NORTHERN STAR
RESOURCES LIMITED

ASX Code: NST

Kalgoorlie Operations – Geology Overview

August 2015

Setting the Benchmark for Exploration Success and Growth in 'Mature' Gold Regions

Disclaimer

Competent Persons Statements

- The information in this announcement that relates to exploration results, data quality, geological interpretations and Mineral Resource estimations for the Company's Kanowna, EKJV, Kundana and Carbine Project areas is based on information compiled by Darren Cooke and fairly represents this information. Mr Cooke is a Member of the Australian Institute of Geoscientists who is a full-time employee of Northern Star Resources Limited who has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Cooke consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

- The information in this announcement that relates to Ore Reserve estimations for the Company's Project areas is based on information compiled by Jeff Brown and fairly represents this information. Mr Brown is a Member of the Australian Institute of Mining and Metallurgy who is a full-time employee of Northern Star Resources Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Brown consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

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Geology Presentation Overview

- **Introduction – Kalgoorlie Asset Overview**
  - Location and Tenure
  - Operational Overview
  - Reserve Resources (as at 30 June 2015[1])
- **FY2015 Exploration Results**
  - Geology Strategic Plan
  - The Evolution of the Project Pipeline
  - FY2015 Results
- **Kundana**
  - The Geology of the Kundana Goldfield
  - Kundana Reserve Resources (as at 30 June 2015)
- **The Pegasus Discovery Story – Understanding the Upside**

[1] Refer ASX Announcement released 4 August 2015 titled: Northern star grows mine lives significantly with 2.7Moz Increase in resources to 8.9Moz.

GEOLOGY PRESENTATION

PART 1: ***ASSET OVERVIEW***

Kalgoorlie Operations

Kalgoorlie Asset Overview

Land Holding & Operations

CARBINE CAMP

KUNDANA CAMP

40km

30km

20km

10km

KANOWNA CAMP

KB Mill

KANOWNA BELLE

- 5Moz Historic Production
- Refractory Sulphide Orebody
- Sediment/Porphyry Hosted
- Bulk UG Longhole Open Stoping
- FY2015: 658Kt @ 4.8g/t for 101Koz (Mined)
- AISC (FY2015) A$1,021

KUNDANA (RUBICON – RALEIGH) (NST 51%)

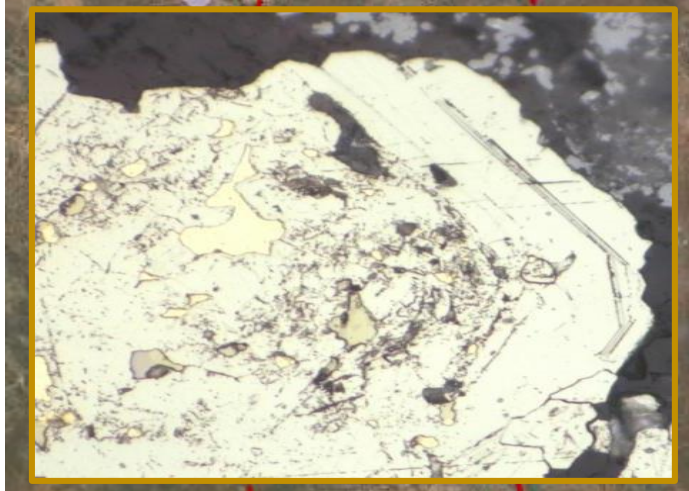
- ~4Moz Historic Production
- Narrow Vein High Grade
- Quartz Hosted at Contacts
- Narrow UG Longhole Open Stoping
- FY2015: 696Kt @ 9.8g/t for 219Koz (Mined)
- AISC (FY2015) A$711/oz

KALGOORLIE

Kalgoorlie Asset Overview

Processing

CARBINE CAMP



KANOWNA BELLE PROCESSING HUB

- **1.8Mtpa Capacity**
- **Versatile Processing Facility**
  - Roaster to Treat Refractory Ores
  - Conventional CIP for Free-milling Ores
  - Gravity Recovery

KANOWNA CAMP

KUNDANA CAMP

40km

30km

20km

10km

KB Mill

KANOWNA BELLE

- **Refractory Ore**
- **92% Recovery Achieved in FY2015**
- **FY2015 - 766Kt @ 4.3g/t for 105Koz Milled**
- **FY2015 – 99Koz Poured**

KUNDANA (RUBICON – RALEIGH) (NST 51%)

- **Free Milling Ore**
- **97% Recovery Achieved in FY2015**
- **Gravity Recovery >60%**
- **FY2015 - 621Kt @ 10.2g/t for 203Koz Milled**
- **FY2015 - 194Koz Poured**

KALGOORLIE

Kalgoorlie Resources

(NST Attributable Ounces, as at 30 June 2015)

MINERAL RESOURCES As at 30 June 2015 Based on attributable ounces Au	MEASURED			INDICATED			INFERRED			TOTAL RESOURCES		
	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)
KALGOORLIE GOLD PROJECT												
Kanowna												
Surface												
Woodline Pit							433	2.8	38	433	2.8	38
Six Mile Pit							429	1.5	21	429	1.5	21
Kanowna Belle Underground	1,616	4.6	239	4,196	4.4	596	1,917	4.4	270	7,729	4.4	1,105
Stockpiles	56	3.6	6	792	0.9	24				848	1.1	30
Gold in Circuit			12							-		12
Subtotal KB	1,672	4.8	257	4,988	3.9	620	2,779	3.7	329	9,439	4.0	1,206
Kundana												
Surface												
Arctic							565	2.2	41	565	2.2	41
Underground												
Raleigh North	2	80.1	4	0	106.7	0				2	82.1	5
Millenium Centenary							1,843	5.8	346	1,843	5.8	346
Pope John							538	11.1	192	538	11.1	192
Moonbeam							438	5.2	74	438	5.2	74
Subtotal Kundana	2	80.1	4	0	106.7	0	3,384	6.0	653	3,386	6.0	658
East Kundana Joint Venture(EKJV)												
Surface												
Hornet Pit (51%)				86	3.7	10	2	1.6	0	88	3.6	10
Underground												
Raleigh (50%)	24	67.4	51	12	48.0	19	13	52.3	22	49	58.5	92
Hornet (51%)	52	18.3	30	173	9.3	51	149	7.6	36	373	9.9	118
Rubicon (51%)	9	18.9	5	103	9.6	32	201	8.5	55	313	9.2	92
Pegasus (51%)				1,292	11.2	463	442	11.4	161	1,734	11.2	625
Stockpiles	49	8.4	13							49	8.4	13
Subtotal EKJV	133	23.4	100	1,666	10.7	576	806	10.6	275	2,605	11.3	950
Carbine												
Surface							5,759	1.4	265	5,759	1.4	265
Subtotal Kalgoorlie	1,806	6.2	361	6,654	5.6	1,196	12,729	3.7	1,521	21,189	4.5	3,079

Kalgoorlie Reserves

(NST Attributable Ounces, as at 30 June 2015)

ORE RESERVES As at 30 June 2015 Based on attributable ounces Au	PROVED			PROBABLE			TOTAL RESERVES		
	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)	Tonnes (000's)	Grade (gpt)	Ounces (000's)
KALGOORLIE GOLD PROJECT									
Kanowna									
Kanowna Belle Underground	302	4.8	46	615	4.0	80	917	4.3	126
Stockpiles	56	3.6	6	792	0.9	24	848	1.1	30
Gold in Circuit			12						12
Subtotal KB	358	5.7	65	1,407	2.3	103	1,765	3.0	168
Kundana									
Underground									
Raleigh North	13	6.5	3	0	1.2	0	13	6.4	3
Subtotal Kundana	13	6.5	3	0	1.2	0	13	6.4	3
East Kundana Joint Venture (EKJV)									
Underground									
Raleigh (50%)	89	13.1	38	17	10.6	6	106	12.7	43
Rubicon / Hornet (51%)	107	10.2	35	180	7.3	42	287	8.4	77
Pegasus (51%)	3	4.8	0	1,219	7.9	310	1,222	7.9	310
Stockpiles	49	8.4	13				49	8.4	13
Subtotal EKJV	248	10.8	86	1,416	7.9	358	1,664	8.3	444
Subtotal Kalgoorlie	618	7.7	154	2,823	5.1	461	3,441	5.6	615

GEOLOGY PRESENTATION

PART 2: ***EXPLORATION RESULTS***

Kalgoorlie Operations Exploration

FY2015 - A Year of Delivering Unprecedented and Unrivaled Results

Addressing the Project Pipeline Imbalance

Kalgoorlie Operations Geology 3 Year Strategic Plan

STRATEGIC FRAMEWORK	3 REGIONAL DISCOVERY	2 *RAPID* IDENTIFICATION of Inferred Resource	1 *RAPID* CONVERSION of Resource to Reserve
	← Year 1 Accelerated Focus →		*'Immediate Mine Extension, Payback'*
KEY ACTIVITIES – Geology	Targeting & Research Projects Geophysics & Geochemistry	Conversion by Drilling Conversion by Modelling / Interpretation	Conversion by In-Mine Drilling
KEY ACTIVITIES – Non-Geology	Database Project Data Compilation & Integration	Conversion by Engineering Design Conversion by Cost Management	Conversion by Engineering Design Conversion by Cost Management Toll Treatment / BD
KEY OPPORTUNITIES	• **Database Integration** • **Zuleika Early Stage Projects** • **Kanowna Regional Projects** (Red Eye, Golden Eye, 6 Mile etc) • **Kundana Seismic Lines**	• **Extensional Drilling of K2, Strzelecki Structures** • **Data cleansing, Remodelling and Mining Re-optimisation of historic mining areas and resources** (eg. Carbine, Woodline, Strzelecki, Centenary, 6 Mile etc) • **Operational cost reductions (reduced cutoff)**	• **Pegasus** (Target for 600KOz added to reserve in 2 years) • **Incremental Additions at Kanowna Belle, Rubicon-Hornet and possibly Raleigh** (1-2 additional levels) • **Engineering Design Conversion** – KB F Block, KB Remnants • **Dilution Control / Ore Loss Reductions at Operations**

Accelerated Exploration Program

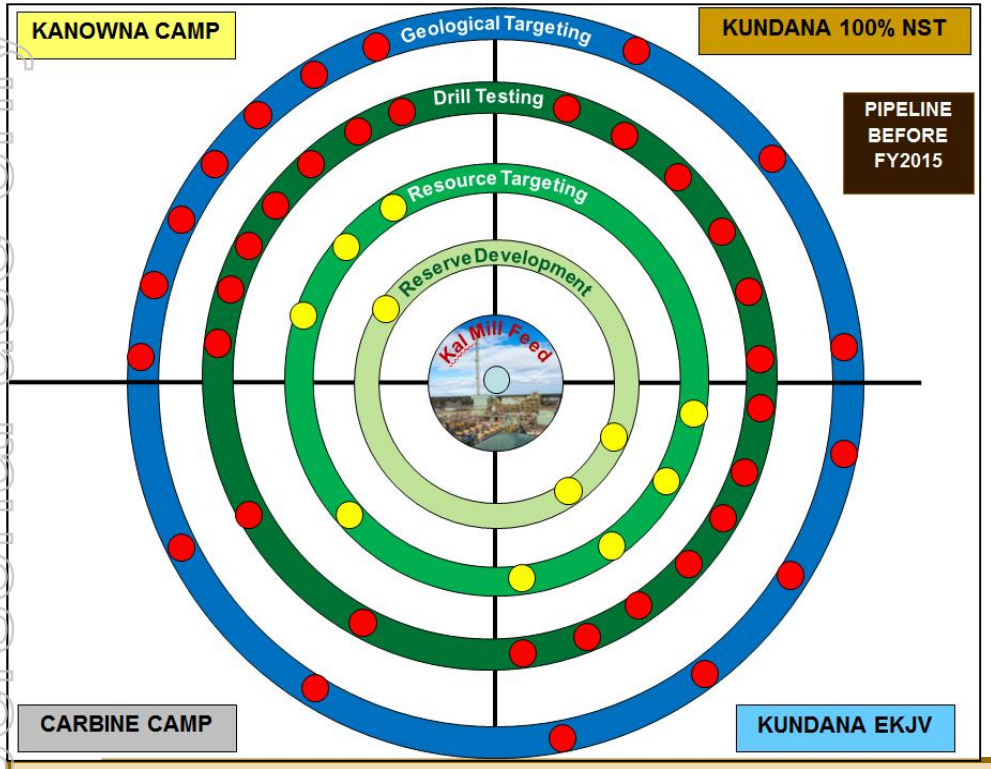
FY2015 Program Metrics (Actual)

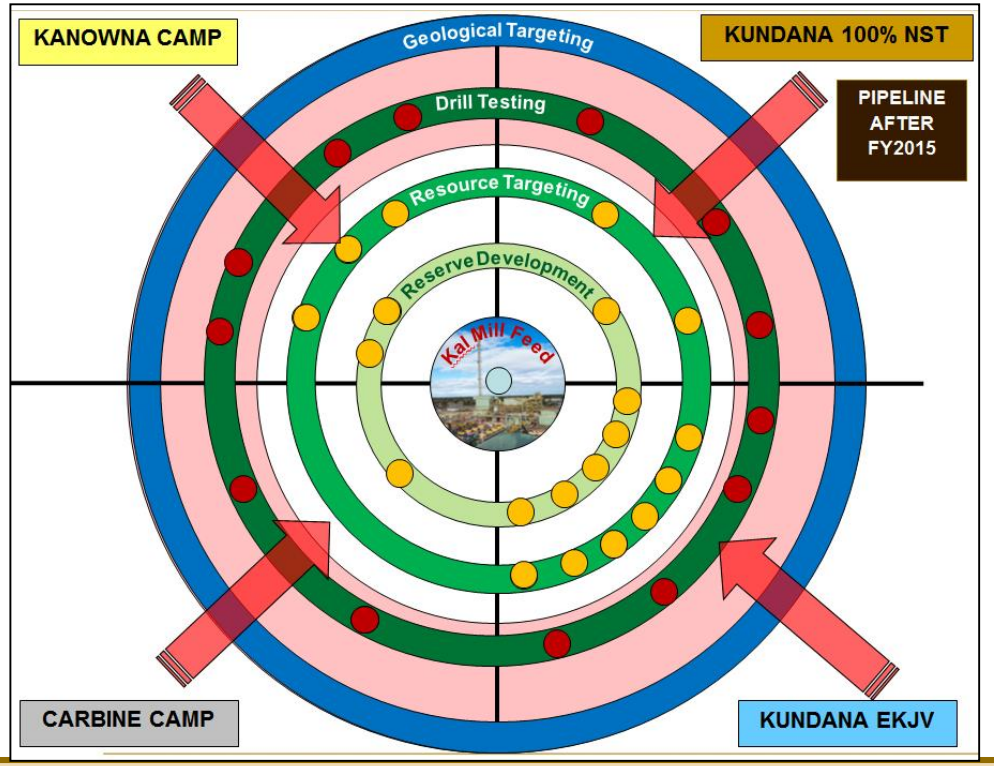
FY2015 KALGOORLIE OPERATIONS GEOLOGY BUDGET BY PIPELINE STAGE	TOTAL SPEND BY PIPELINE STAGE				
	RESERVE DEVELOPMENT	RESOURCE TARGETING	DRILL TARGETING	GEOLOGICAL TARGETING	TOTAL
EKJV (NST SHARE)	**$ 2,743,899**	**$ 2,334,334**	**$ 3,409,893**	**$ 225,900**	**$ 8,714,025**
Kanowna	$ 2,019,742	$ 1,778,721	$ 1,804,569	$ 966,401	$ 6,569,433
Kundana 100% NST	$ -	$ -	$ 4,082,290	$ 683,863	$ 4,766,154
KANOWNA TOTAL (Kanowna + Kundana 100% NST)	**$ 2,019,742**	**$ 1,778,721**	**$ 5,886,860**	**$ 1,650,265**	**$ 11,335,587**
NORTHERN STAR SHARE	**$ 4,763,640**	**$ 4,113,055**	**$ 9,296,752**	**$ 1,876,164**	**$ 20,049,612**
KALGOORLIE OPERATIONS TOTAL	**$ 7,399,935**	**$ 6,355,846**	**$ 12,572,924**	**$ 2,093,205**	**$ 28,421,910**

- FY2015 Actual Drill Metrics:
  - *Surface Diamond Drilling – 57,800m*
  - *Surface RC Drilling – 41,000m*
  - *Aircore Drilling – 13,500m*
  - *Underground Diamond Drilling (non GC) – 39,030m*
  - ***TOTAL: 151,330m for the year***
- 64% of expenditure on direct in-ground drilling costs

FY2015 Exploration Results

Project Pipeline – Before and After





FY2016 FOCUS (Year 2 of 3 Year Plan)

