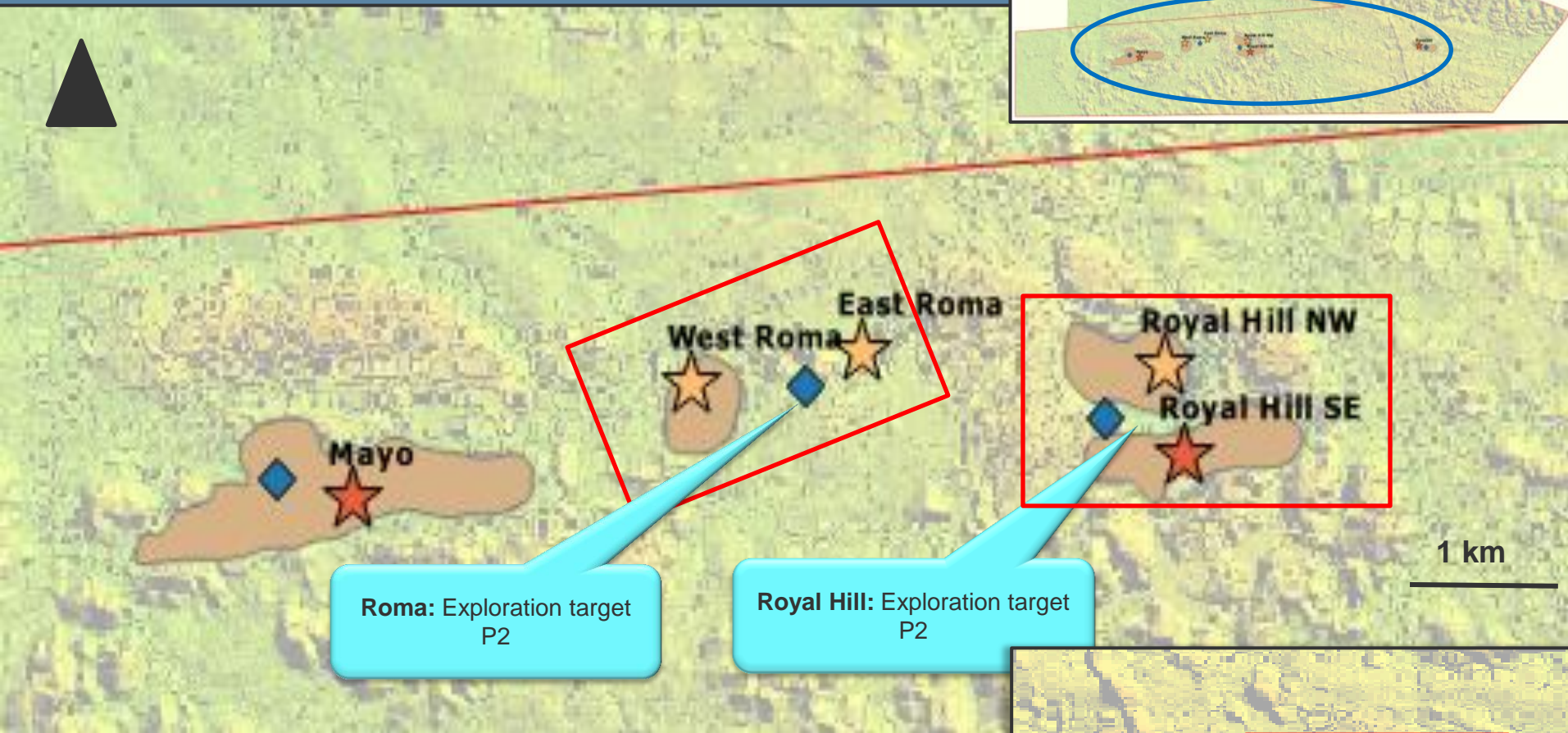
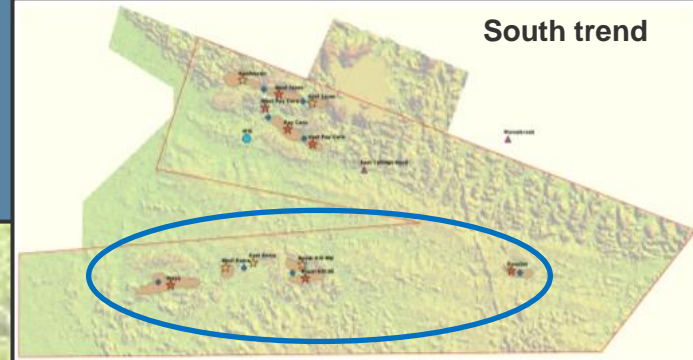


# Near Pit Exploration – North Trend



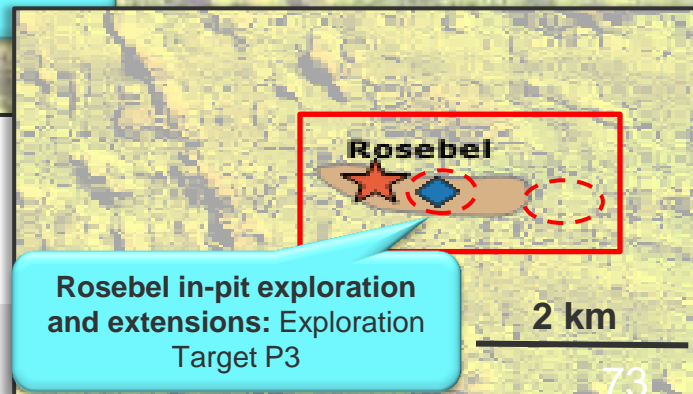
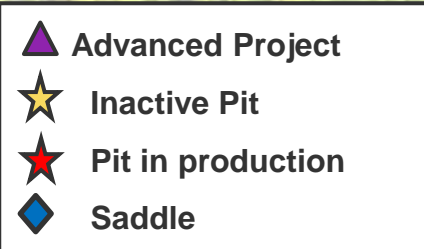


