



# South Boulder Mines

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Investor Update  
ASMARA GEOCONGRESS 2010  
Drilling Potash  
and Nickel

September 2010

[www.southbouldermines.com.au](http://www.southbouldermines.com.au) (ASX: STB)

General Exploration Drilling Pty Ltd at the Colluli Potash Project, Eritrea.

# 1. Executive Summary

## SOUTH BOULDER MINES

- ASX Listed October 2003 (ASX: STB), (SO3-Ber), (SO3-Fra); and
- Three outstanding projects: nickel, gold and potash.

## PROJECTS

### Colluli Potash Project, Eritrea.

- Potentially **“world class”** buried evaporite potash project in Eritrea;
- Conduct resource confirmation and definition drilling ahead of JORC/43-101 resources and feasibility studies at Colluli;
- **Highly significant shallow potash mineralisation has now been intersected in 3 diamond holes defining an approximate area of 4.5km<sup>2</sup> and growing;**
- **Drilling continuing to define up to a target 20km<sup>2</sup>;**
- **Assay results from first 4 holes are due in late Sept;**
- **Strategy to define a 1.5Mt p.a operation.**

### Duketon Greenstone Belt Projects, Western Australia.

- Nickel Sulphide JV with Independence Group (ASX: IGO);
- **New Nickel Sulphide Discovery – “Australia’s most exciting greenfields nickel discovery”**
- IGO earning 70% of nickel upon completion of BFS; and **5.20m @ 9.13% Ni, 1.09% Cu, 0.21% Co and 7.09g/t PGEs (2.20g/t Pt, 1.74g/t Pd, 0.82g/t Rh, 1.79g/t Ru);**
- **Scoping Study programs to commence in September;**
- **STB has 100% of Gold Rights on the DNJV and additional tenure in the Duketon Greenstone Belt.**



Shallow carnallite mineralisation from COL-001, Colluli Potash Project, Eritrea.



Outstanding Nickel - copper – PGE mineralisation from the Duketon Nickel Project W.A.

## 2. Company Snapshot

<b>COMPANY DETAILS</b>	Market cap @ 0.80c/share)	\$54.0M
	Ordinary Shares	67.6M
	Cash/NTA	\$5.8M
	Unlisted Options	34.9M
	Top 40 Shareholders	58.52%

**BOARD** Terry Grammer (Chairman) – 35 years experience, discovered Cosmos Nickel Deposit and was a founder of Western Areas NL;

Lorry Hughes (Managing Director) – 18 years experience, Au, U, Pb mining and exploration, Aust., Malaysia, Indon.; Energy Metals Ltd, Magellan Metals Inc., Riotinto, North Limited, Plutonic;

Liam Cornelius (Executive Director) – 18 years experience, Au, Ni, company founder, Aust., SE Asia, Africa;

Dennis Wilkins (Company Secretary) – 20 years experience with resource companies;

ERCOSPLAN (Potash Consultant) - +50 years experience in planning and execution of projects in the potash and mineral salt industry. World renowned experts.



South Boulder Drill Crew conducting the second diamond hole at The Colluli Potash Project, Eritrea.



COL-001 drill core showing base of a strong carnallite mineralisation zone from 89.74 - 93.20m (note carnallite is heat sealed in plastic immediately after drilling to prevent dissolution of the samples)

# 3. Eritrea a Mining Friendly Country

## FORMATION

- The country gained its independence in 1991;
- UN supervised referendum made it official in 1993;
- Population ~ 5.0 million people; ~80% dependent on subsistence agriculture;

## CURRENTLY

- Stable Government:
  - ***Previous minister for mines was in place for 12 years.***
- Supportive government for foreign investment in mining and exploration.

## MINING REGIME

- Mining code based on Northern Territory, Australia, with royalties of:
  - 5% on precious metals; and
  - 3.5% on base metals and salts.