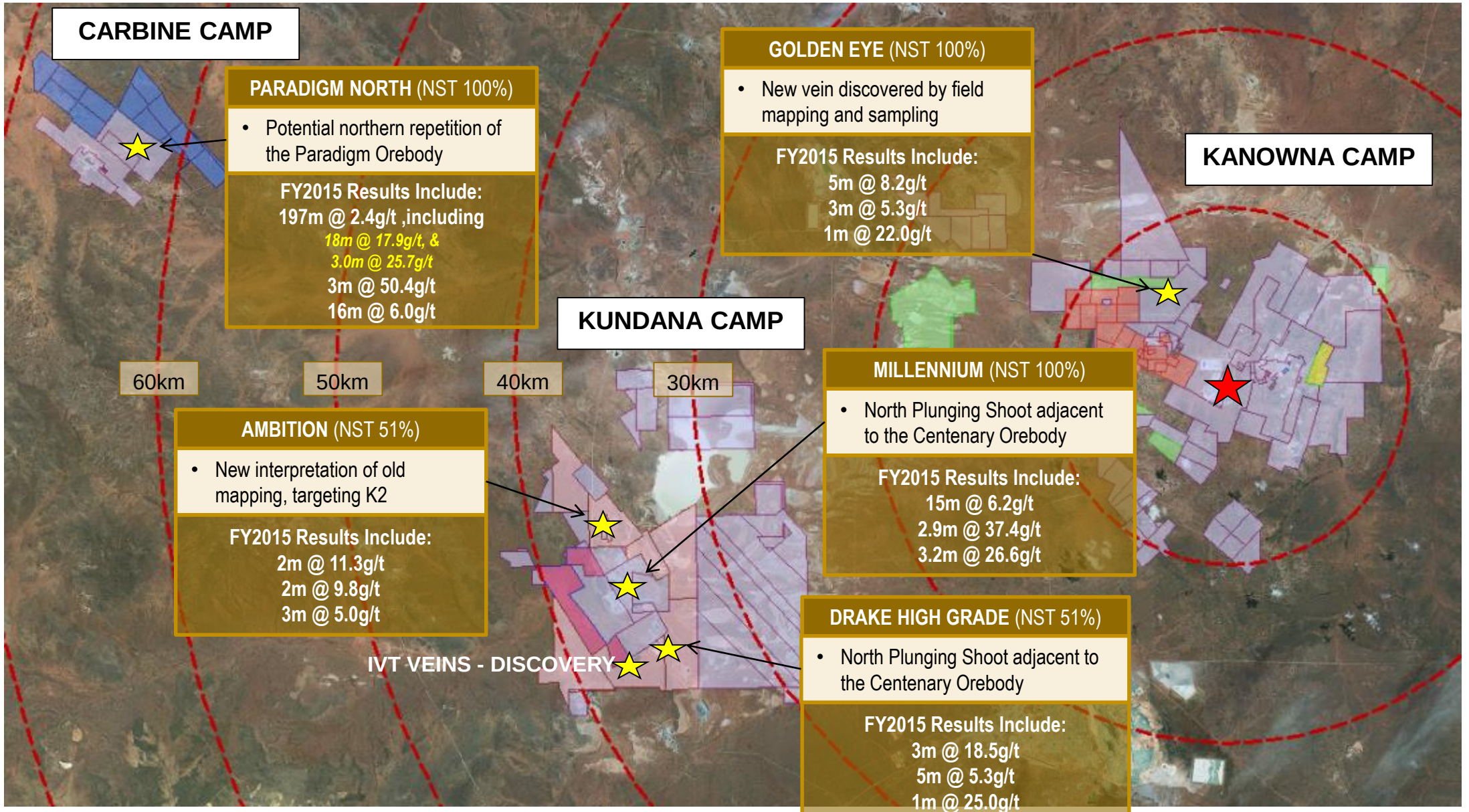
TURNING EXPLORATION SUCCESS INTO MINES

KEY RESULTS

- Delivered **1.53 Moz** of Resources across the Kalgoorlie Region at a cost of **$18** per ounce **ABOVE DEPLETION (300Koz)**
- Reserves increased by **266Koz ABOVE DEPLETION. The mining reserves for Kal Ops are now >1Moz**
- 6 potential new discoveries
- 9 Projects with the potential to deliver Reserves in FY2015 (up from 3)
- 12 Projects with the potential to deliver Resources in FY2015 (up from 8)

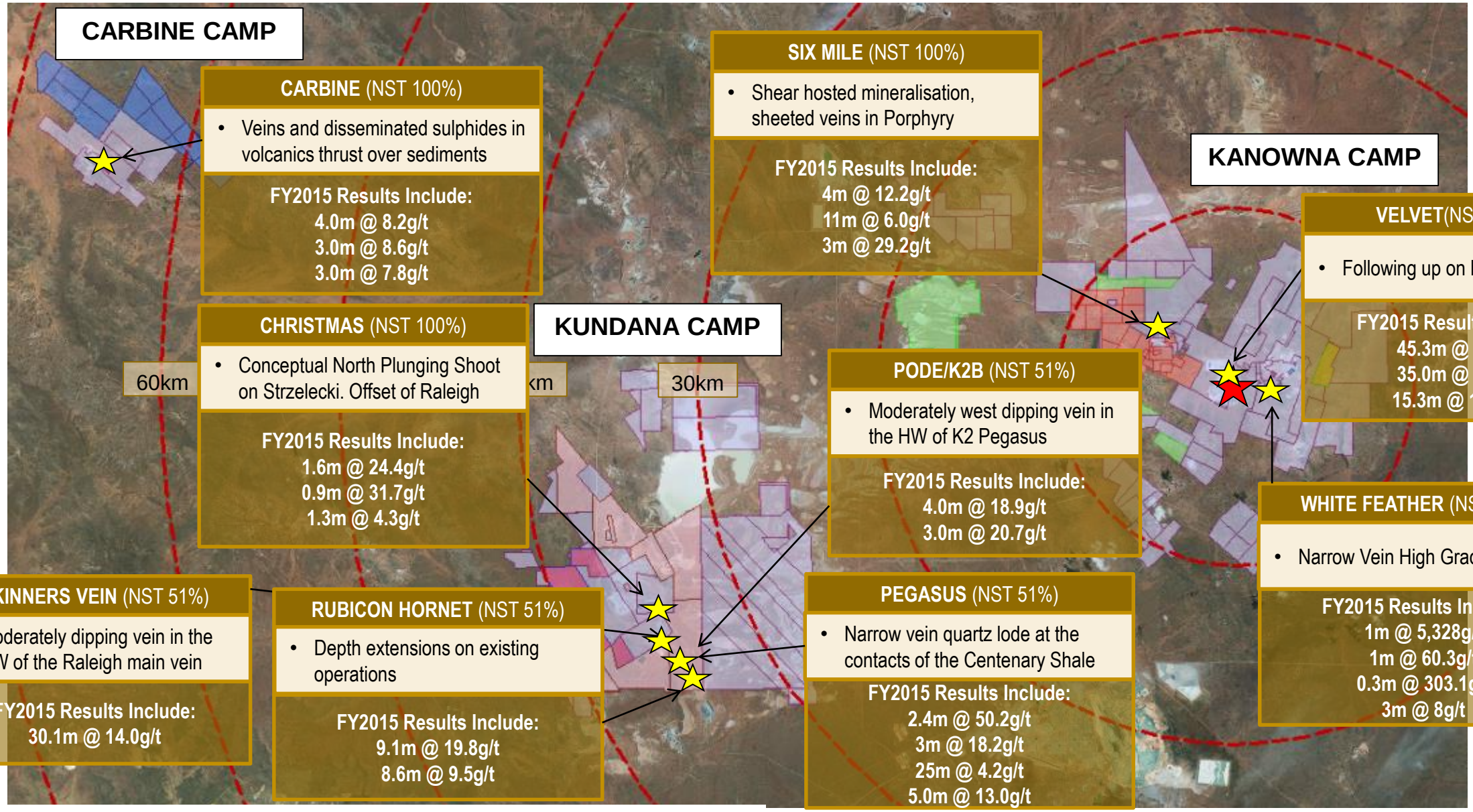
FY2015 Exploration Results

Discoveries - Highlights



FY2015 Exploration Results

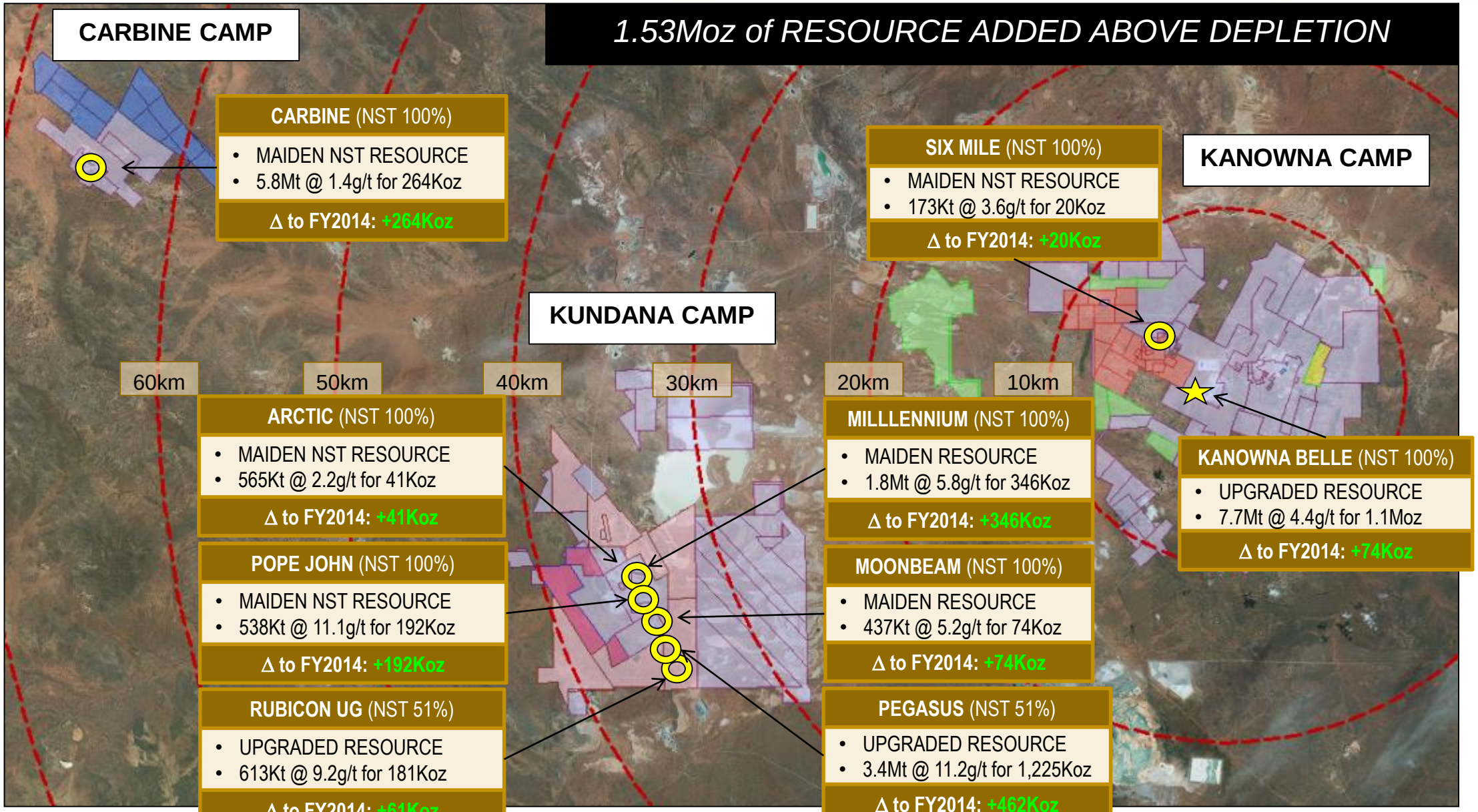
Project Advancement - Highlights



Results are downhole width and uncut

FY2015 Exploration Results

Resource Addition - Highlights



Highlights by Pipeline Stage

Early Stage Conceptual Targets

KANOWNA CAMP

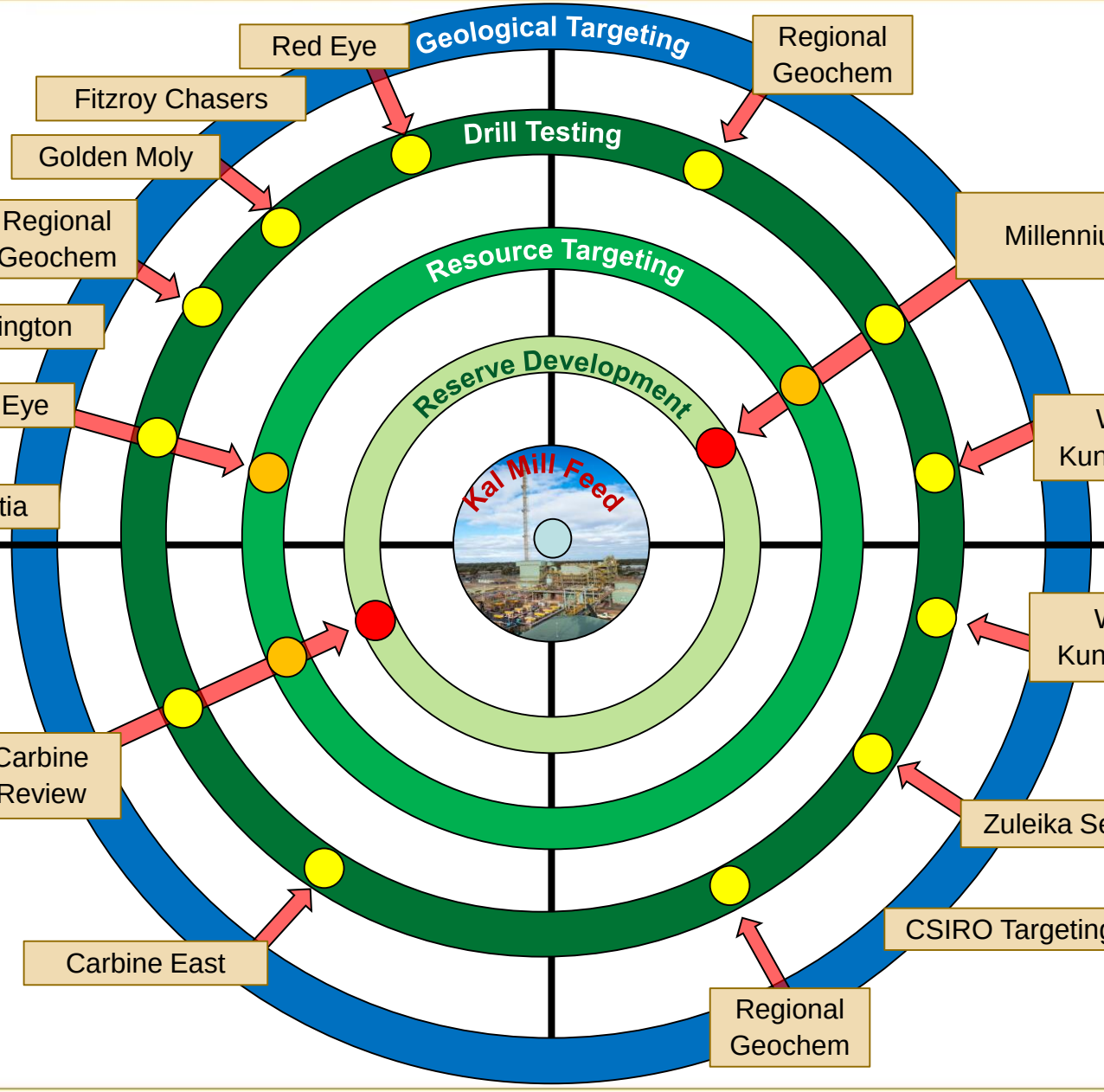
Numerous Soil Anomalies, including 900m long coherent target over Golden Eye (max 101ppb)

DISCOVERY:
Maiden drill program returned:
- 5m @ 8.2g/t
- 1m @ 22.0g/t
- 3m @ 5.3g/t

CARBINE CAMP

CONCEPTUAL REVIEW TO RESOURCE IN FY2015: Data compilation, interpretation and selective drill targeting.

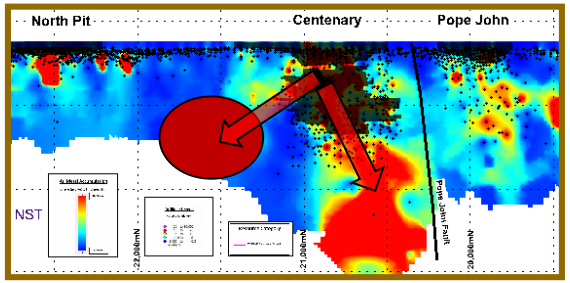
Resulted in a delivered maiden resource of:
5.8Mt @ 1.4g/t for 264Koz



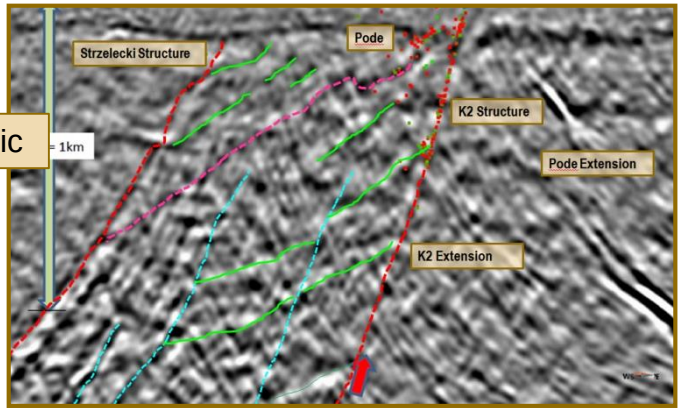
KUNDANA (NST 100%)

CONCEPT TO DELIVERED RESOURCE IN FY2015: Application of the Pegasus shoot model to Centenary.