# Near Pit Exploration – South Trend



Roma: Exploration target  
P2

Royal Hill: Exploration target  
P2

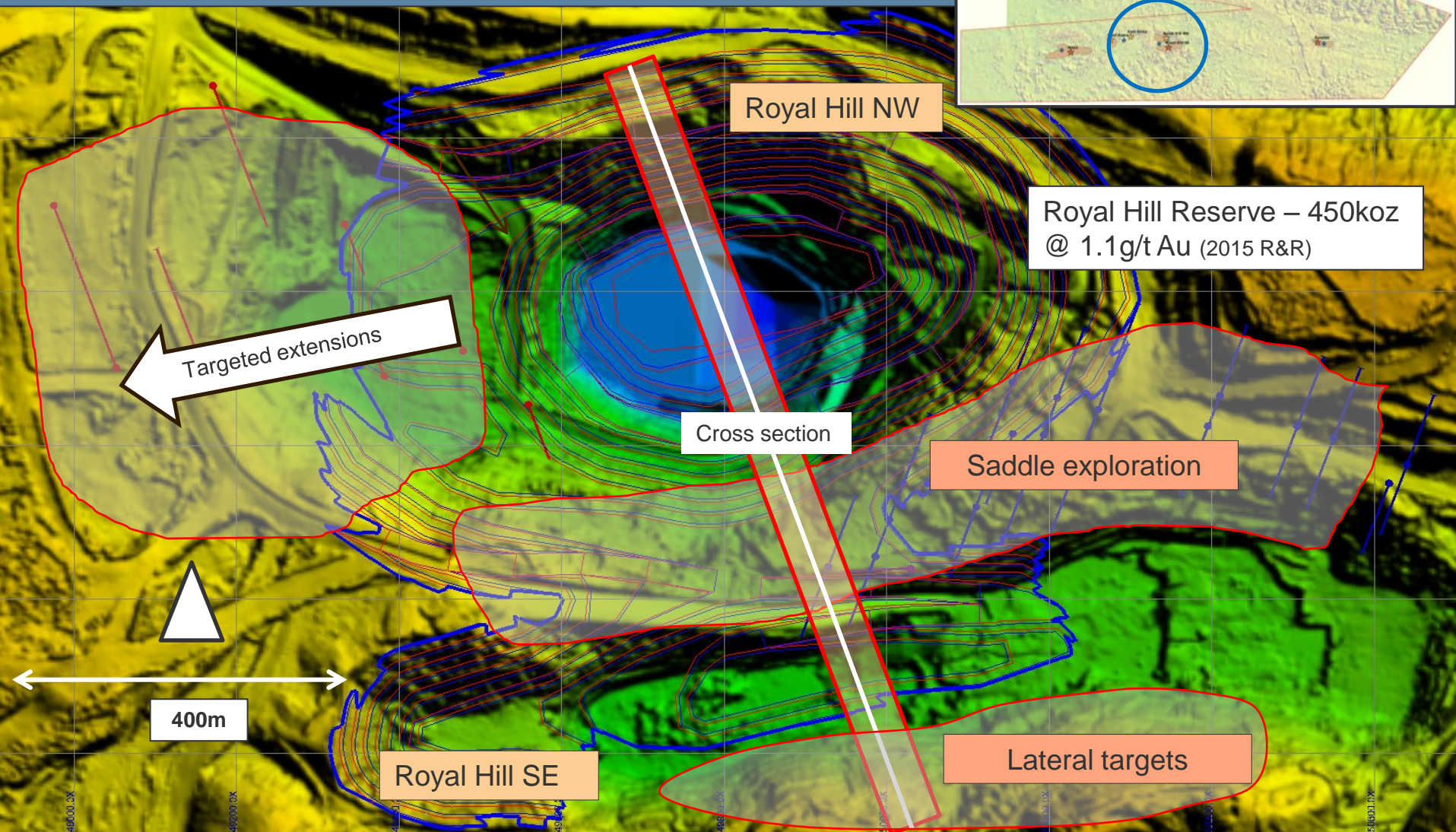


Rosebel in-pit exploration  
and extensions: Exploration  
Target P3

*Caution: All exploration targets  
are conceptual in nature*

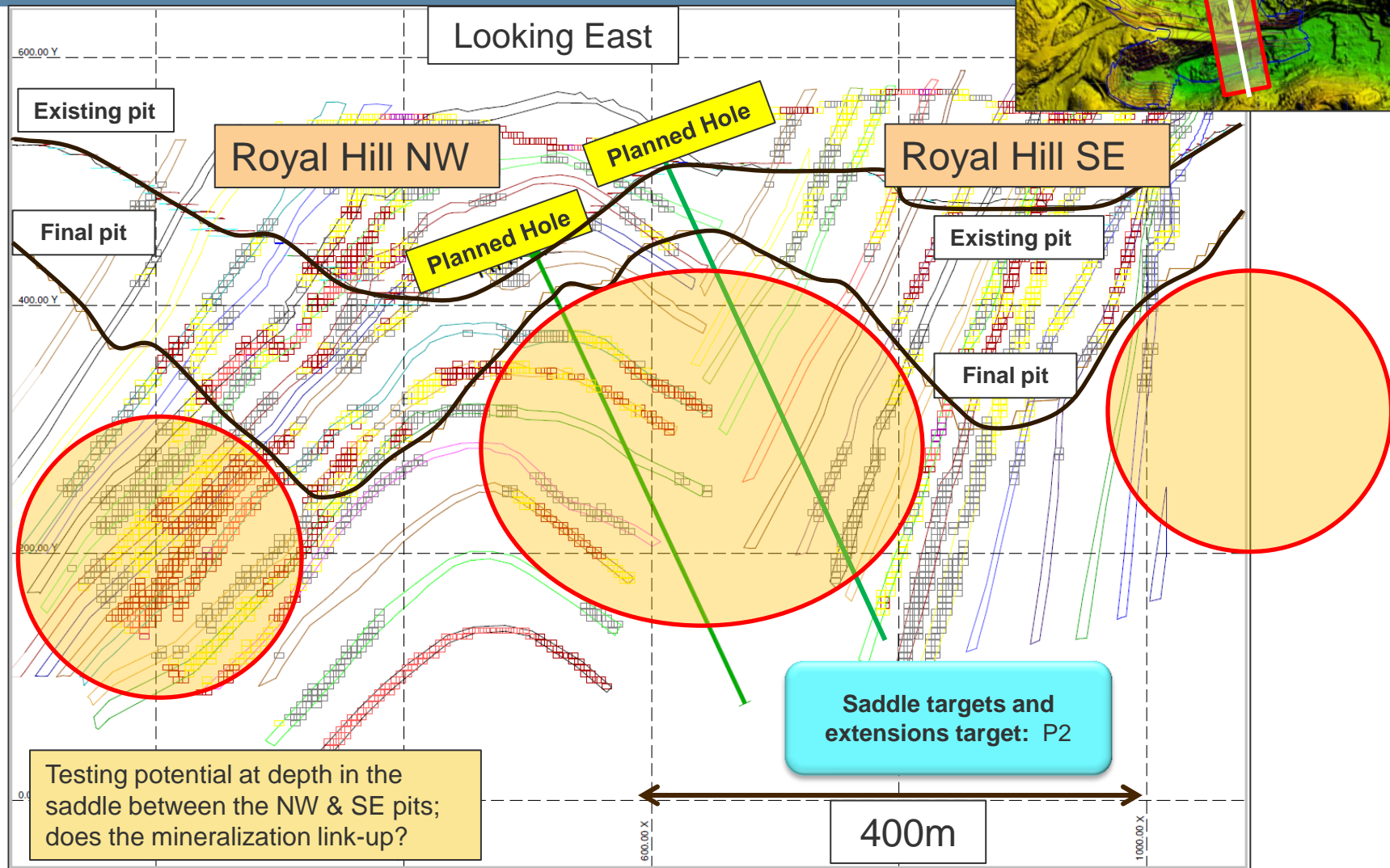