## GOV'T INTEREST

- Corporate tax rate ~ 38%;
- Government 10% free carry; and
- After BFS Government has option to purchase an additional 30% equity participation interest at an independently determined price.

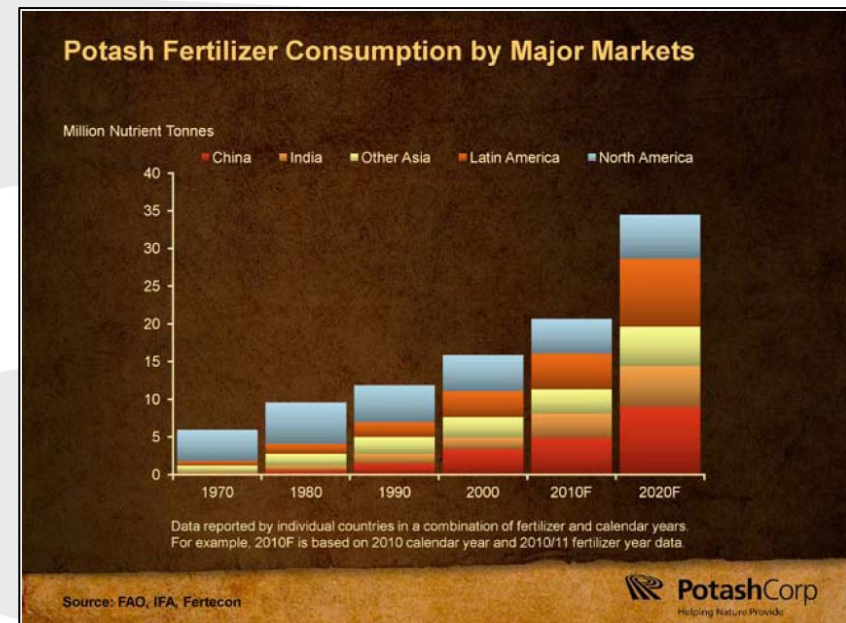


Above; South Boulder crew checking the important drilling mud.  
Below; South Boulder Geologist examining some of the first potash core.