MAIDEN RESOURCE: 1.8Mt @ 5.8g/t for 346Koz (Open in all directions)

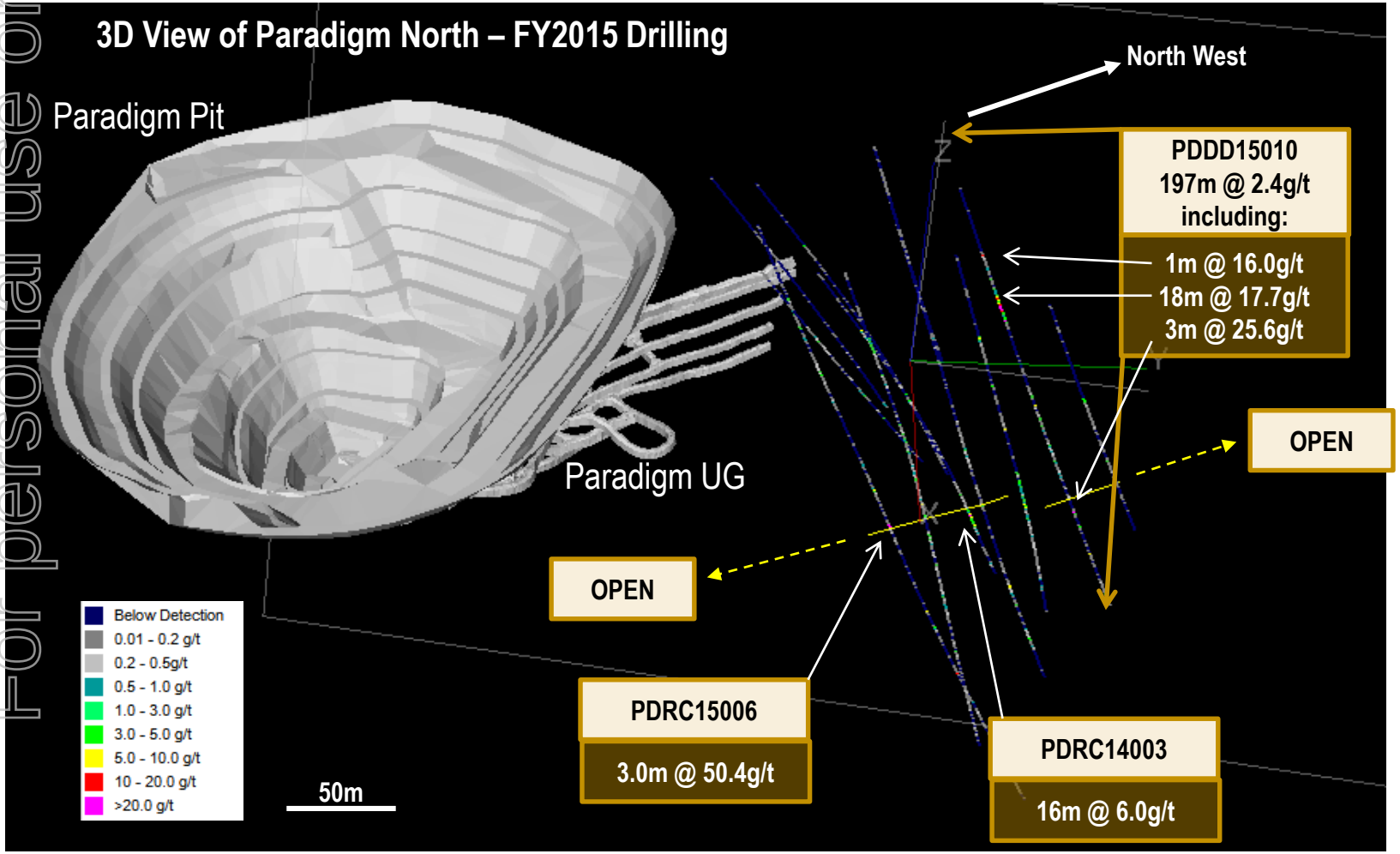


KUNDANA EKJV (NST 51%)

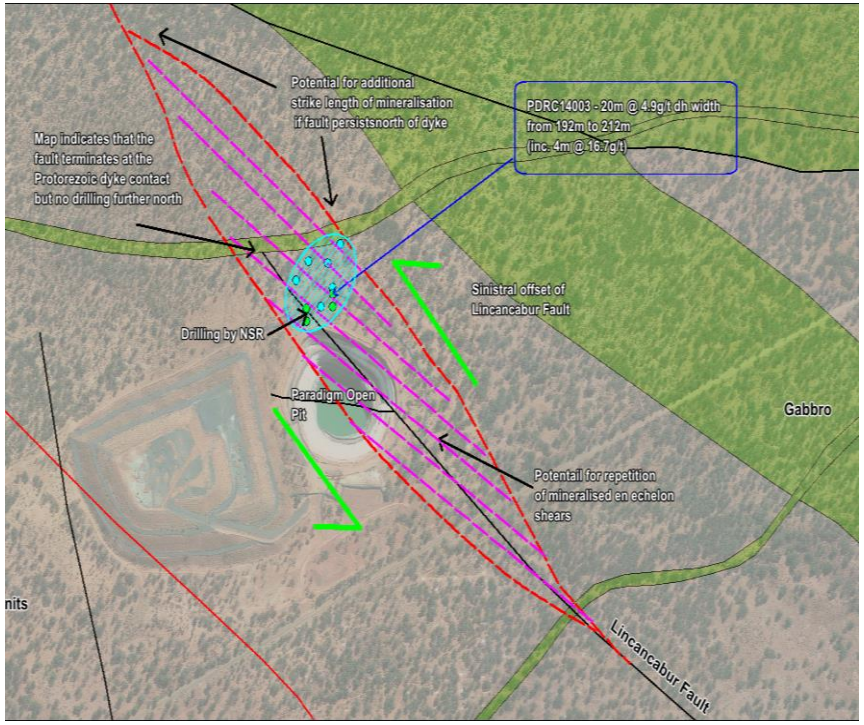


Paradigm North (NST 100%)

- Potential footwall repetition of the high grade Paradigm mine



- Coarse gold with high grade variability
- Multiple en-echelon quartz veins, with up to 6 new veins interpreted



Highlights by Pipeline Stage

Drill Testing Targets

KANOWNA CAMP

RESULTS
- 45.3m @ 5.6g/t
550m from KB Mine
EXP DECLINE COMMENCED

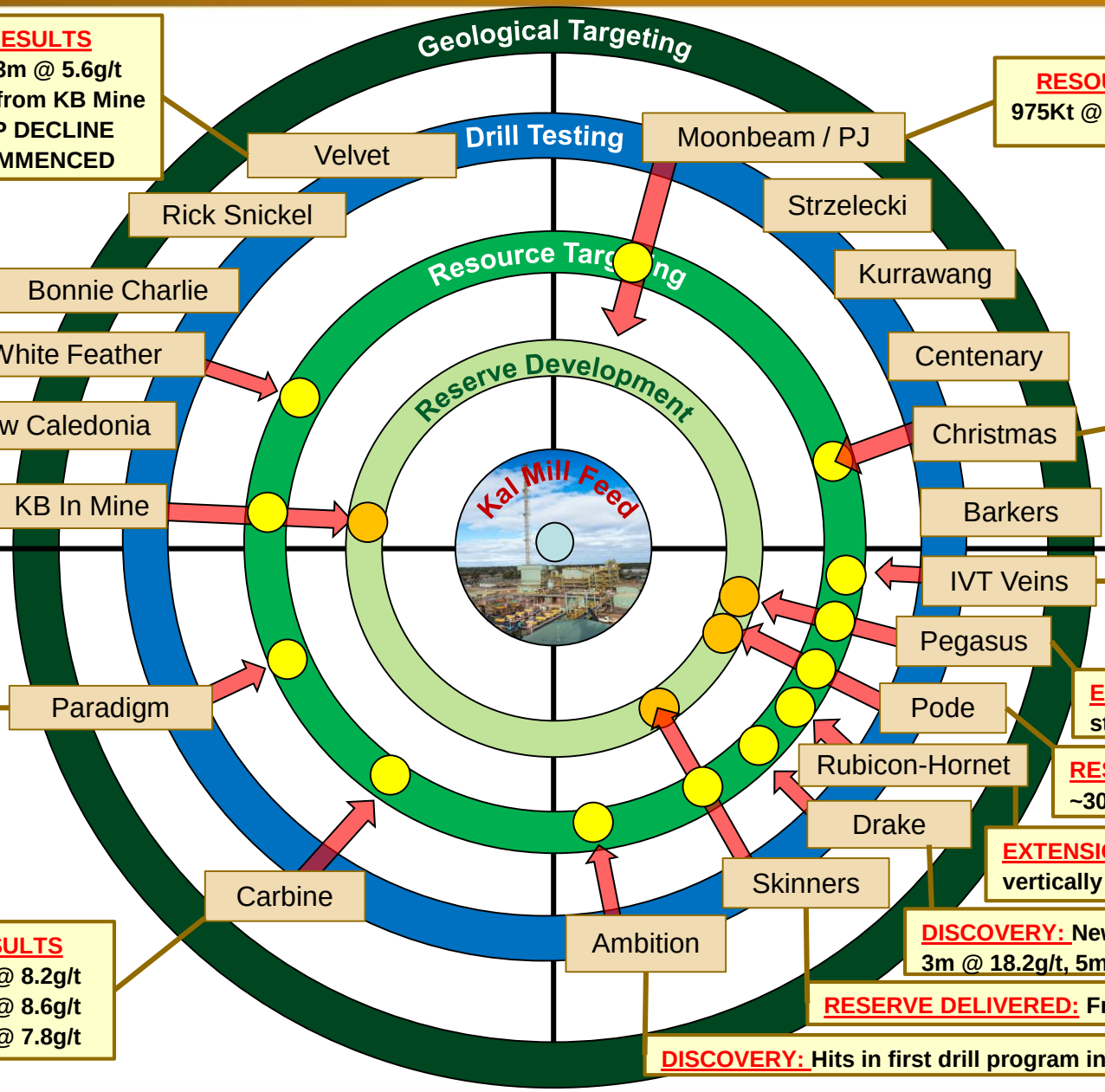
RESULTS
- 1m @ 5,328g/t
- 1m @ 60.3g/t
- 3m @ 8.0g/t

RESULTS
Sims, Troy, KB
Remnants all advanced

DISCOVERY
Repeated en-echelon FW lodes disvovered ~200m north of historic mine
- 18m @ 17.9g/t
- 3m @ 50.4g/t
- 16m @ 6.0g/t
- 2m @ 9.6g/t

CARBINE CAMP

RESULTS
- 4m @ 8.2g/t
- 3m @ 8.6g/t
- 3m @ 7.8g/t



KUNDANA (NST 100%)

RESOURCE DELIVERED
975Kt @ 8.5g/t for 266Koz

CONCEPT DEMONSTRATED:
Application of the Pegasus shoot model to the Strzelecki Structure.
- 0.9m @ 31.7g/t
- 1.6m @ 24.4g/t
- 1.3m @ 4.3g/t

POTENTIAL 500m STRIKE OFFSET OF RALEIGH NORTH OF LUCIFER FAULT

DISCOVERY: K2 Parallel lodes west of Pegasus.
8m @ 8.52g/t

KUNDANA EKJV (NST 51%)

EXTENSION: Pegasus remains open, system has >1km of strike, 2.4m @ 50.2g/t, 2.4m @ 25.7g/t, 3.0m @ 20.7g/t

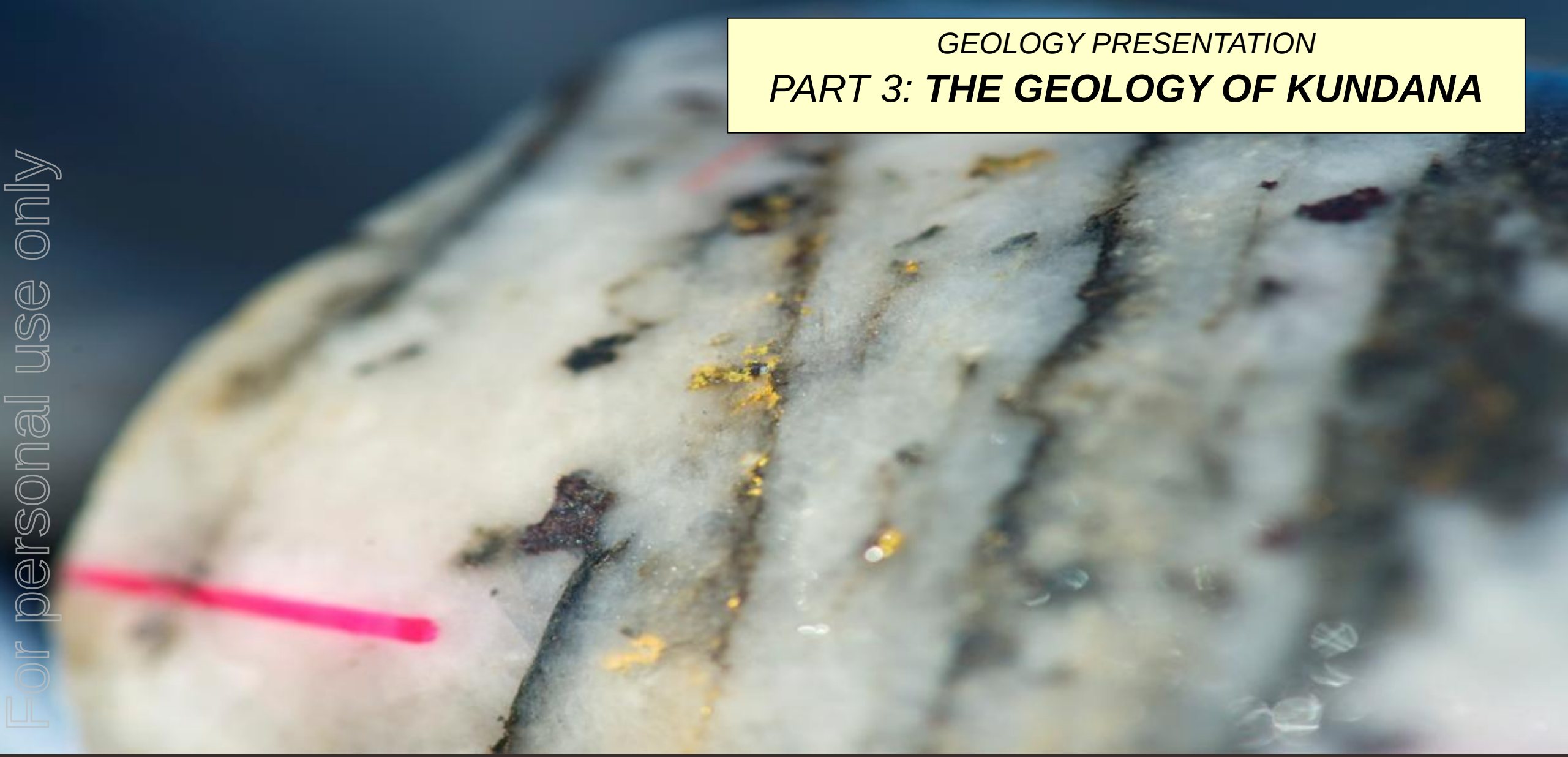
RESOURCE DELIVERY: Pode extended over 600m north, ~300Koz of resource added to Pegasus

EXTENSION: Rubicon Hornet orebodies extended by <100m vertically during FY2015

DISCOVERY: New HG Shoot by applying Pegasus Model. Results include: 3m @ 18.2g/t, 5m @ 4.1g/t

RESERVE DELIVERED: From target to 50Koz reserve during FY2015, remains open

DISCOVERY: Hits in first drill program include 2m @ 11.3g/t, 2m @ 9.8g/t, 3m @ 5g/t