# Near Pit Exploration – Royal Hill Pits

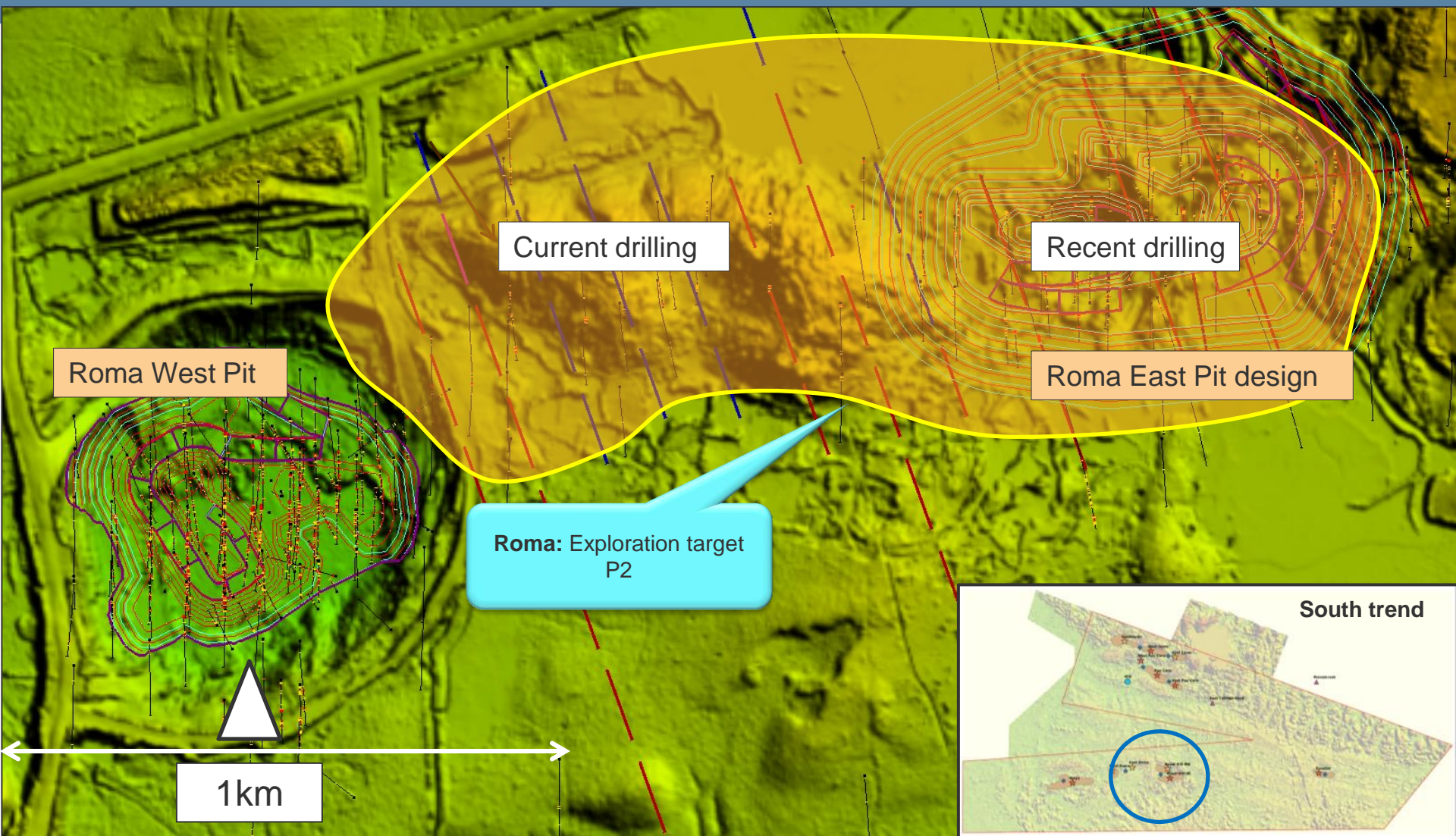




# Near Pit Exploration – Royal Hill Cross Section

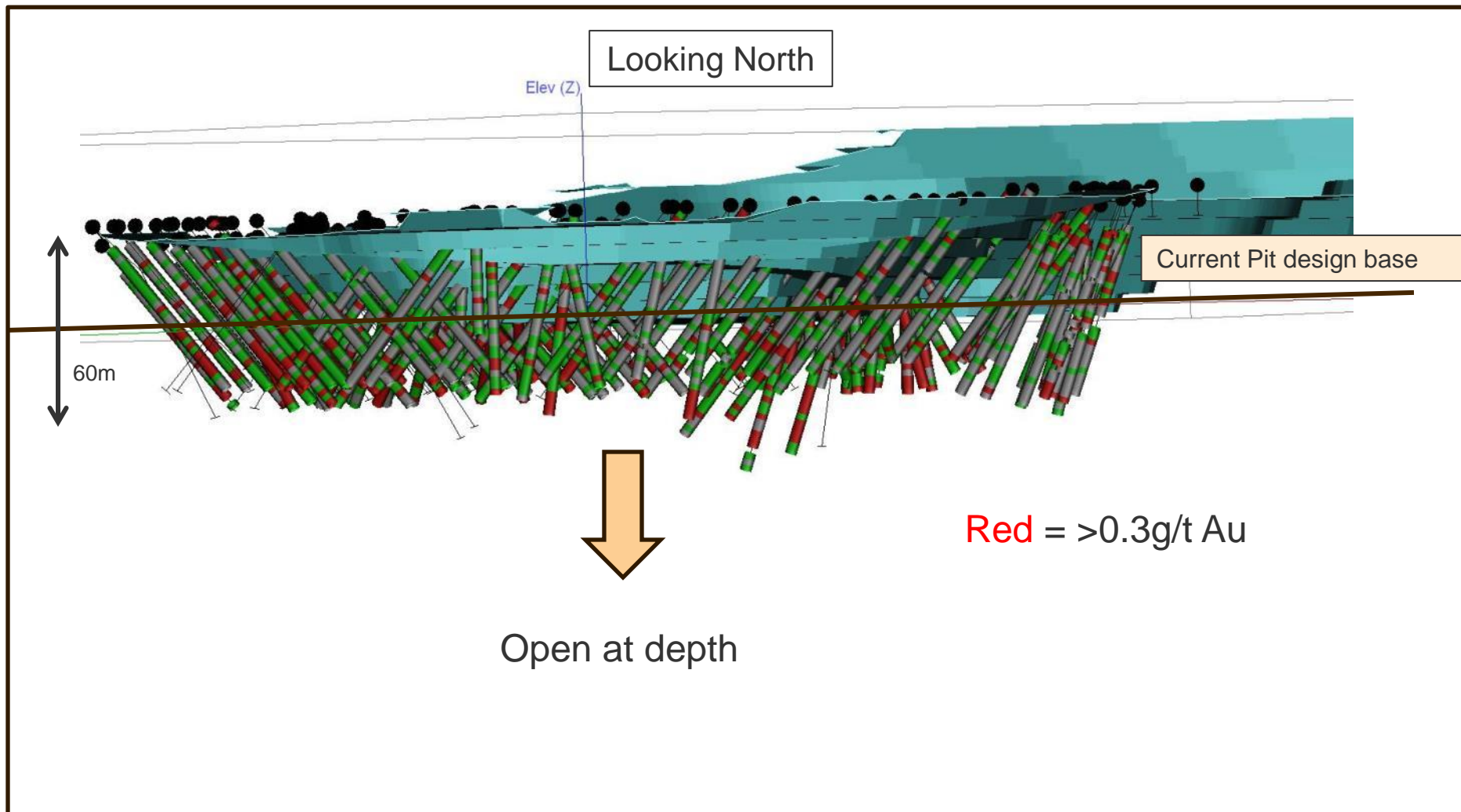


# Near Pit Exploration – Roma Pits

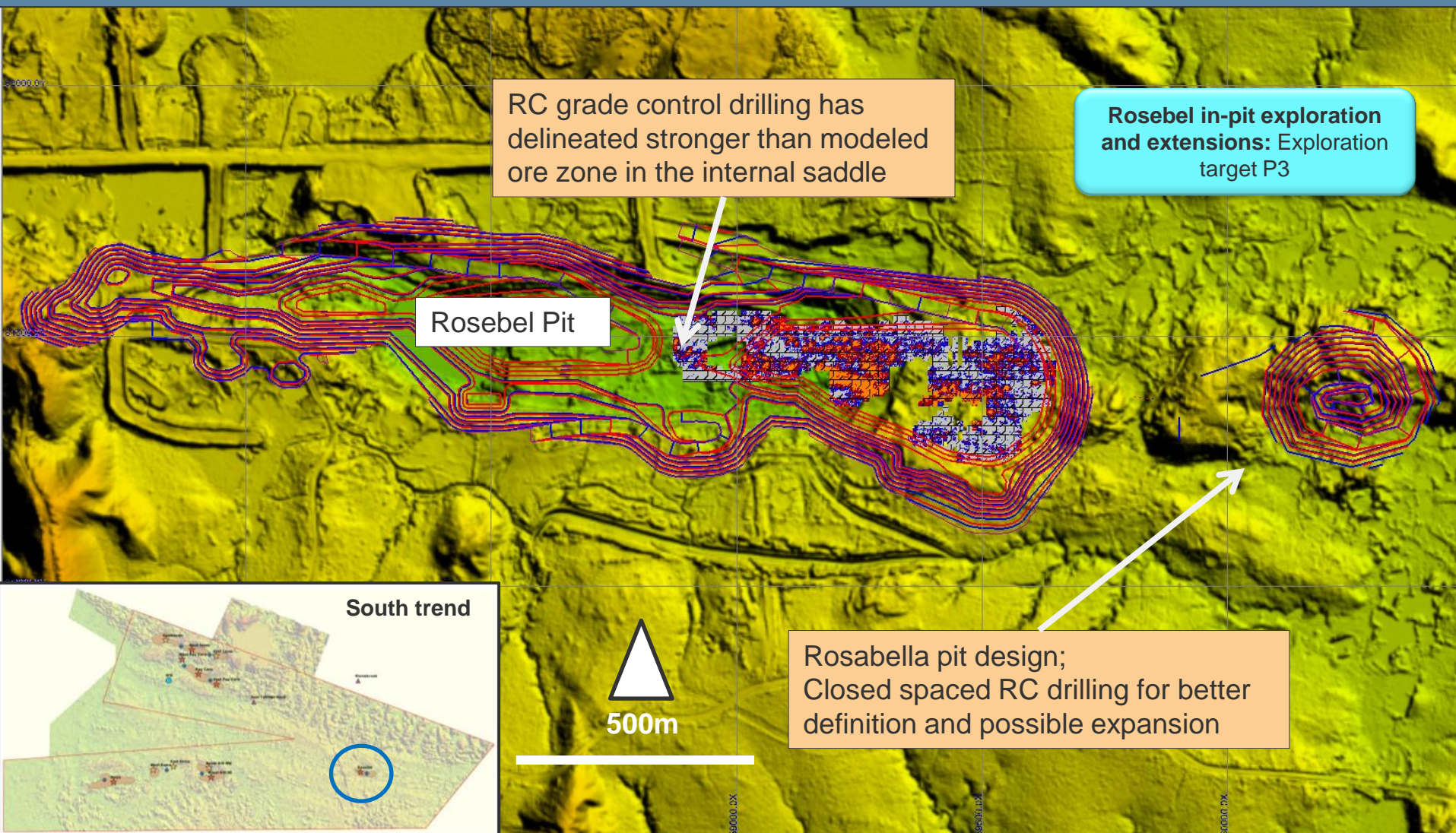




# Near Pit Exploration – Roma East Resource



# Near Pit Exploration – Rosebel Pit



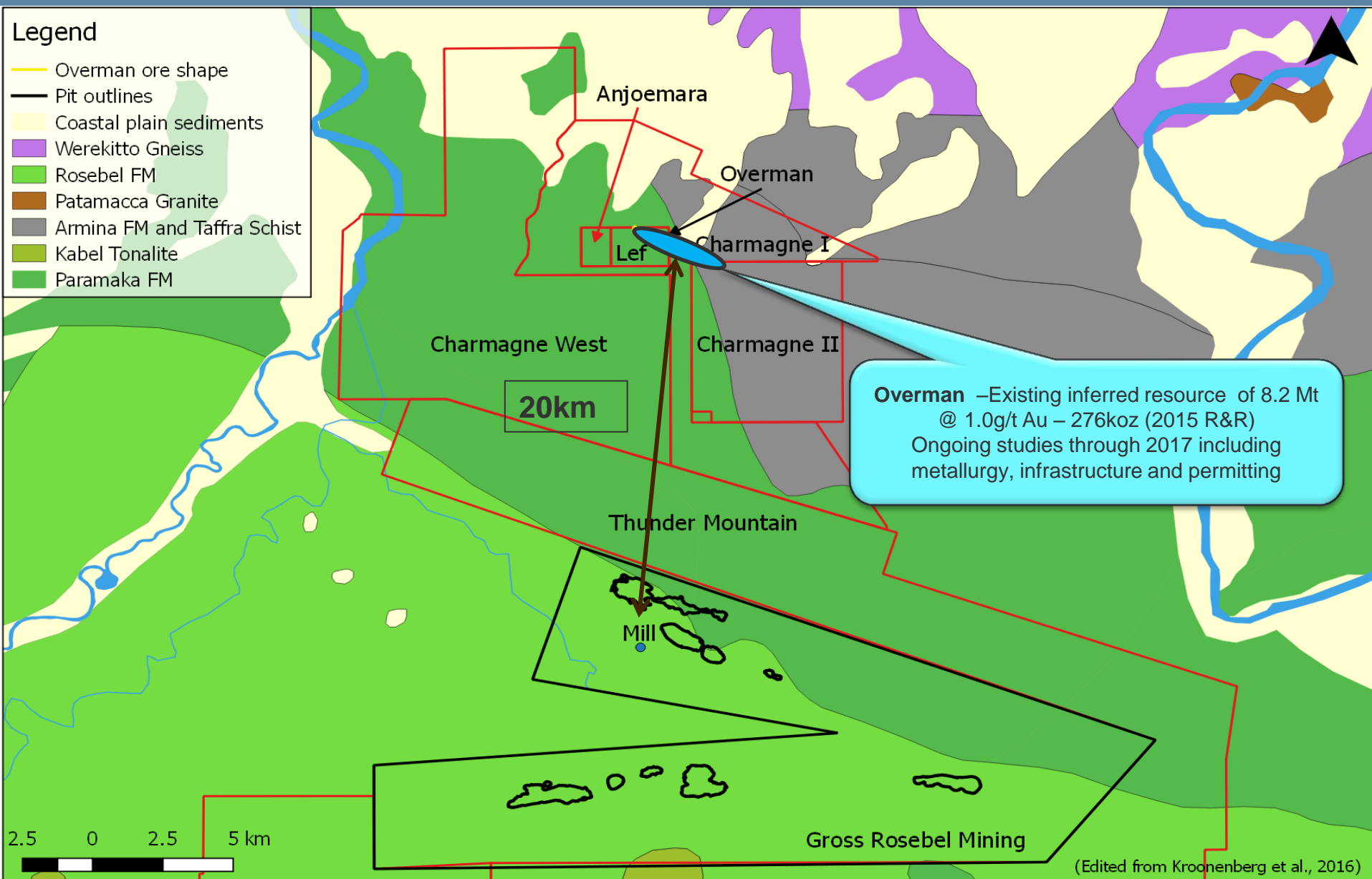