# 4. Potash – Why Potash?

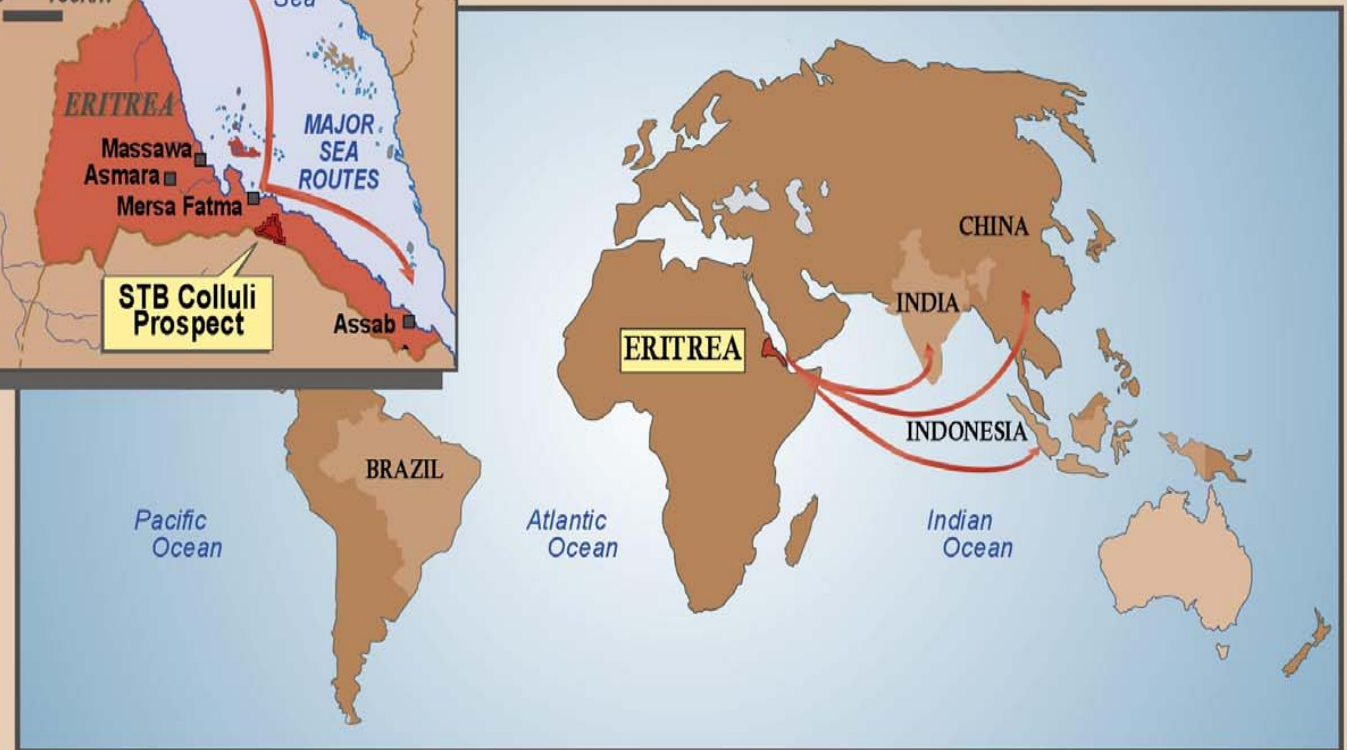
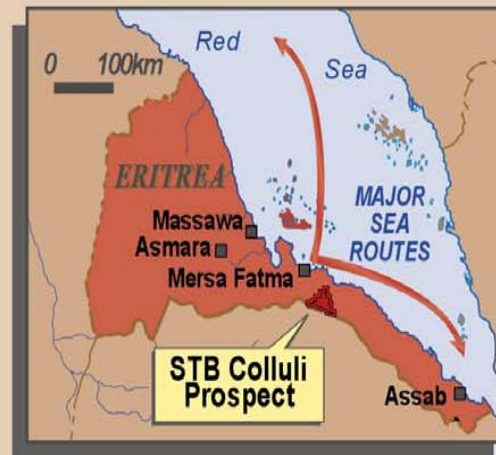
- Large scale, long term projects, strategic asset;
- Rising population and improving diets are driving food consumption growth and potash demand;
- Potash is required to produce more food from a declining per-capita land base;
- Price estimates of USD\$350 – 400/t for 2010 and rising, peak price USD\$1,000/t in 2008;
- Short-term decline in fertilizer use is not sustainable – irreplaceable, reduced use cannot continue without potential consequences for the global food supply;
- **Upshot is the potash market has strong fundamentals for demand growth;**
- Recent deals include BHP offer of USD \$39bn to acquire Potash Corp and Mag Industries (TSX: MAA) option to COMPLANT to purchase 50.1% of the Mengo Potash Project in the ROC for debt financing of US\$1.2b.
- BHP is planning to build the largest potash mine in the world. 8Mt p.a, capital cost USD\$10.5bn;
- **Colluli Project initial potential target to define a 1.5Mt p.a operation, capital cost ~ USD\$0.5-0.75bn and mine life exceeding 20 years.**



# 5. Colluli Potash Project Ticks a lot of Boxes

## Colluli Potash Project Ticks a lot of Boxes

- **Close to port and markets**  
(70km to Mersa Fatma)
- **Size and grade of targets**  
(Massive deposits, huge mine lives)
- **Shallow potash horizons**  
(25 to 400m deep)
- **Underlying demand for Potash**  
(Irreplaceable)
- **Mining methods**  
(Low cost solution to mining)
- **Solar evaporation**  
(Energy use -40% of opex at other sites)
- **Geothermal energy**  
(Known hot spots in region)
- **No known significant environmental issues**



✓ **Potential Low Cost Production**

# 5. Colluli Potash Project (CONT'D)



Above; Viscosity testing of diamond drilling mud for good recovery of the potash zones.  
Below; A typical solution mine well head and distributor.