GEOLOGY PRESENTATION

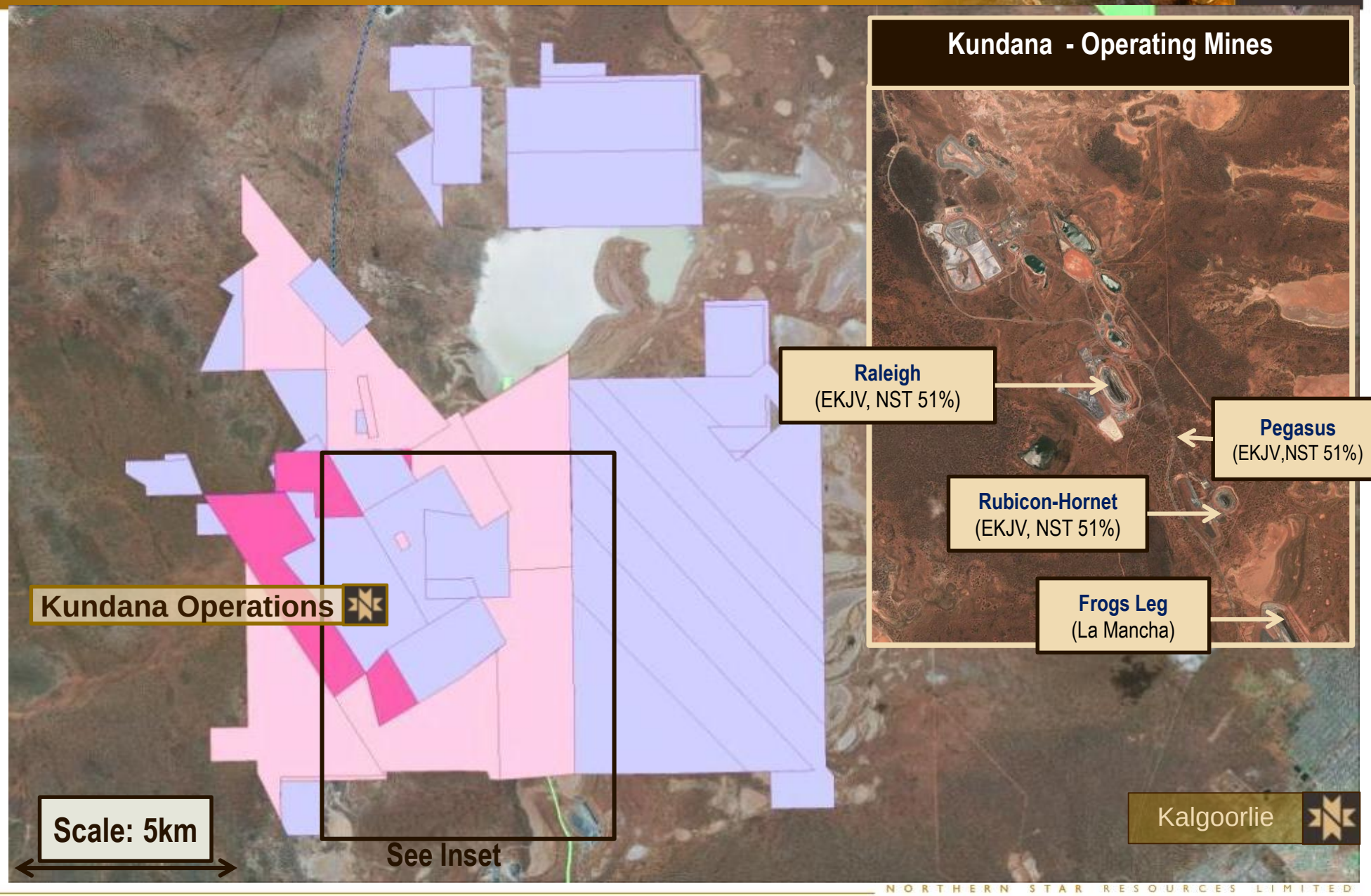
*PART 3: **THE GEOLOGY OF KUNDANA***

Unlocking the Potential of the Kundana Goldfield

A lesson in exploration persistence in a ‘mature’ mineral field

Kundana Location & Tenement Holding

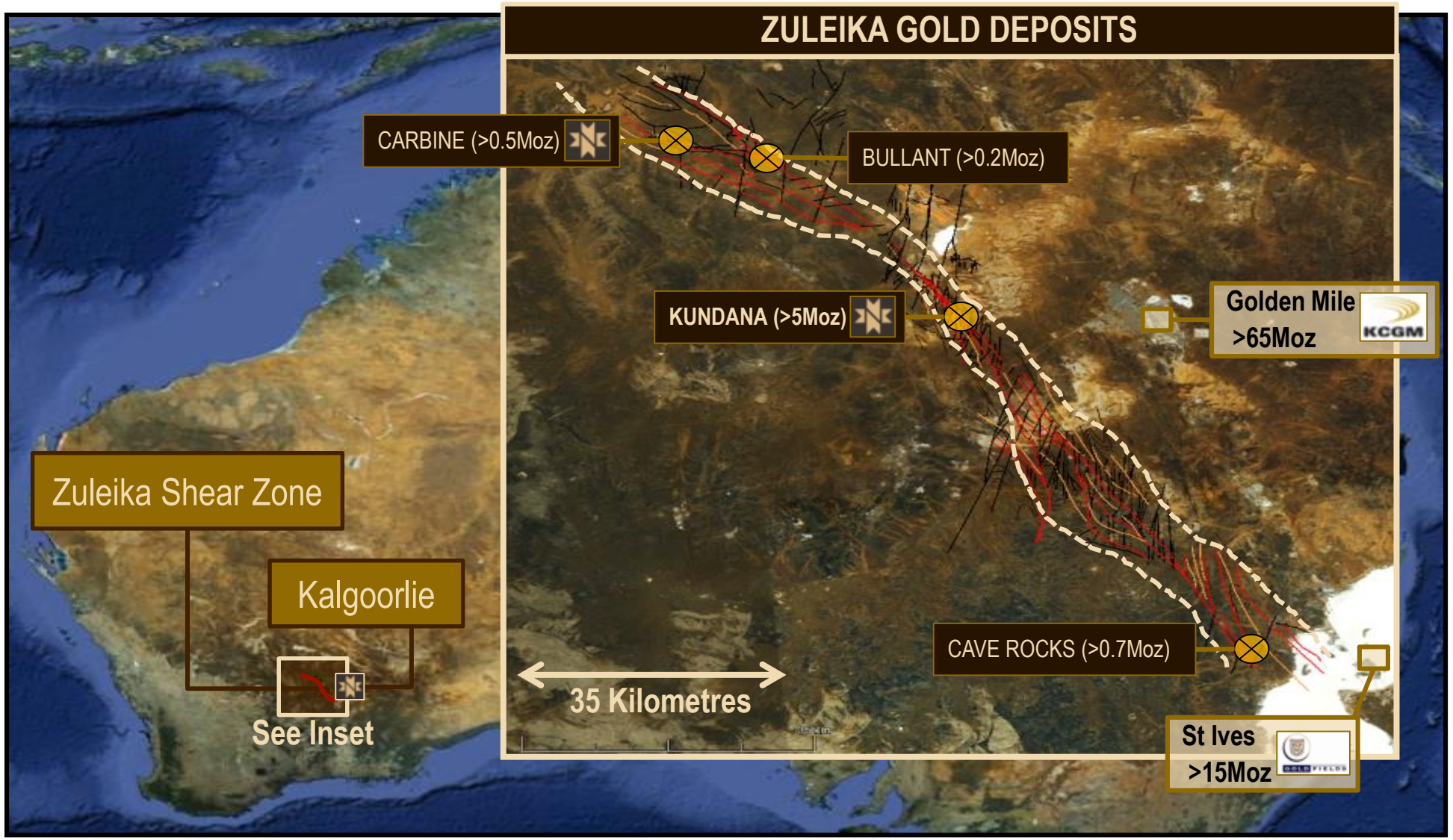
- 26 Kilometres WNW of Kalgoorlie
- The NST Kundana operations consist of 100% owned ground in addition to two JV's where NST has the highest equity position



	Northern Star (100%)
	East Kundana Joint Venture (NST 50/51%)
	West Kundana Joint Venture (NST 75%)

The Zuleika Shear Zone

- The Kundana Goldfield is located within the Zuleika Shear Zone at a major regional flexure
- The Zuleika is a major crustal scale feature that separates distinct geological domains
- The mapped extent of the zone exceeds 130kms



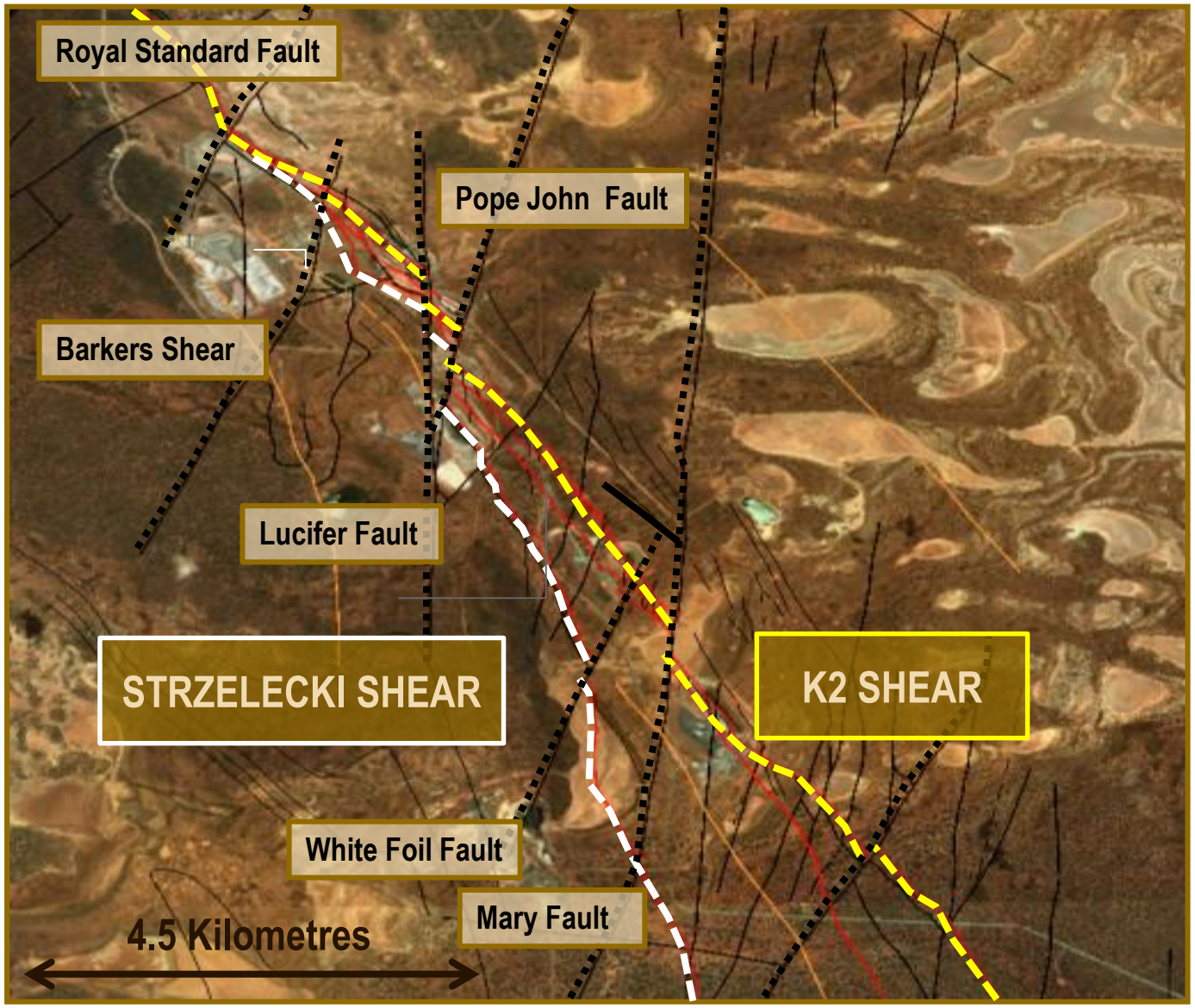
Kundana Goldfield – Local Structural Geology

- The Zuleika shear zone at Kundana consists of a complex array of structures at a regional flexure in the fault zone

- There are two major NW trending structures
  - The K2 Shear
  - The Strzelecki Shear

- The K2 and Strzelecki structures are the major hosts of gold mineralisation in the Kundana Goldfield

- The K2 and Strzelecki structures are offset by later D4 NNE trending structures that are often associated with mineralised shoots



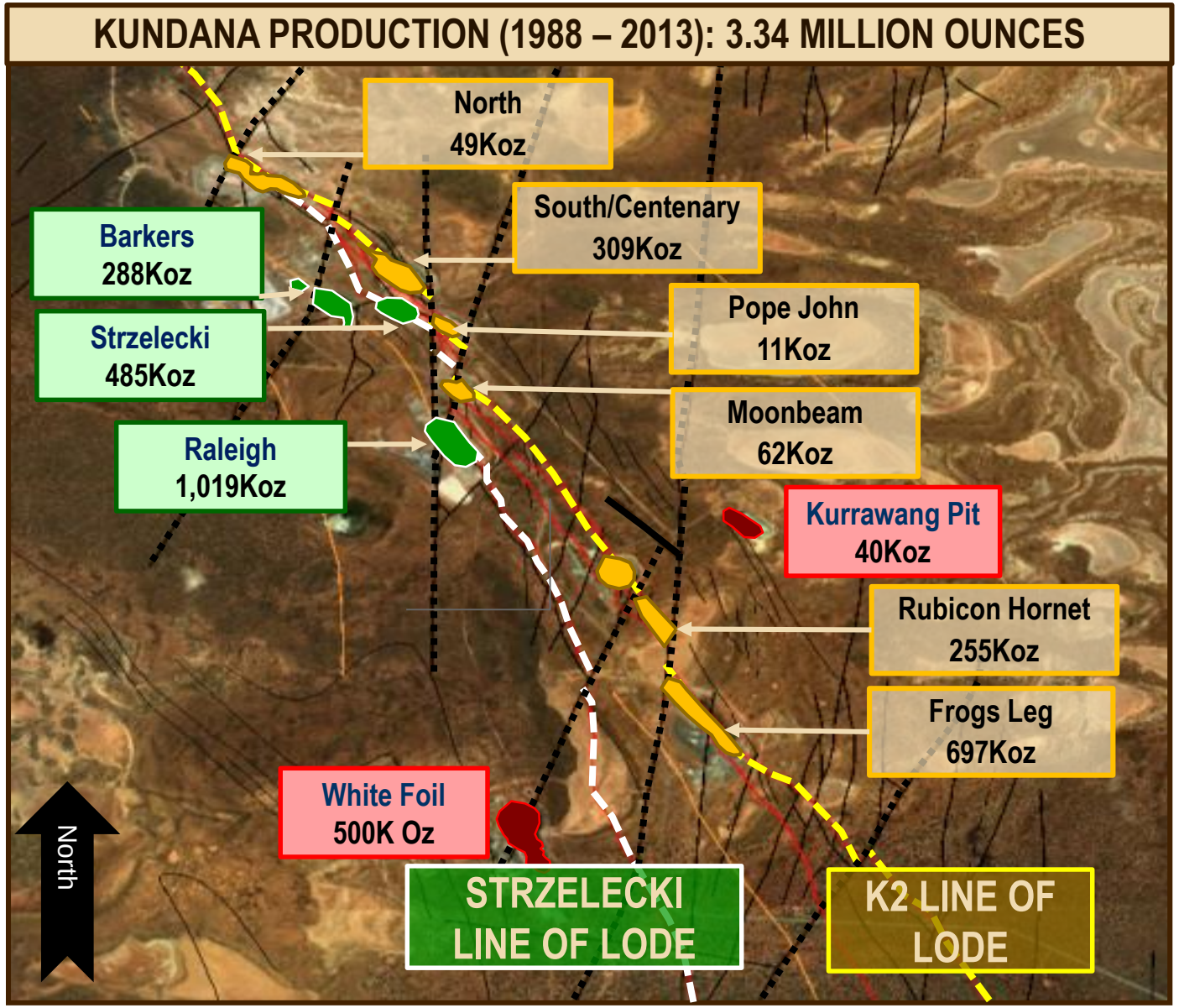
Kundana Deposits and Past Production

- Mineralisation in the Kundana Camp can be classified based on structural position:
  - K2 Line of Lode
  - Strzelecki – Barkers Line of Lode
  - Late D4-Associated Deposits

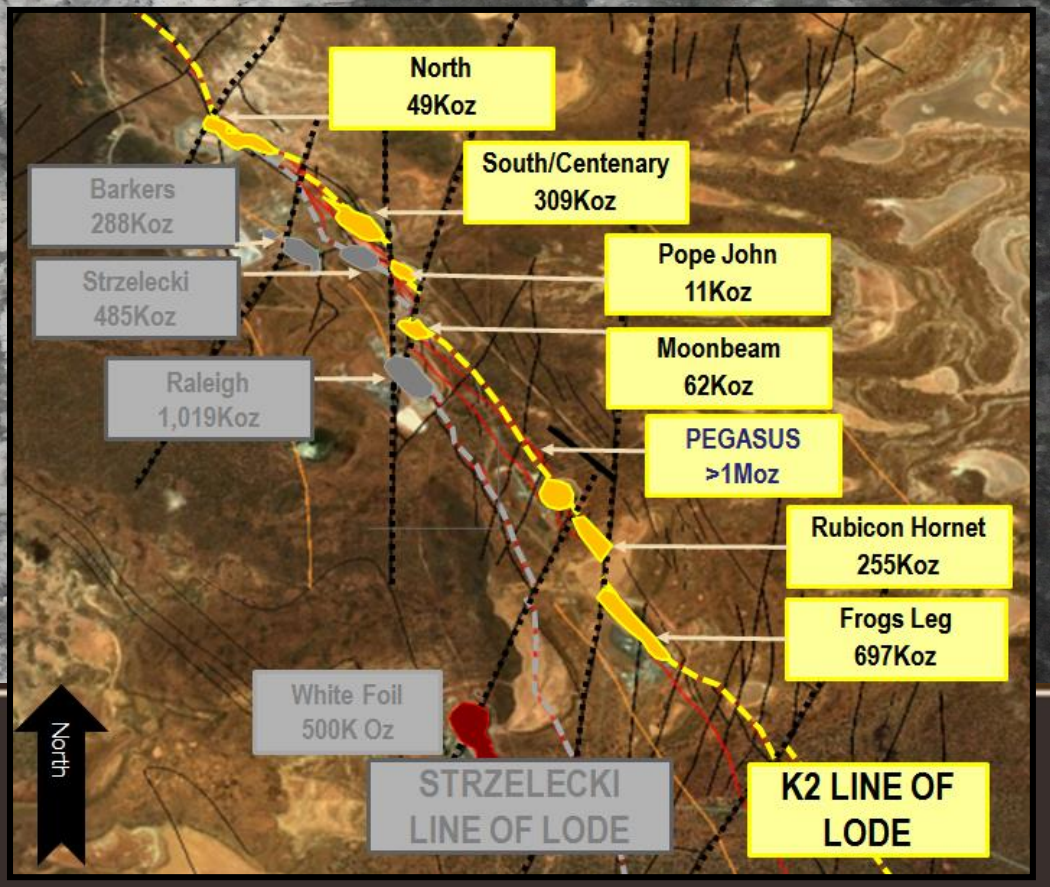
- The K2 Line of Lode has produced a total of 1.4Moz since 1988

- The Strzelecki Line of Lode has produced a total of 1.8Moz since 1988

- The D4 associated deposits have produced 0.2Moz since 1988



Geology of the K2 (East) Line of Lode



Deposit Geology – K2 Line of Lode

Frogs Leg – Hornet – Rubicon – Pegasus – Moonbeam – Pope John – Centenary – North - Ambition