# Regional Exploration



## Regional Exploration Slides 80 – 90

# Regional Exploration – Overman



# Saramacca – Option Agreement

## ■ Initial Cash Payment USD\$200,000 on signing

- › Provides access to the property

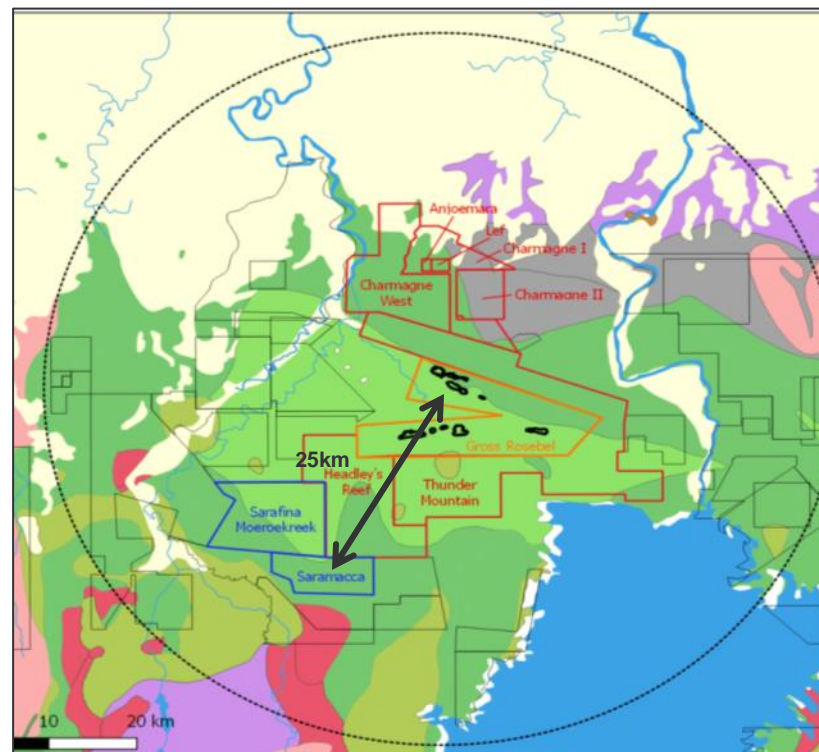
## ■ Staged Purchase Totaling USD\$10 million and 3.125 million IAMGOLD shares