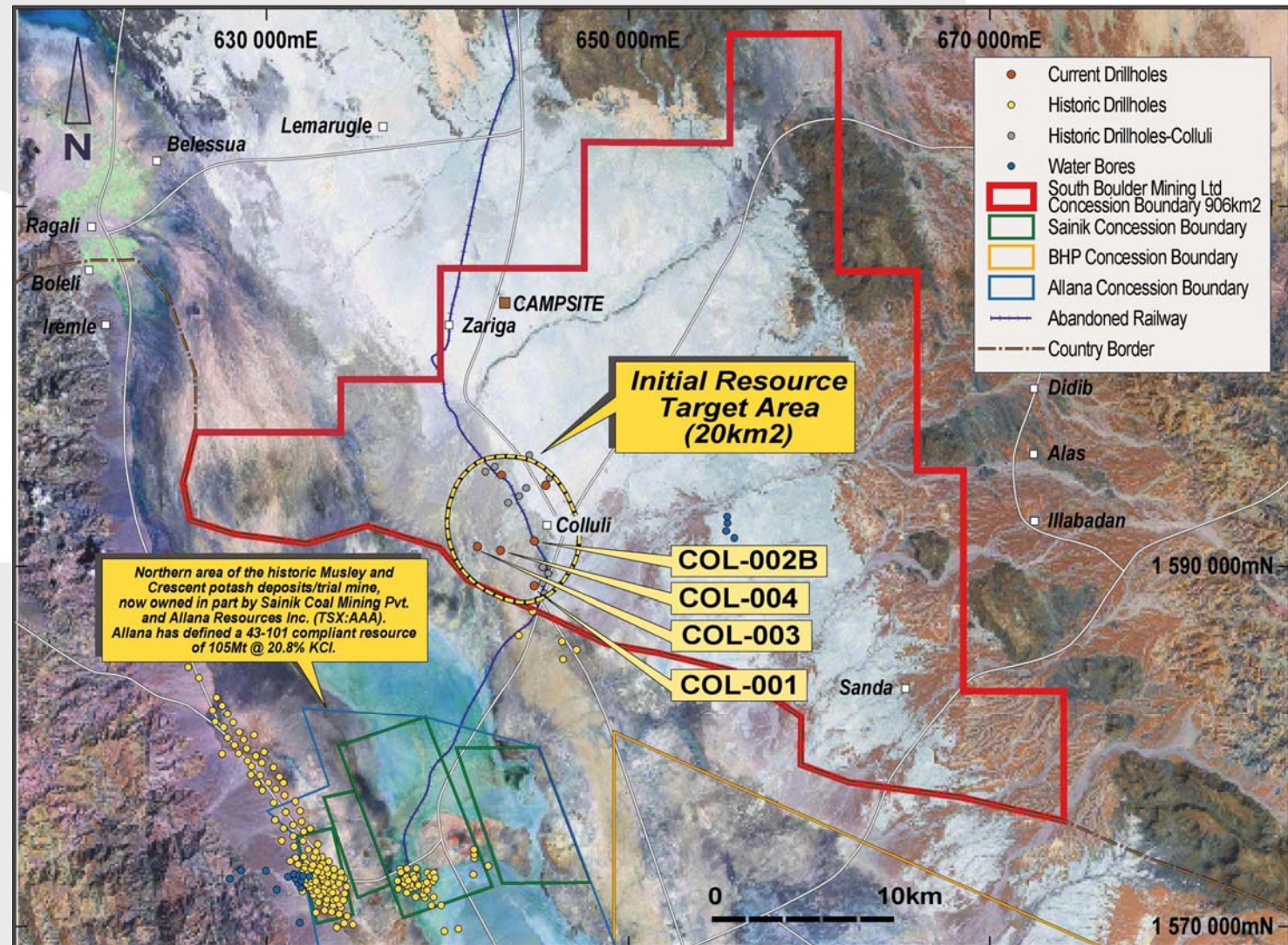


Above; Drill sumps in the salt flat provide a source of drilling water.  
Below; Carnallite zone drill hole COL-002B ( $\text{KMgCl}_3 \cdot 6(\text{H}_2\text{O})$ ).



# 5. Colluli Potash Project (CONT'D)

- Danakil Depression deposits formed by the evaporation of water once the basin was cut off from the Red Sea due to volcanic activity; and
- Houston Formation potash rich layers have been intersected up to 45m thick at Musley, only 15kms from Colluli;
- BHP, Allana Potash Corp., Sainik (Pvt) and other players in the region;
- Sylvite- KCL  
Carnallite –  $\text{KMgCl}_3 \cdot 6(\text{H}_2\text{O})$   
Kainite –  $\text{MgSO}_4\text{KCl} \cdot 3(\text{H}_2\text{O})$
- Mineralogy can support the production of **both SOP and MOP.**





# 5. Colluli Potash Project (CONT'D)



Above; COL-002B drill core showing the base of a strong carnallite zone from 63.25 – 67.00m.  
Below; COL-004 drill core showing strong sylvinite zone from 34.60 – 35.51m.