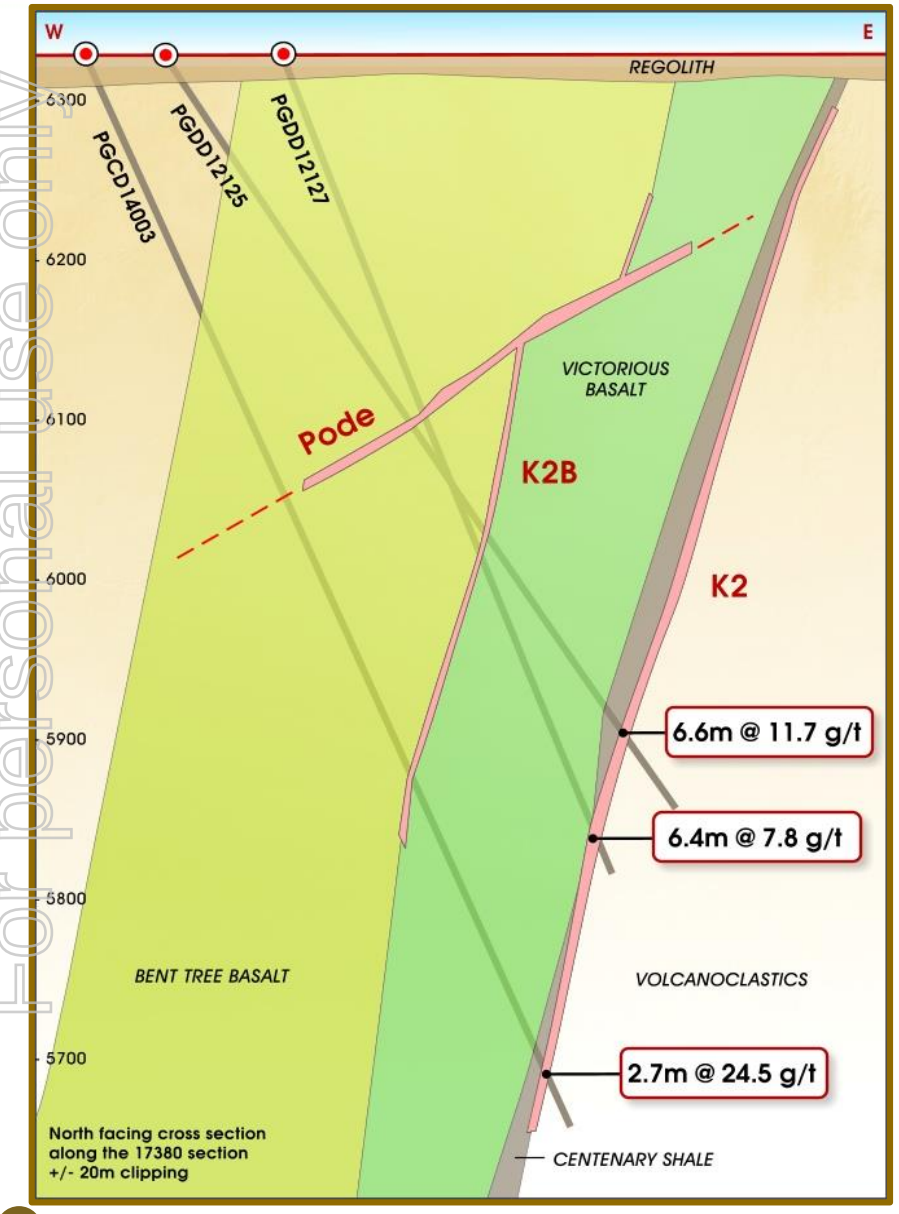
Key Geological Attributes:

Ore Body Classification	- Shear Hosted Archaean Greenstone Lode Deposit
Host Rock	- Variable, but typically hosted at stratigraphic contacts between the Victorious Basalt, Centenary Shale and Intermediate Volcaniclastics
Structural Setting	- Part of the Eastern Zuleika Shear Zone, Possible hinge related shear and thrusting. Displaced by late stage NNE trending structures
Vein Style	- Gold hosted in narrow (generally ~2m) crack-seal laminated quartz vein dipping ~70 degrees west. Locally brecciated in places
Mineralisation	- Multiple Generations. Coarse Free-Milling gold associated with minor (<5%) Sph, Asp, Py, Phy, Gal & Cpy. Scheelite is also commonly observed in high grade zones - Distinct plunging zones of high grade mineralisation (steep north and moderate south plunge)
Ore Grade	- Vein averages ~25g/t Au. With mining dilution, the head grade is reduced to ~10-15g/t

6075 LEVEL BACKS (HORNET)

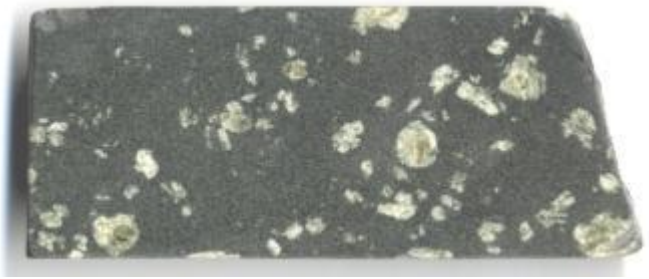
IMAGE: Adamtech 3D Photogrammetry Backs image of the 6075 Level at Hornet

Pegasus K2 – Geological Architecture



Bent Tree Basalt

Mafic Pillowed Basalt Flows

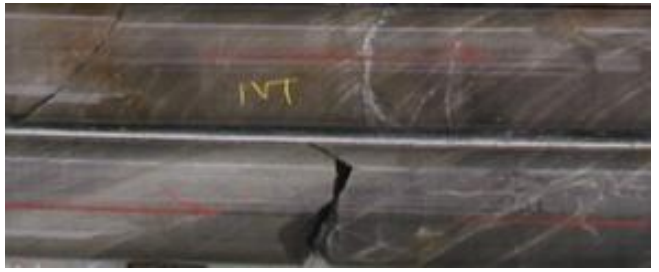


Victorious Basalt

Plagioclase-phyric volcanics

Centenary Shale

Carbonaceous shale with arsenopyrite & pyrrhotite following primary bedding



Intermediate Volcaniclastics (IVT)

Volcanic sediment derived from intermediate source, includes crystal tuff

Deposit Geology – K2 Line of Lode

Frogs Leg – Hornet – Rubicon – Pegasus – Moonbeam – Pope John – Centenary – North - Ambition

HORNET ORE VEIN

IMAGE: K2 Ore Vein at the 6005 Level (Hornet)

VEIN TEXTURE

IMAGE: Close up of ore vein in the 6005 Level (Hornet) showing internal deformation ,brecciation and multiple stages of mineralisation

GEOLOGY PRESENTATION

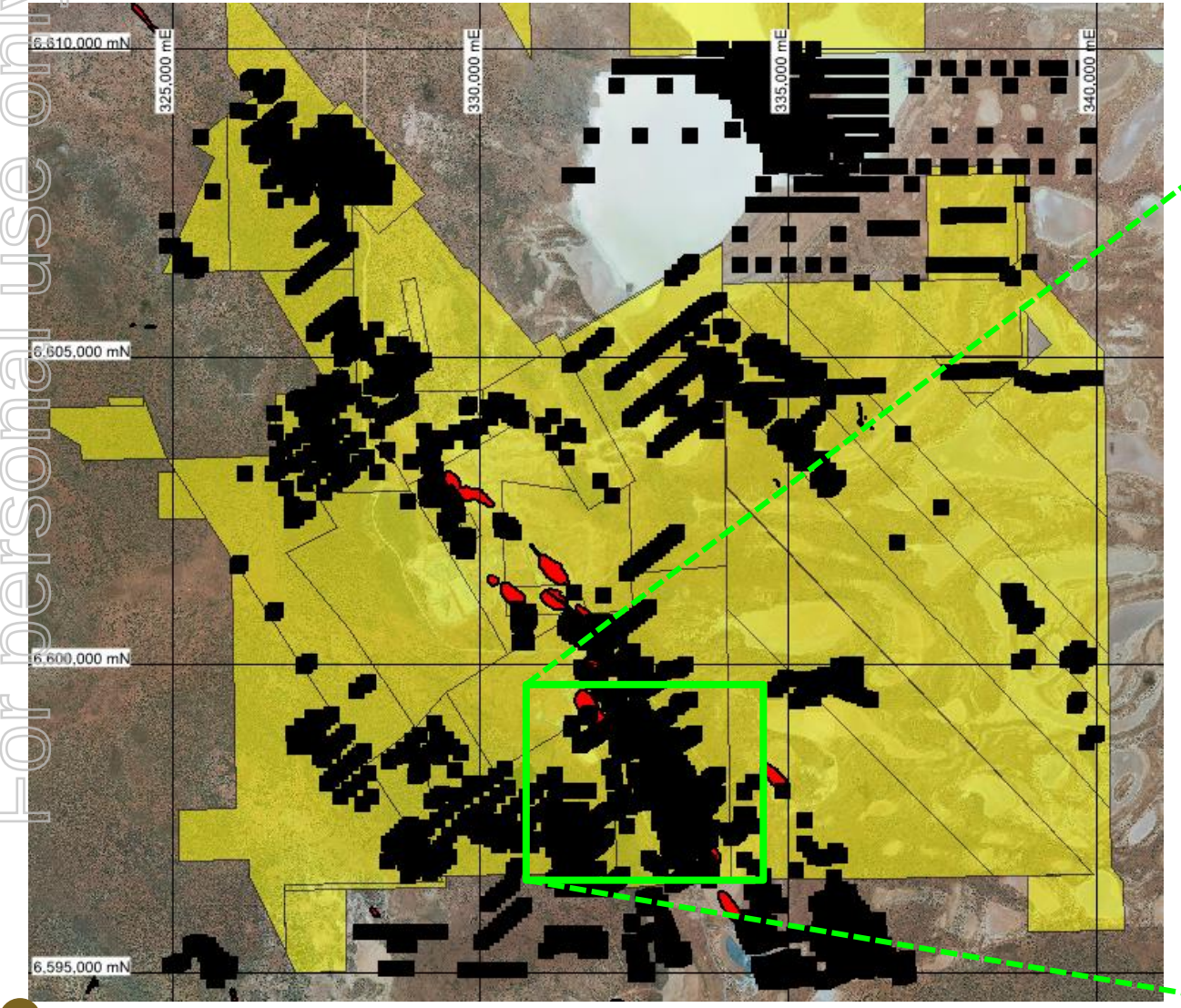
PART 4: ***PEGASUS DISCOVERY***

The Discovery Pegasus Story

A lesson in questioning Geological ‘FACTS’

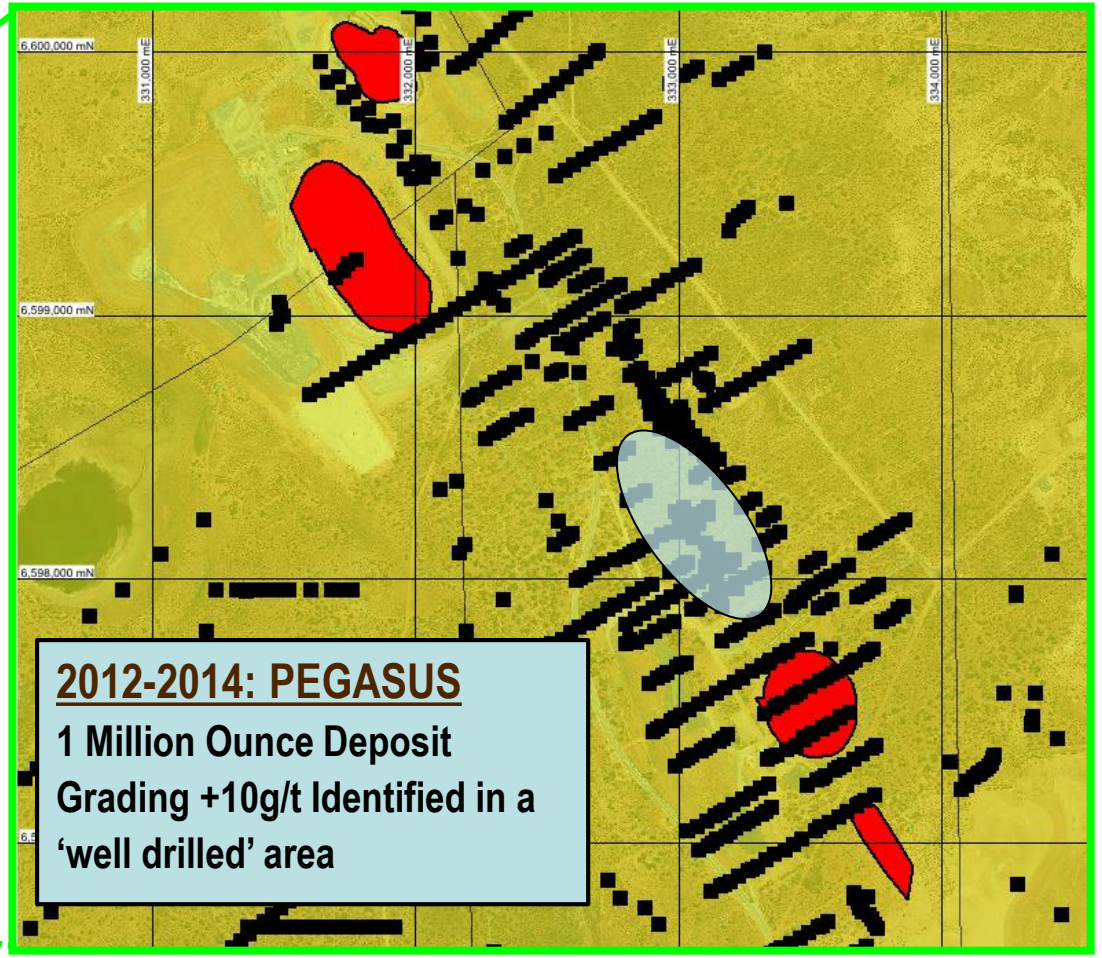
Pegasus – A Major Discovery in a Mature Field

Surface Drilling @ January 2011

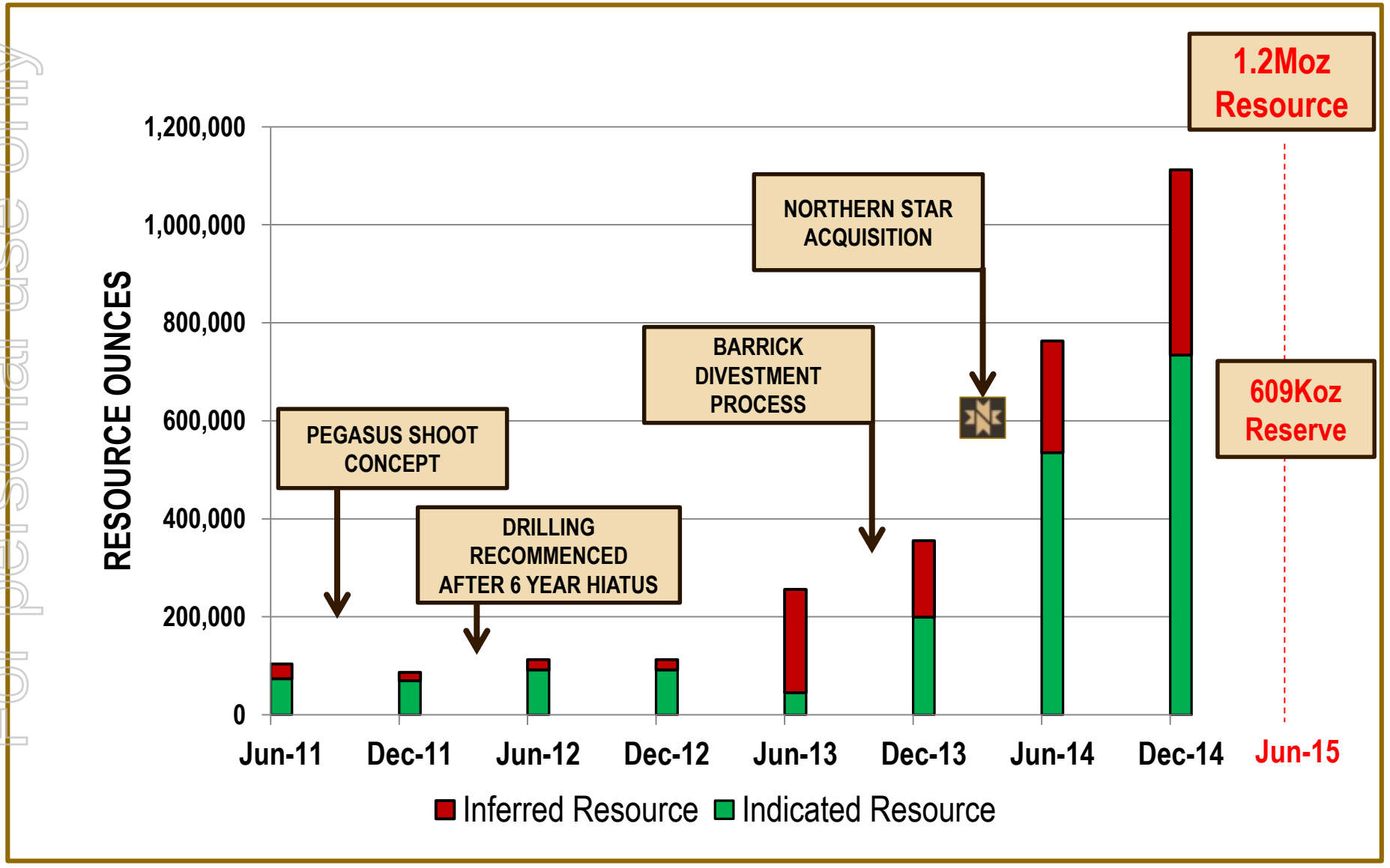


KEY TAKEAWAY: 'Well Drilled' does not necessarily mean 'Well Explored'