- › Held in escrow and released over 3 x 1 year intervals
- › Price Adjustment based on gold oz above 1.0 Moz outlined in In MI resources within 24 months; capped at \$10 million

## ■ Target Size

- › 8-40 million tonnes @ between 1- 1.8 g/t Au for 0.5 MOZ to 1.4 MOZ
- › Defined by typical tonnes and grade at the top of the Rosebel deposits

Caution: Non NI43-101 compliant resource. See IAMGOLD announcement August 31<sup>st</sup> 2016



# Saramacca Exploration Plan 2016

## ■ Data Package

- Geophysics and geochemistry reprocessed and interpreted
- Various 3D deposits models created
- Additional targets identified



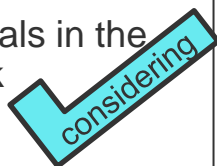
## ■ Drilling

- 9,000m of DD - Targeting 200m wide corridor over 1.8km corridor to infer status (100m by 50m)
- 9,000m RC - Target periphery of the mineralised corridor (footwall and hanging wall) and wider geochemical footprint (upside)



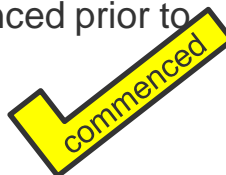
## ■ Metallurgy

- PQ drilling – mineralised intervals in the Saprolite, Transition, Hard rock (November)



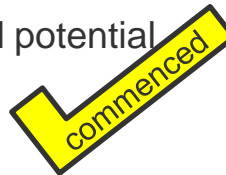
## ■ Environment

- Base line soil sampling of artisanal pits commenced prior to drilling
- Base line water sampling commenced prior to drilling



## ■ Survey

- Re-established survey stations and resurvey with higher accuracy (commercial contractor)
- Aim to resurvey 20% available historical collars
- Lidar Survey to fly concession and potential haul road route (November)



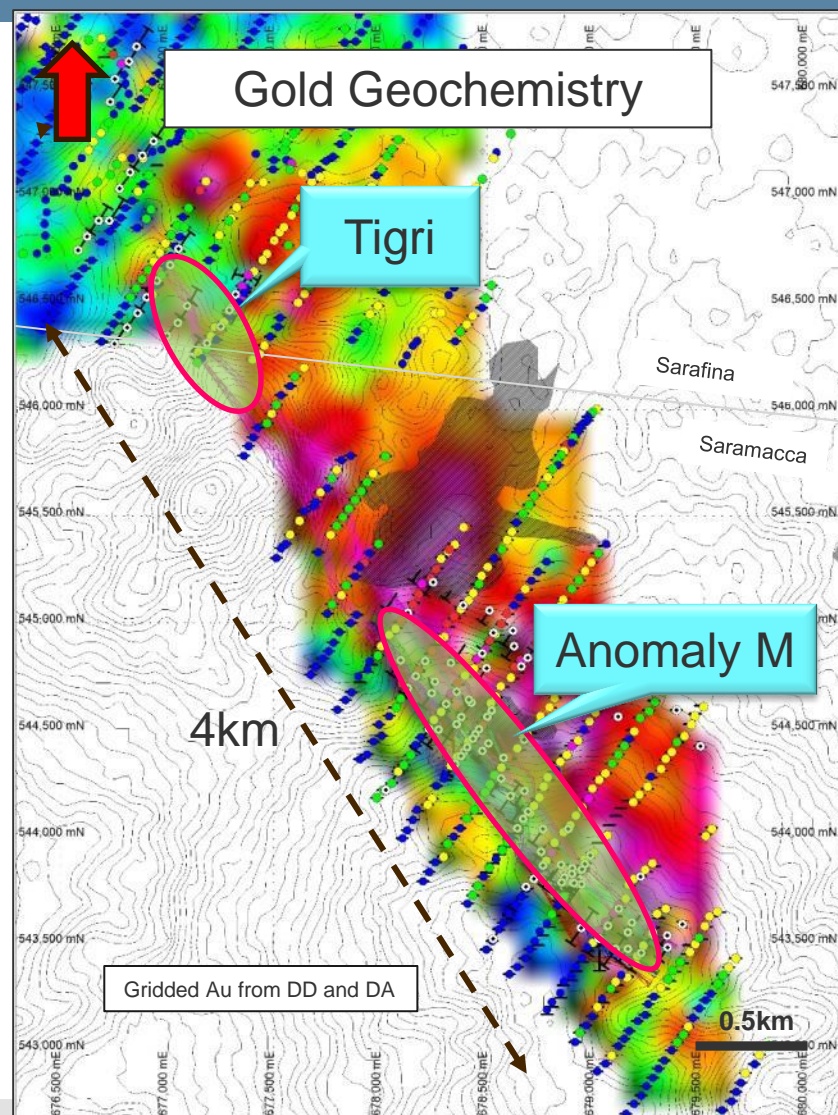
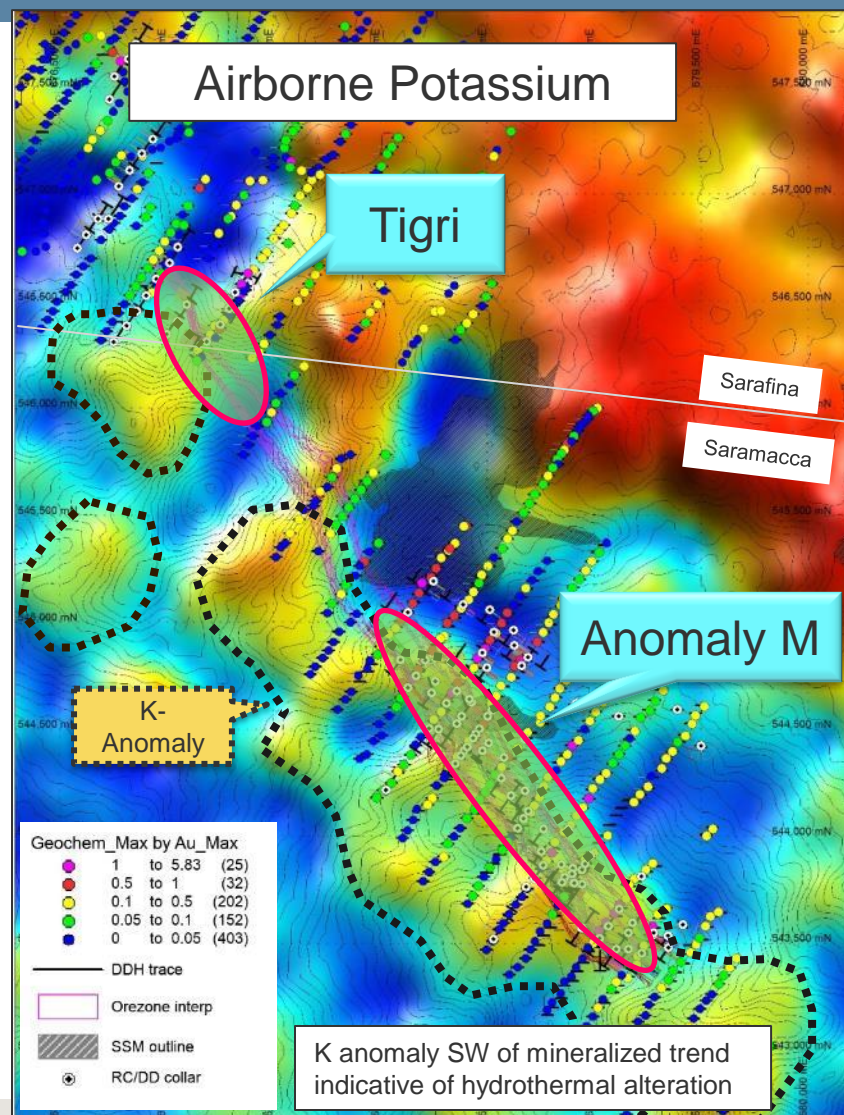
## ■ Logistics