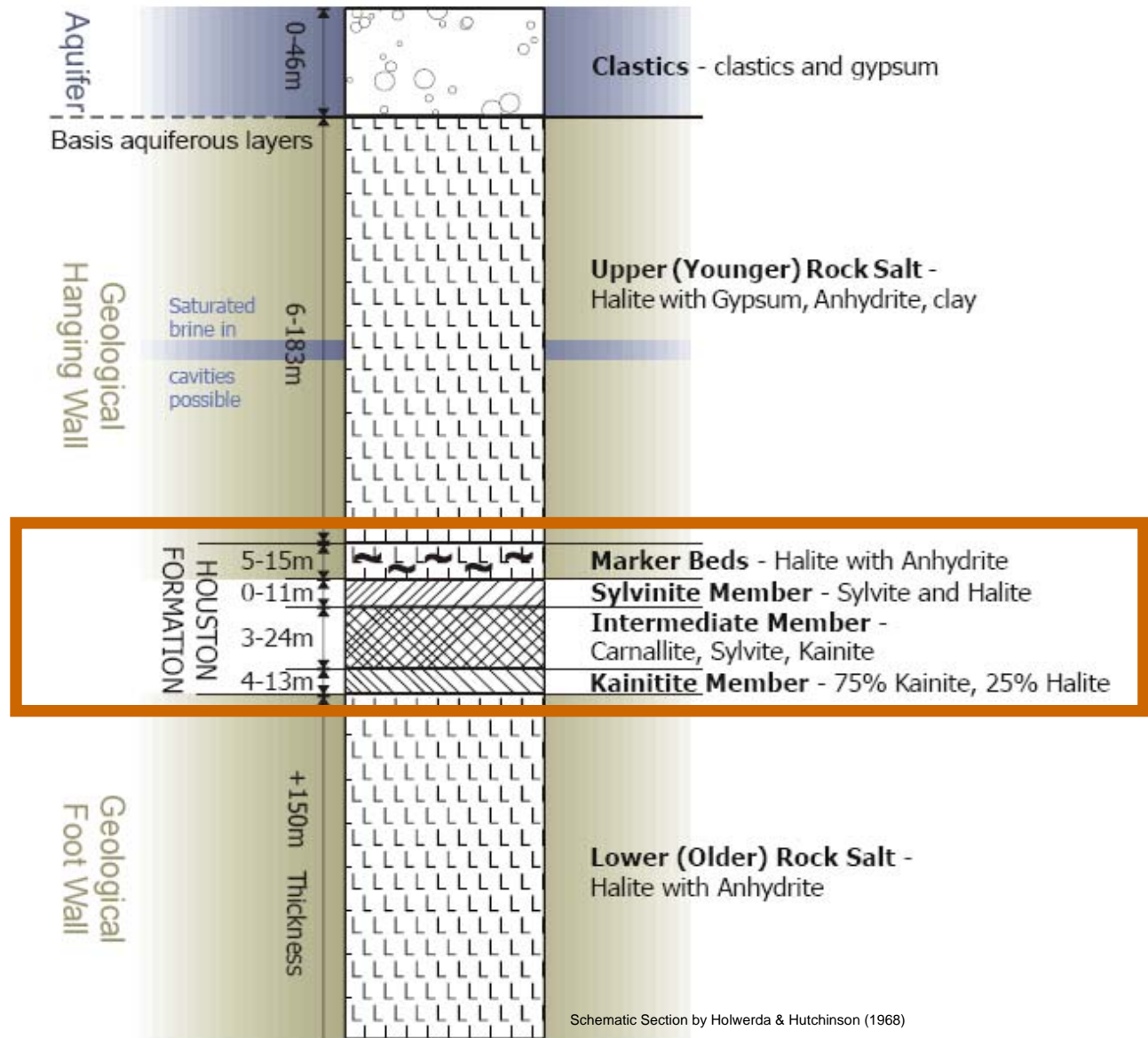


# 5. Colluli Potash Project (CONT'D)

- 1st Layer; (Historic)  
1.7m sylvinite @ 12.5% K<sub>2</sub>O  
TOP 23m – 180m depth;
- 2nd Layer: (Historic)  
17m carnallite @ 50-70wt% TOP  
390m depth (~17% K<sub>2</sub>O);

- COL-001 intersected potash from 59.20 – 65.20m (6.00m) and from 83.20 – 103.40m (20.20m);**
- COL-002B intersected potash from 56.56 – 80.50m (23.94m);**
- COL-004 has intersected potash from 28.68 – 36.39m (7.71m); from 48.55 – 70.39m (21.84m);**
- Potash has been intersected over an area of ~ 4.5km<sup>2</sup> and growing (program increased to 10-12 holes);**
- Potential for very large tonnage;**

- Excellent potential for the discovery of additional potash beds at depth as well as near surface potash rich brines.



# 5. Colluli Potash Project (CONT'D)

Hole ID/ Member	East (m)	North (m)	Dip	Length (m)	From (m)	To (m)	Description
COL-001	644740	1589024	90	52.00	0.00	52.00	Clastics, overburden
Marker beds				9.20	52.00	59.20	Rock salt with anhydrite (CaSO <sub>4</sub> )
Sylvinitic				6.00	59.20	65.20	Rock salt with sylvite (KCl) locally up to 30% sylvite
Intermediate				2.80	65.20	68.00	Rock salt with carnallite (KMgCl <sub>3</sub> ·6(H <sub>2</sub> O))
Intermediate				15.20	68.00	83.20	Bischofite (MgCl <sub>2</sub> ·6(H <sub>2</sub> O))
Intermediate				10.10	83.20	93.30	Carnallite, (60-70%) carnallite (KMgCl <sub>3</sub> ·6(H <sub>2</sub> O))
Kainitite				10.10	93.30	103.40	Kainitite, kainite (MgSO <sub>4</sub> ·KCl·3(H <sub>2</sub> O))
				37.90	103.40	141.30	Rock salt with layers of anhydrite (CaSO <sub>4</sub> ) and clay