K2 Trend – Rubicon/Hornet @ January 2011



Pegasus Resource Growth History



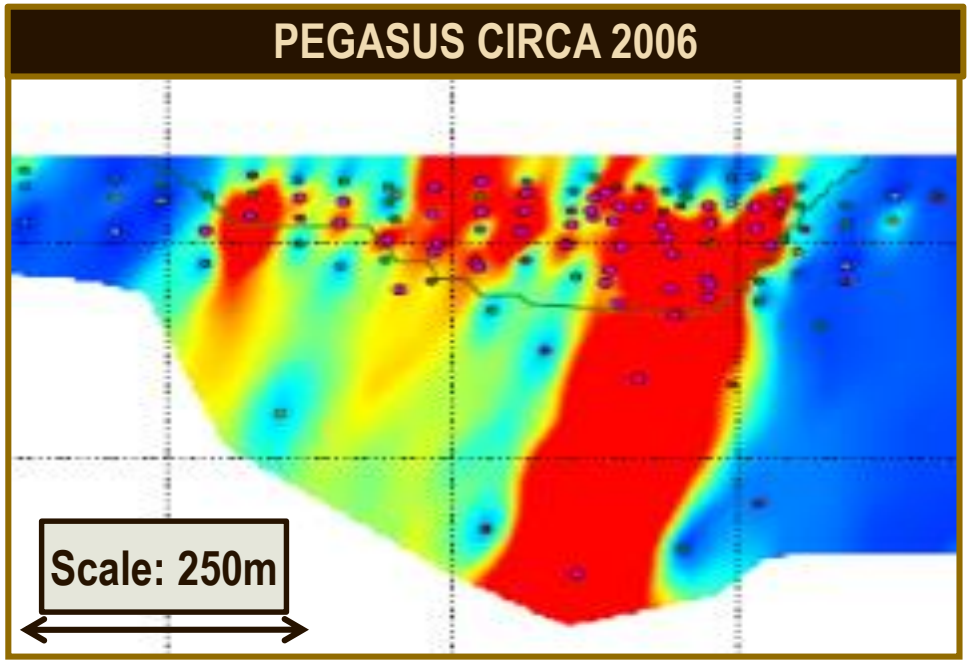
- Mid year 2014 the Pegasus **Resource** was 763Koz
- By Mid Year 2015, the **Reserve** was 609Koz.
- This is an 80% conversion of resource to reserve in 1 year.
- This is in line with the 80% conversion rate of resource to reserve in the Kundana field

Exploration History

- The Pegasus Prospect was first named in 1999, with the soil geochemistry anomalism first reported in 1987

- Numerous phases of drilling were conducted between 1999 and 2006. A small near-surface resource was identified, however was removed from the mineral inventory due to the interpreted limited strike length.

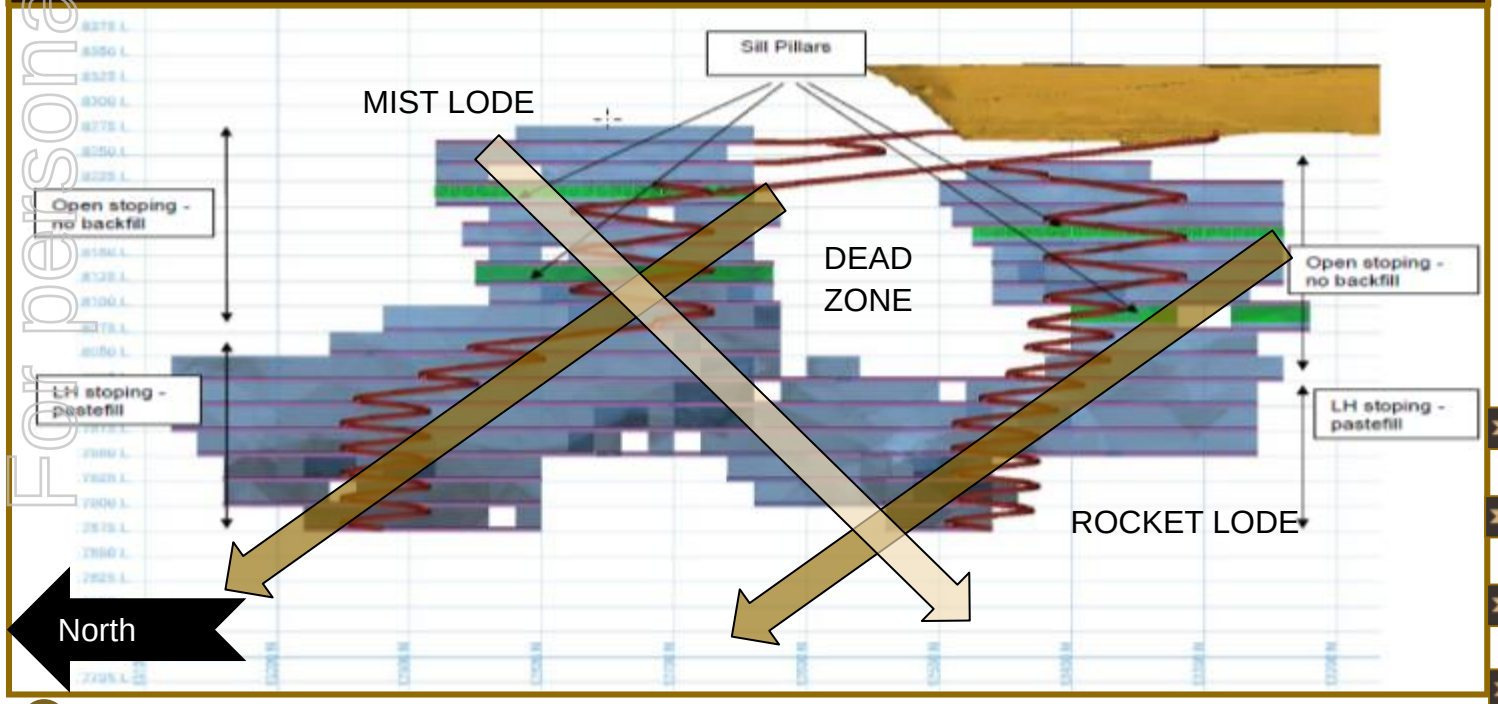
- Based on the 2006 drilling and the interpreted shoot orientation of steep north plunging, Pegasus was thought to have been closed off along strike with insufficient ounces per vertical metre to develop an economic underground mine



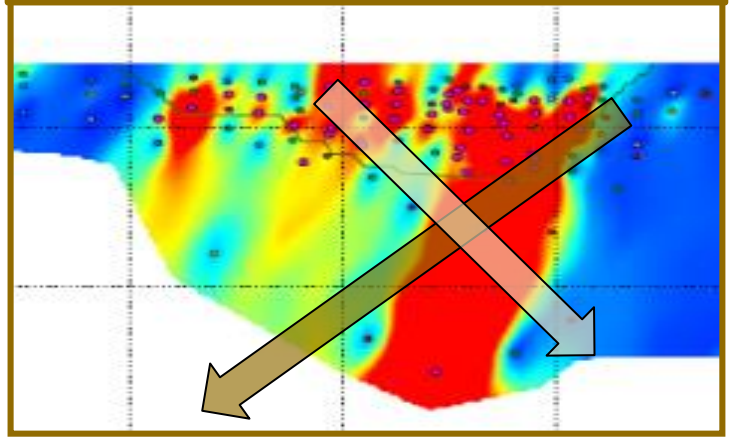
2011 – A Geological Awakening

- In 2011, a review of the exploration prospectivity of the EKJV tenure was conducted. With the advancement of geological knowledge in the district, new geological concepts were applied to historic data.

Frogs Leg Long Section (La Mancha Technical Report 2009)

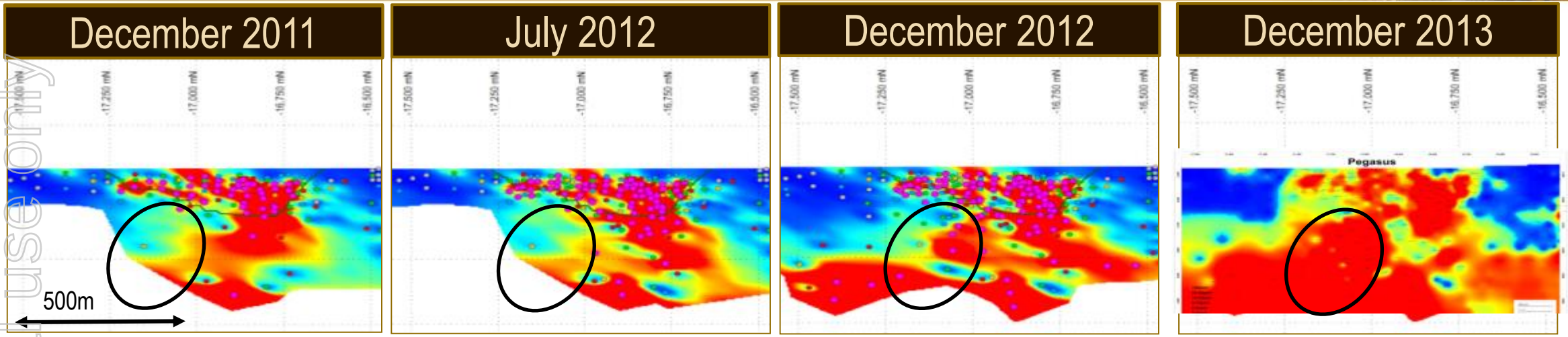


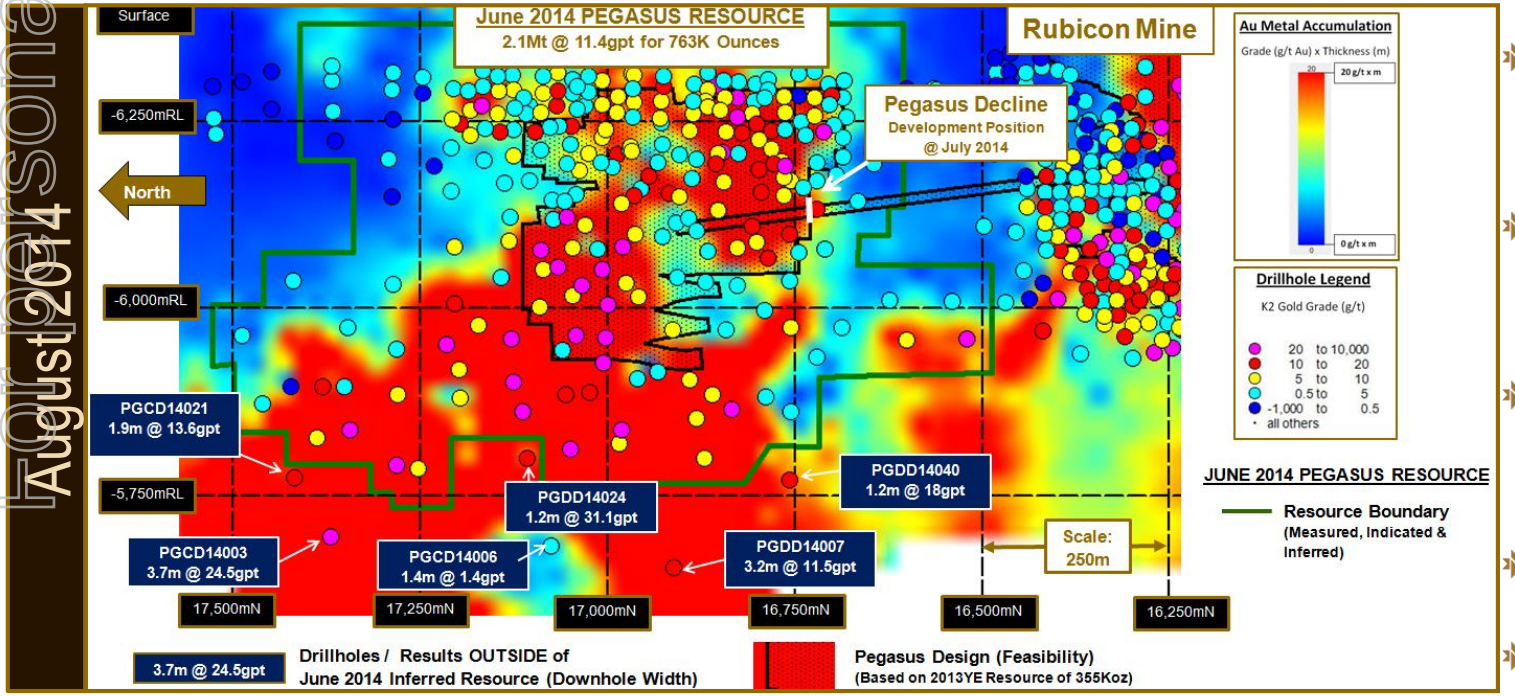
Pegasus (at 2006)



- **WHAT IF there were multiple shoot orientations at Pegasus?**
- **WHAT IF there were dead zones between shoots?**
- **COULD THERE BE blind mineralisation at depth?**
- **HAS PEGASUS BEEN CLOSED OFF?**

The Evolution of Pegasus

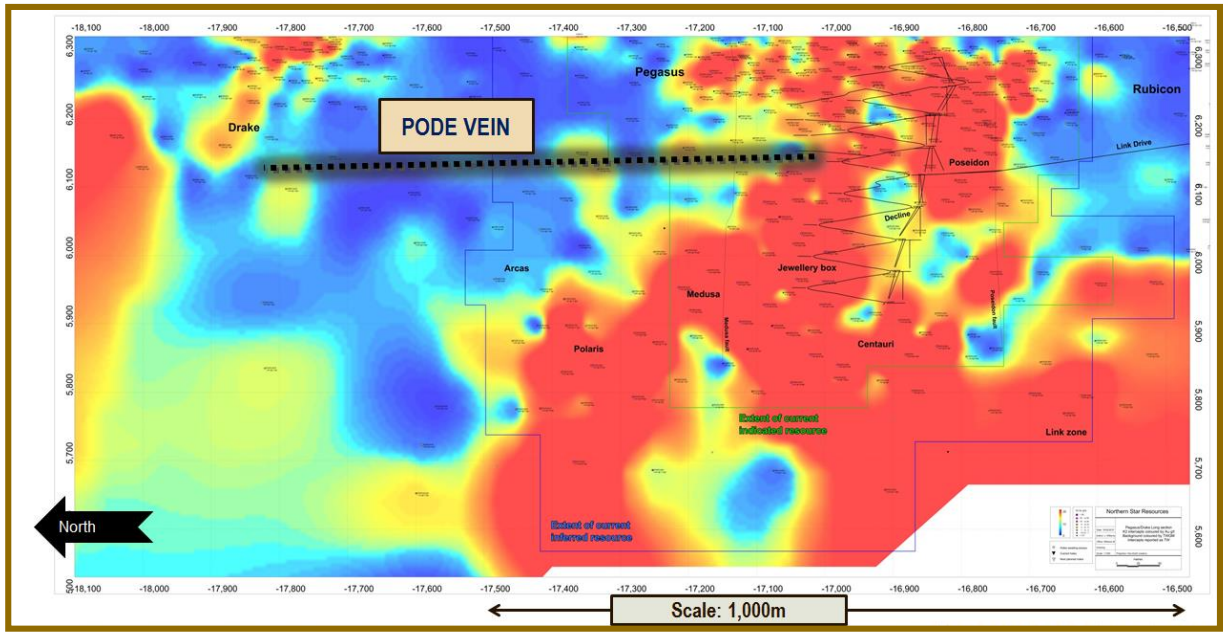


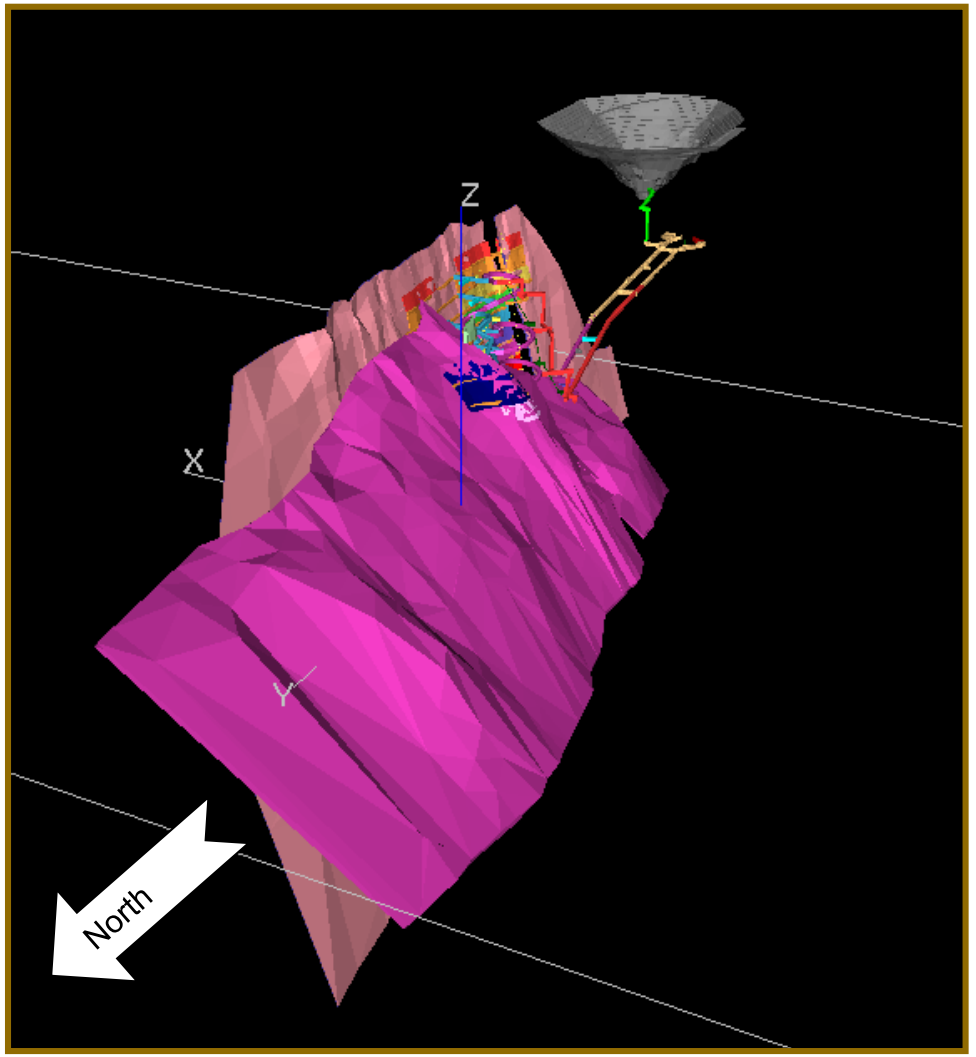


- Feasibility based on 2013YE Resource (355Koz) near completion
- Decline started in April 2014 and trial mining has begun – First Stope Mined
- Resource more than TRIPPLED between Dec 2013 and June 2015 to 1.2Moz
- Other mineralised structures discovered
- The Orebody is open in all directions