- Continue camp construction to 40 people (currently 10-person camp)
- Re-establish access road from mine to Saramacca site



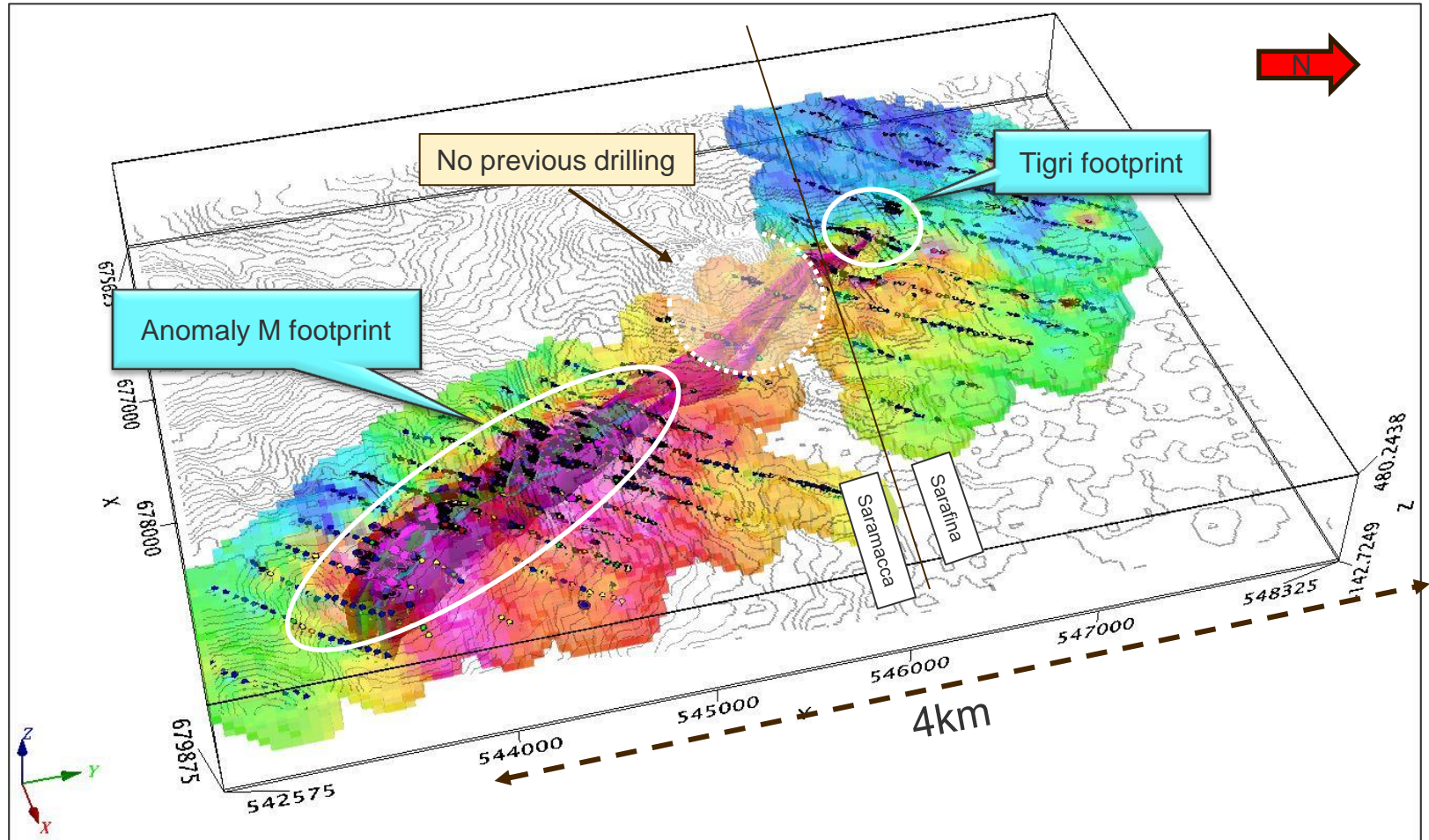


# Geophysics and Geochemistry

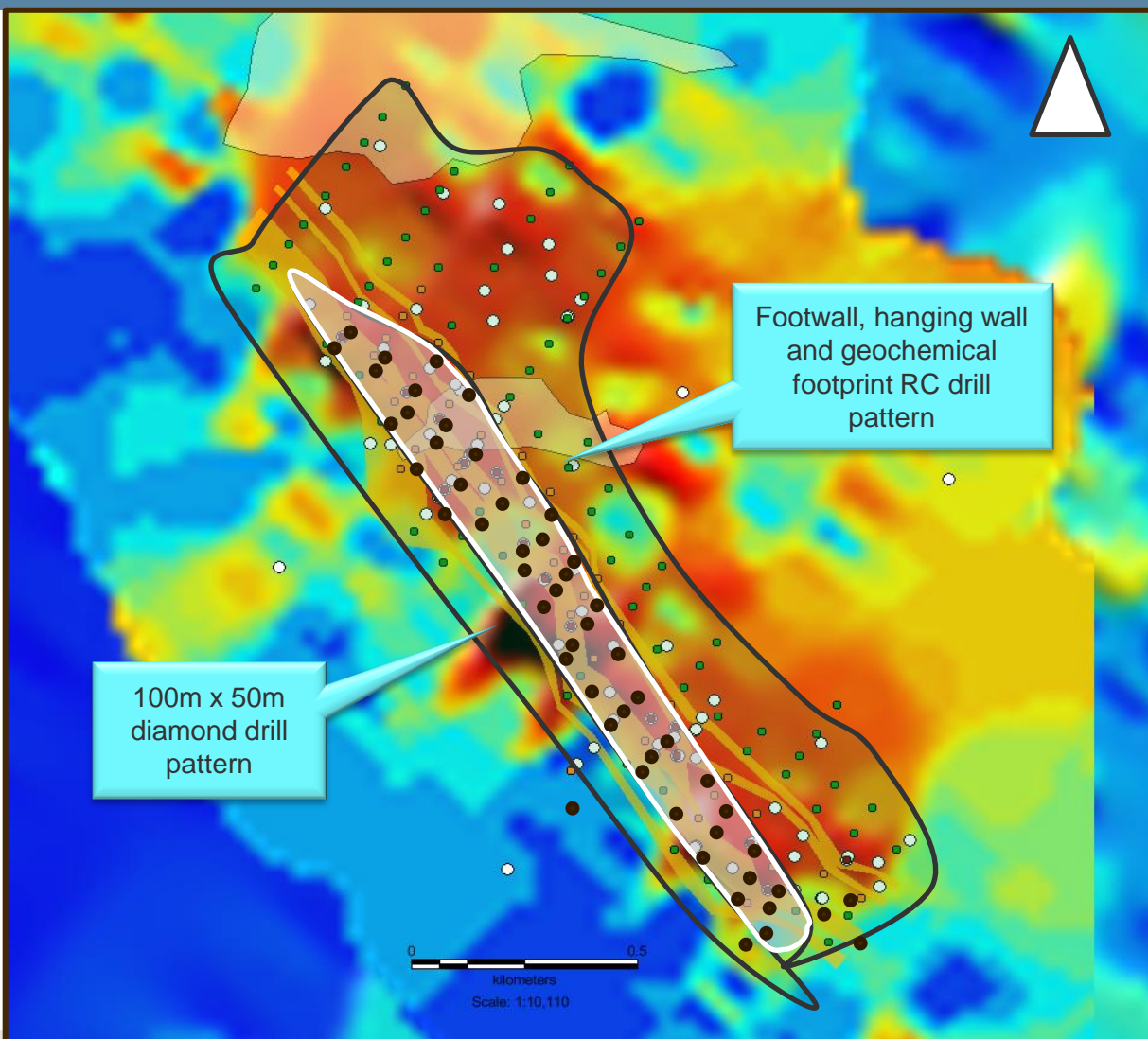