Above; COL-001 Summary Log  
Below; COL-002B Summary Log

Hole ID/ Member	East (m)	North (m)	Dip	Length (m)	From (m)	To (m)	Description
COL-002B	644806	1591484	90	26.00	0.00	26.00	Clastics, overburden
				4.00	26.00	30.00	Rock salt
Intermediate				26.56	30.00	56.56	Bischofite (MgCl <sub>2</sub> ·6(H <sub>2</sub> O)) minor carnallite, kieserite (MgSO <sub>4</sub> ) and rock salt
Intermediate				11.34	56.56	67.90	Carnallite, (60-70%) carnallite (KMgCl <sub>3</sub> ·6(H <sub>2</sub> O))
Kainitite				12.60	67.90	80.50	Kainitite, kainite (MgSO <sub>4</sub> ·KCl·3(H <sub>2</sub> O))
				9.60	80.50	90.10	Rock salt with layers of anhydrite (CaSO <sub>4</sub> ) and clay

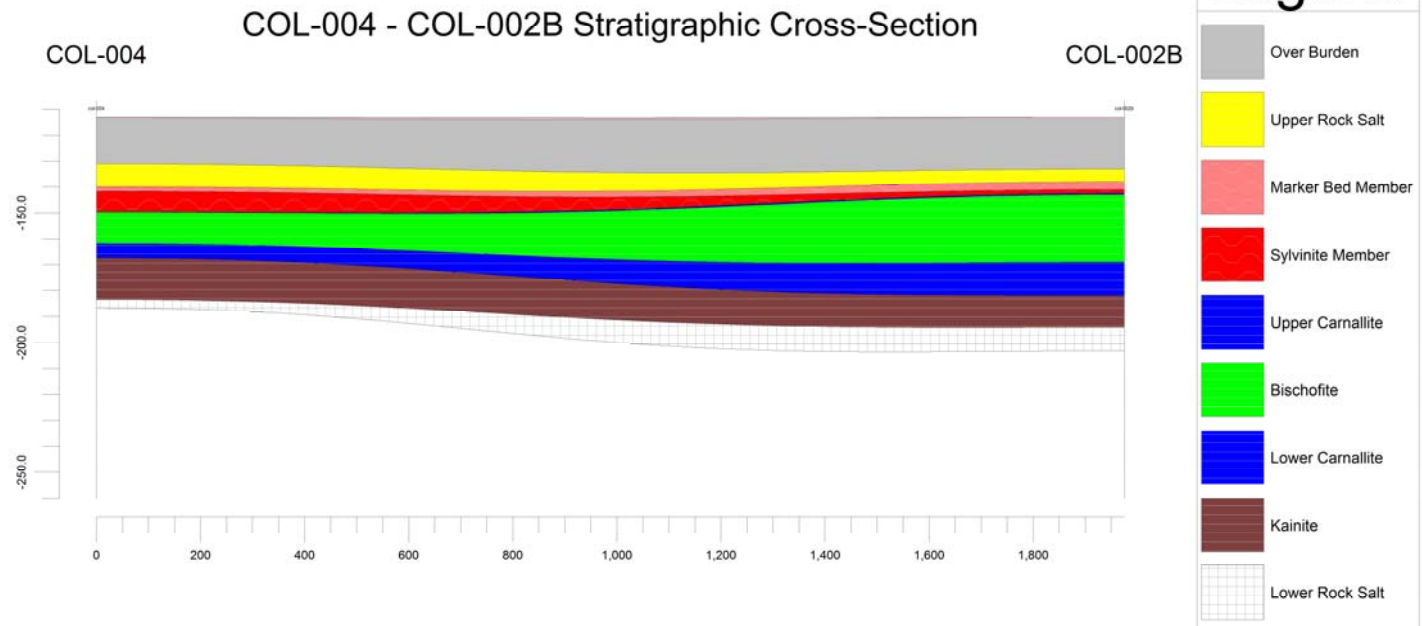
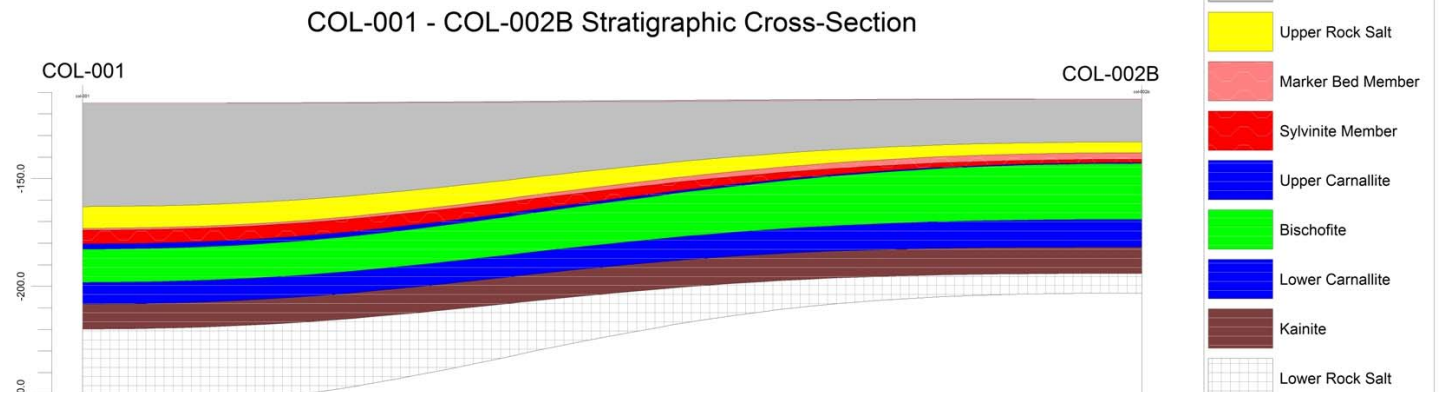
# 5. Colluli Potash Project (CONT'D)