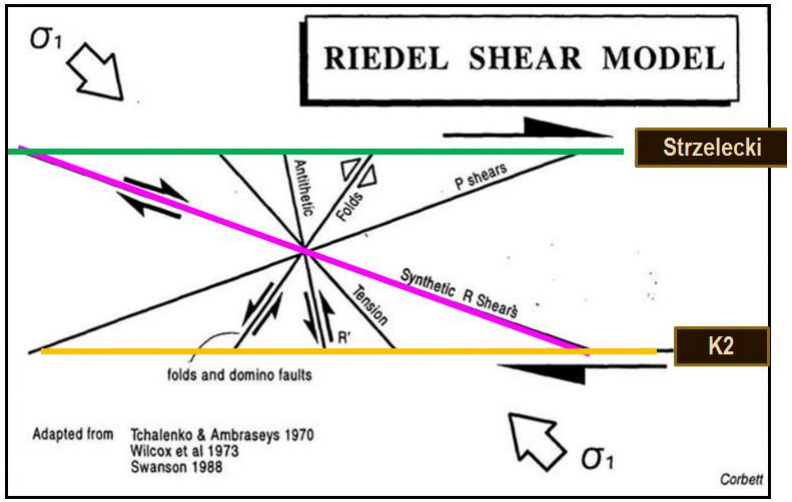
Intersections are downhole and uncut

Pode Structure – Mineralised Vein

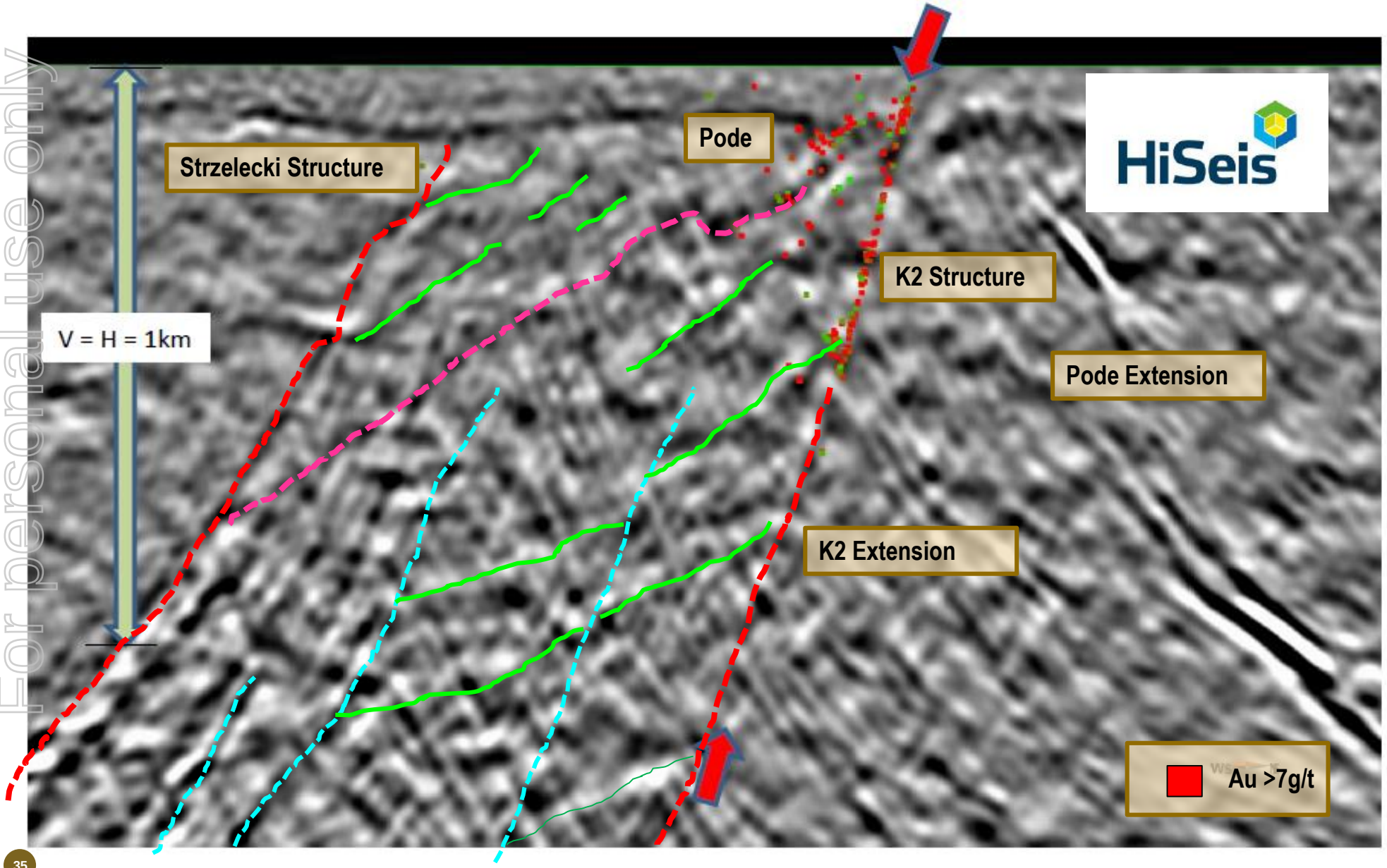




- New **MINERALISED** structure that continues to the North of Pegasus
- Dips at 45 degrees to the west
- Possible Riedel Shear, or Early Structure?

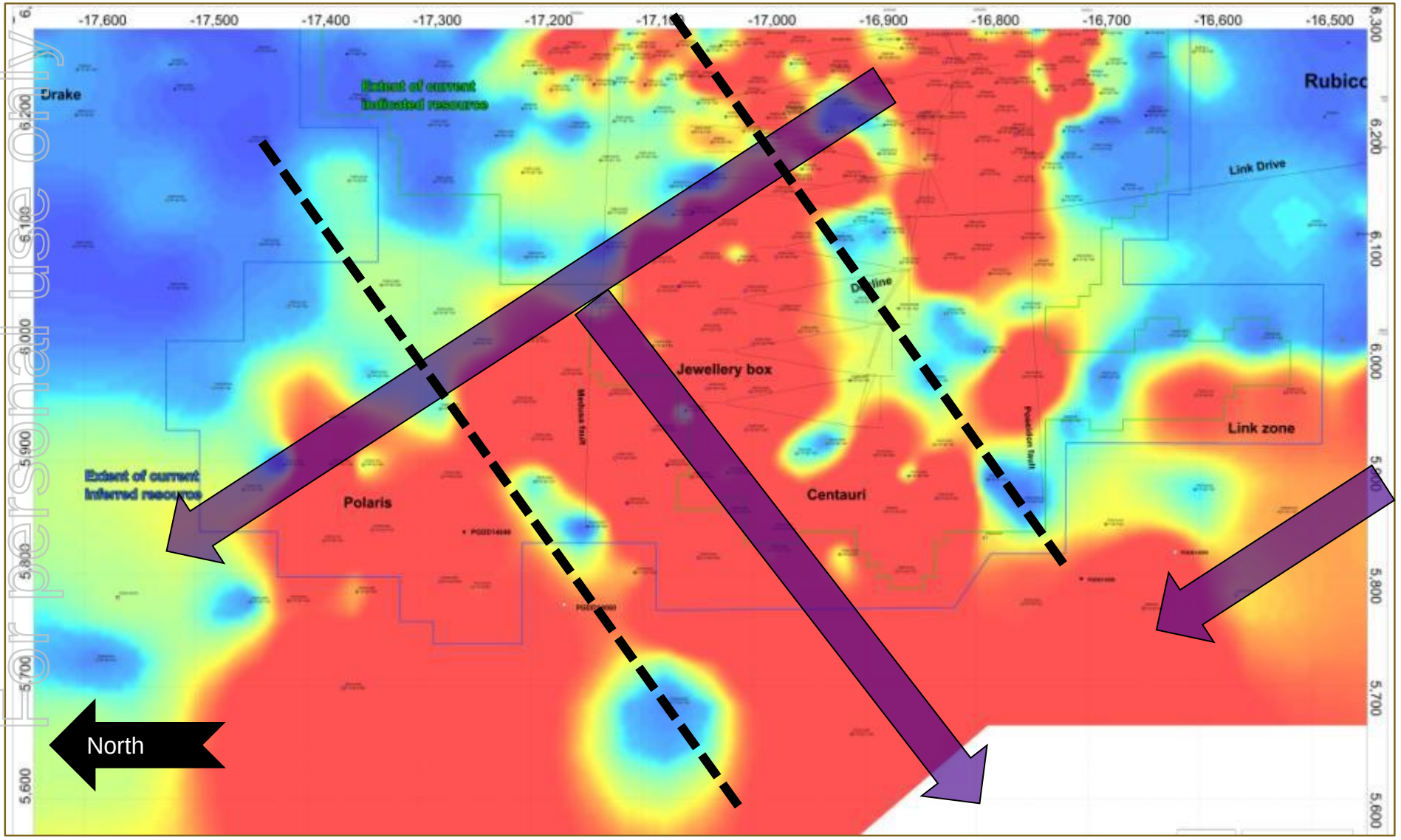


Pegasus Hard Rock 2D Seismic



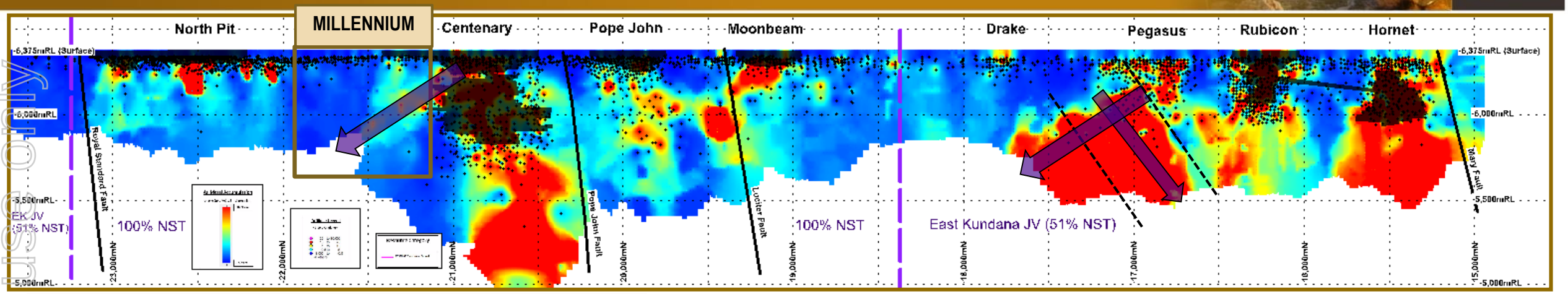
- Seismic section shows that this structure continues to the Strzelecki Fault
- How many more have not been recognised?

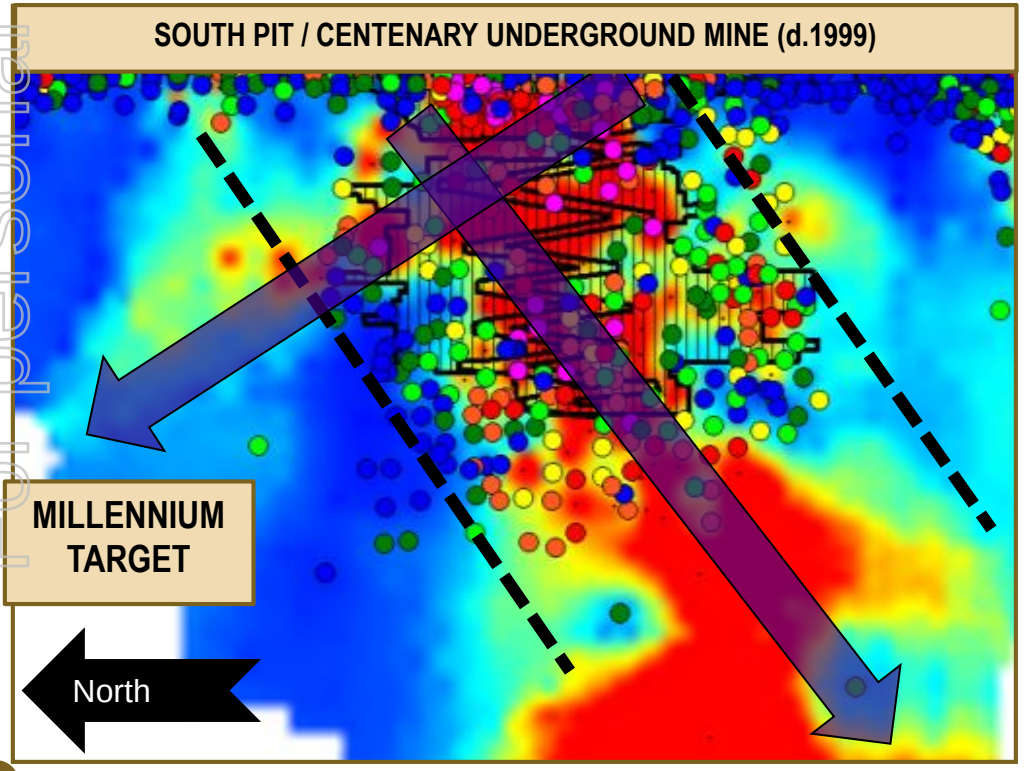
Pegasus Architecture as an Exploration Model



- Two Prominent Shoot Orientations Observed at Pegasus:
  - South Plunge (fold related)
  - North Plunge (fault movement)
- South Dipping Zones of vein thinning
  - K2 structure and vein is present, however metal accumulation decreases as vein thins
  - These appear to be related to flexures in the structure

KUNDANA: Centenary North – Millennium (NST 100%)