# Saramacca Model with Au Geochemistry

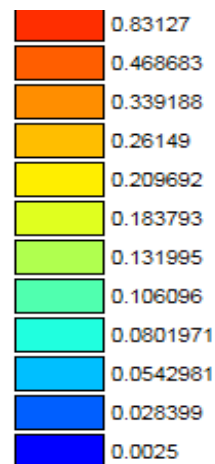


# Saramacca – Planned drilling 2016



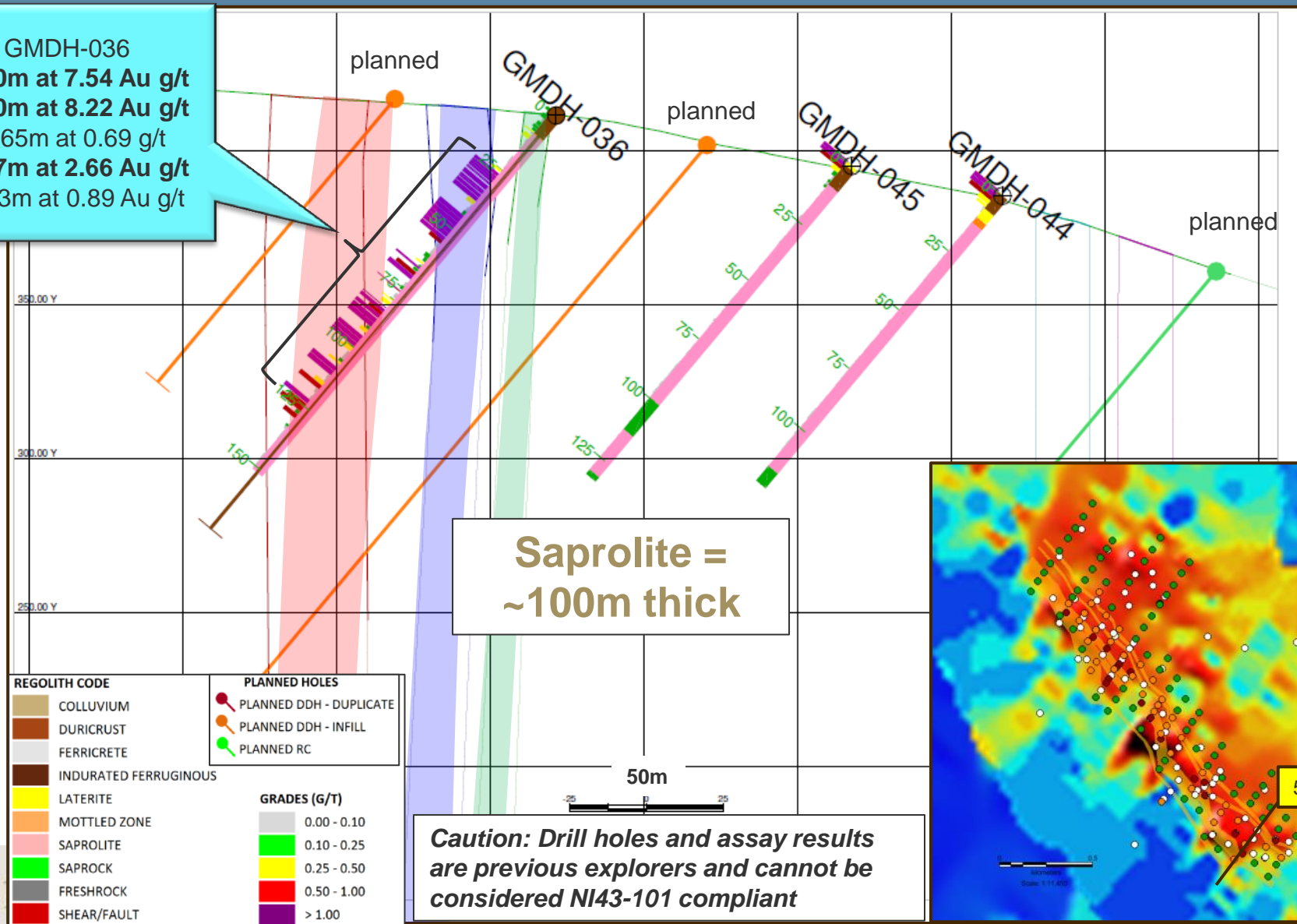
-  **Historical Drilling**  
90 diamond drill holes (9,000m)
-  **2016 Planned Drilling**  
54 DDH - infill holes (9,000 m)
-  77 RC - Exploration (9,000 m)