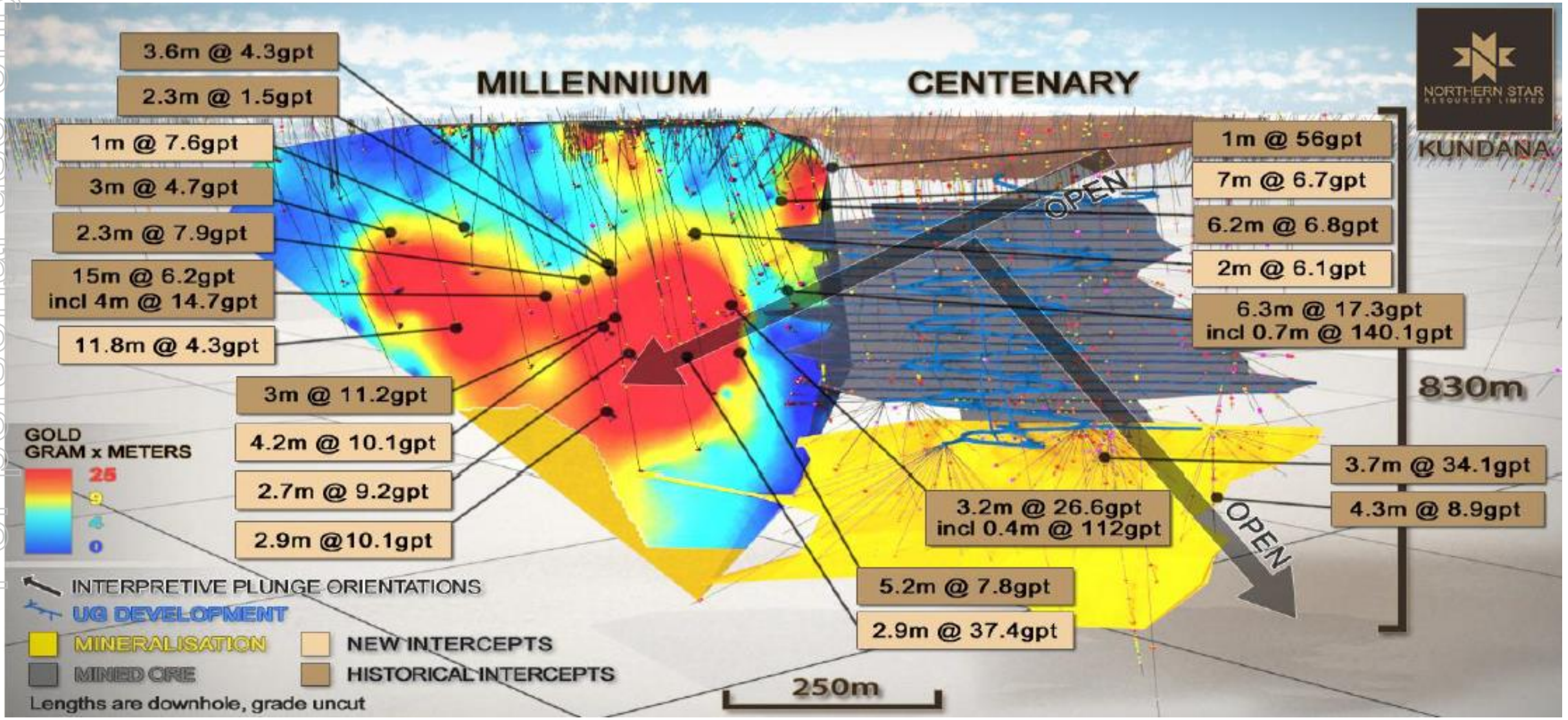




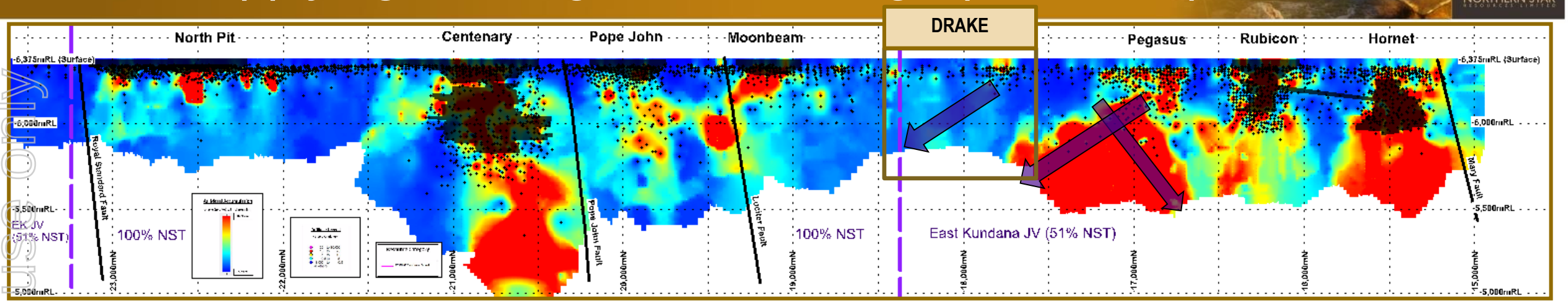
- Strong South plunge of mineralisation observed at the Centenary Underground Mine (Similar orientation to Pegasus & Frogs Leg)
- Development may have stopped at south dipping low grade flexures as seen at Pegasus
- Unlike Pegasus, the north plunge is absent at Centenary (or is it?)
- The Millennium target aims to test the theory that the development stopped on a low grade flexure and there may be a blind north-plunging shoot near surface

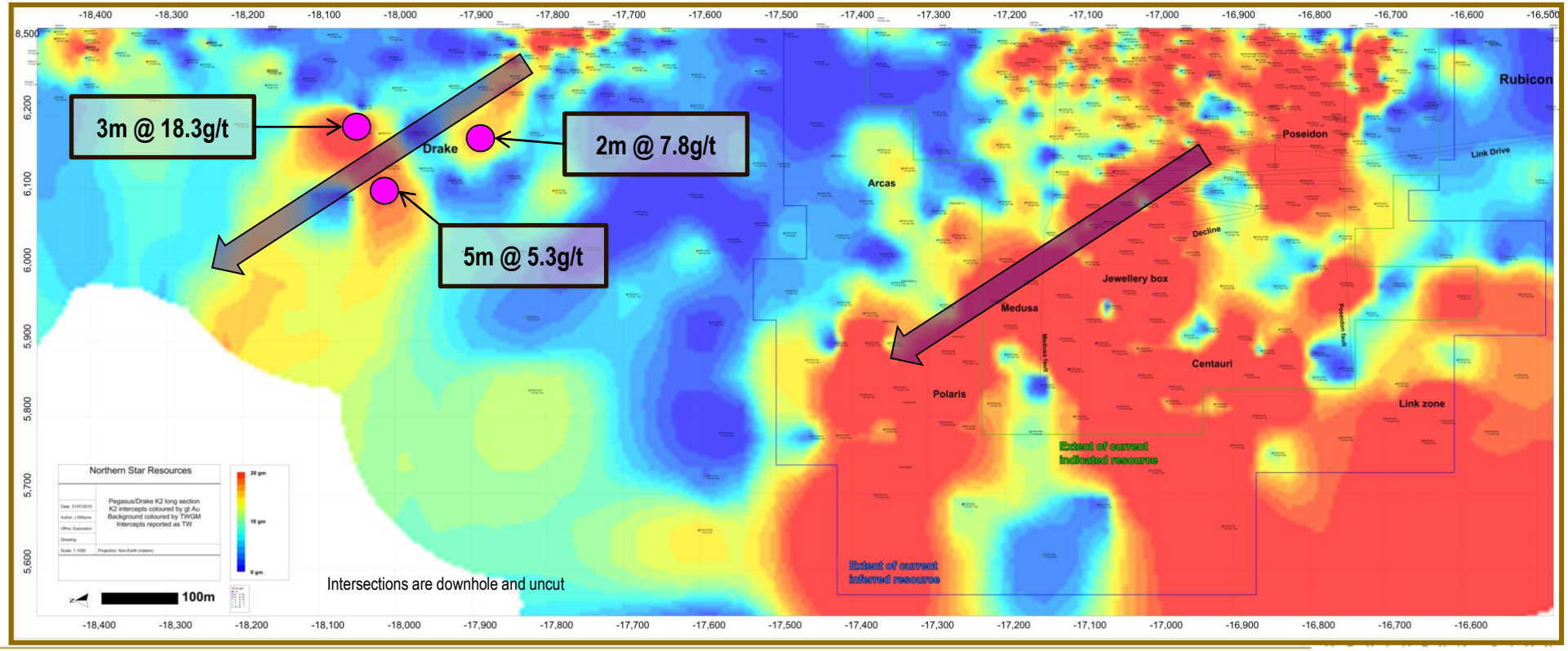
KUNDANA : Millennium (NST 100%)

- In August 2015 NST announced a maiden resource on Millennium of 1.8Mt @ 5.8gpt for 346koz



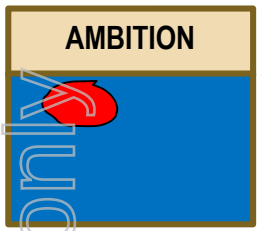
Drake – Applying the Pegasus Learnings (NST 51%)



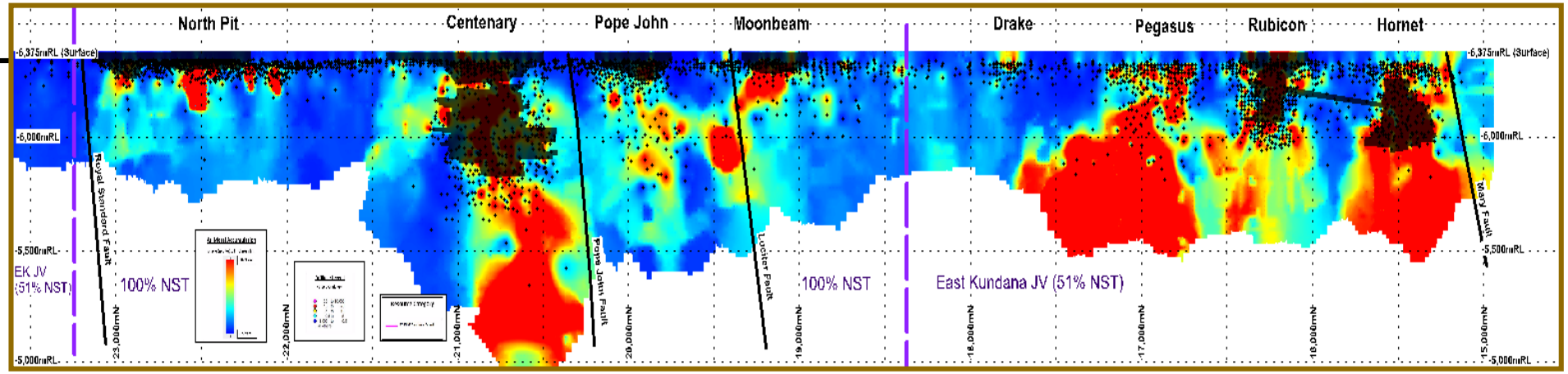


EKJV: Ambition (NST 51%)

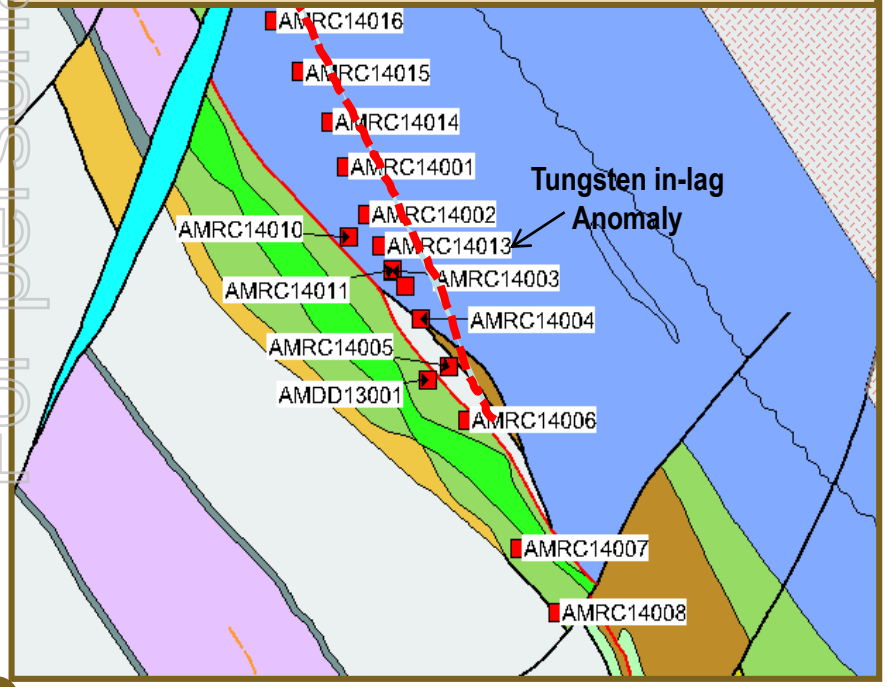
AMBITION

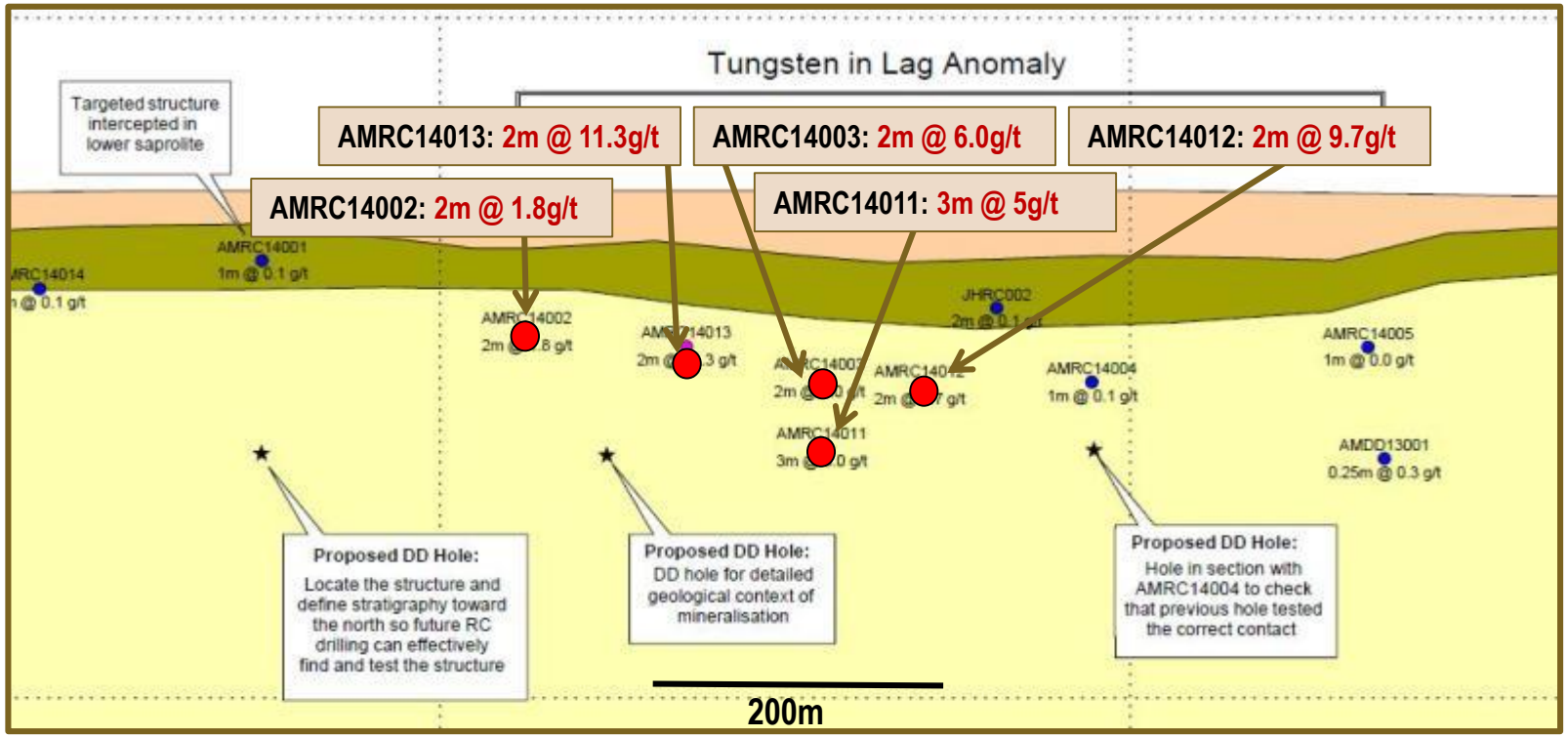


2.5kms from North Pit on the K2 Structure

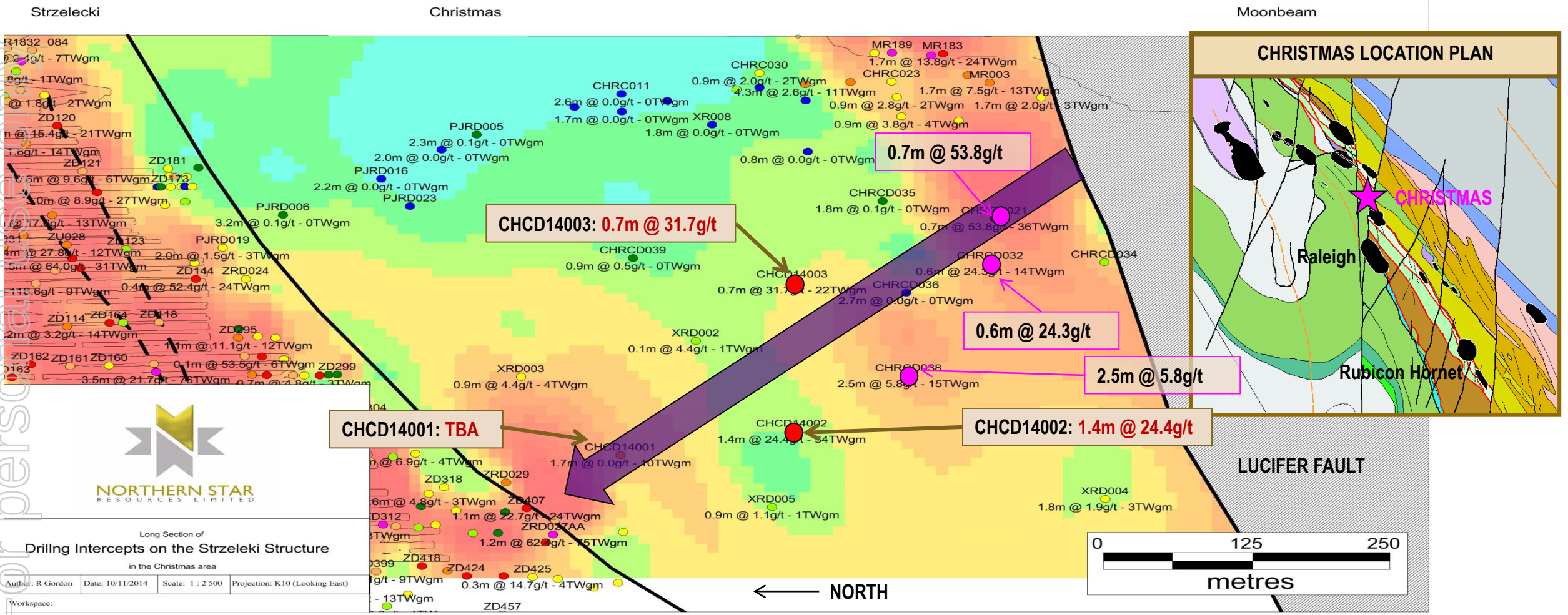


AMBITION REVISED GEOLOGICAL INTERPRETAION





KUNDANA: Christmas (NST 100%)



- Targeting the continuation of the Raleigh Vein on the other side of the Lucifer fault.
- Testing a potential shallow north plunging 'Pegasus style' shoot on the Strzelecki structure
- All 3 holes intersected veining and mineralisation

Questions?

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August 2015