Historical Geochemistry  
Au ppm



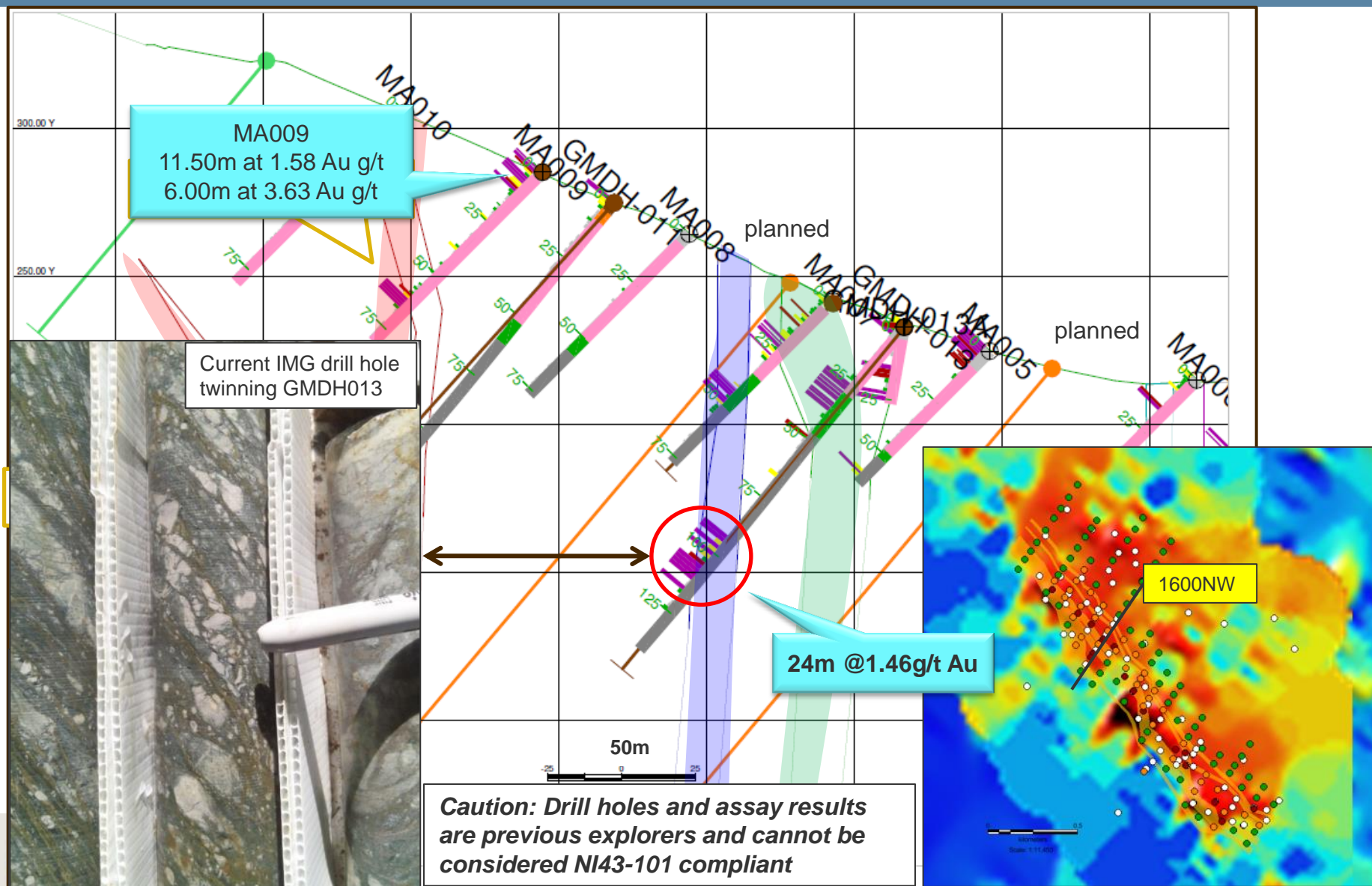
# Saramacca Cross Section – 500NW

GMDH-036  
 12.00m at 7.54 Au g/t  
 12.00m at 8.22 Au g/t  
 11.65m at 0.69 g/t  
 16.97m at 2.66 Au g/t  
 21.53m at 0.89 Au g/t





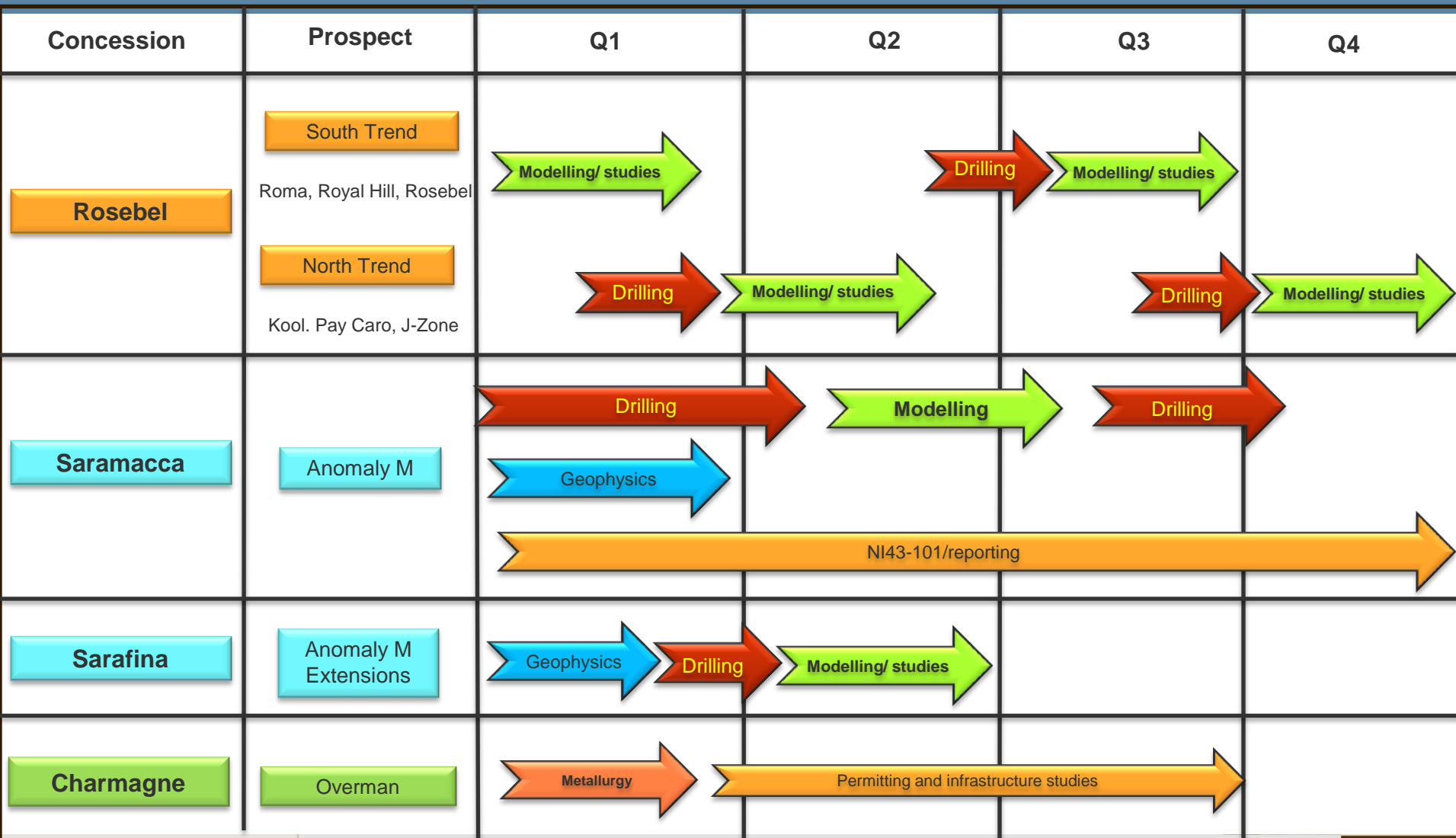
# Saramacca Cross Section – 1600NW



# Saramacca – 2016/2017

Activity	Q4 - 2016	Q1 - 2017	Q2 - 2017	Q3 - 2017	Q4 - 2017
Drilling Programs	Foot print drilling 100m x 50m	Confirmatory drilling 50m x 50m		Initial Resource Estimate	Infill drilling
	Validation drilling				
Interpretation					
Assaying					
Environmental Studies					
Resource Estimations					
Metallurgy					
NI43-101					
Other Exploration Activities	Geochemical surveys and LIDAR	Geophysical surveys			

# 2017 Exploration Time Lines



# Exploration Summary 2017

## ■ Near Pit exploration

- Complete drilling programmes, modelling and mining studies on highly ranked targets
- Conceptual target range of 0.9 Moz to 1.7 Moz Au

## ■ Saramacca

- Complete drill programmes targeting 0.5 to 1.5 Moz Au
- Continue various studies, modelling and resource estimates by Q3
- Airborne EM and magnetics survey
- Evaluate additional exploration targets

## ■ Sarafina

- Target strike extensions to the Saramacca mineralisation
- Airborne EM and magnetics survey

## ■ Overman

- Progress various mining studies and permitting



**THANK YOU**

**Rosebel Gold Mines N.V.**  
**Legal and Corporate Affairs**  
**October 17, 2016**