Hole ID/ Member	East (m)	North (m)	Dip	Length (m)	From (m)	To (m)	Description
COL-004	642900	1590970	90	18.00	0.00	18.00	Clastics, overburden
Upper Rock Salt/Marker Bed				8.96 1.72	18.00 26.96	26.96 28.68	Rock salt Rock Salt with Anhydrite (CaSO <sub>4</sub> )
Sylvinite				7.71	28.68	36.39	Sylvite (KCl) locally 20-60% with rock salt and sulphate
Intermediate				0.19	36.39	36.58	Rock salt with carnallite (KMgCl <sub>3</sub> .6(H <sub>2</sub> O))
Intermediate				11.97	36.58	48.55	Bischofite (MgCl <sub>2</sub> .6(H <sub>2</sub> O))
Intermediate				5.70	48.55	54.25	Carnallite, (60-70%) carnallite (KMgCl <sub>3</sub> .6(H <sub>2</sub> O))
Kainitite				16.14	54.25	70.39	Kainitite, kainite (MgSO <sub>4</sub> KCl.3(H <sub>2</sub> O))
				3.21	70.39	73.60	Rock salt with layers of anhydrite (CaSO <sub>4</sub> ) and clay

Above; COL-004 Summary Log

# 6. What is Happening Next

- **Continue drilling potash (up to 10-12 holes);**
- **Receive assays from first 4 holes in September;**
- **Compile 43-101 compliant resource by year end;**
- **Award DHole geophysics contract for early next year;**
- **Complete scoping study, by mid 2011;**
- **Award seismic survey for 2011;**
- **Conduct further resource definition drilling;**
- **Decide on full feasibility studies by mid 2011.**



# 7. Summary (Potash)

## EXPLORATION STRATEGY

- 10-12 hole confirmation HQ/NQ diamond drill hole program to be completed around November 2010;
- Compile 43-101 compliant resource and commence early stage economic studies by December 2010;
- Immediate follow-up exploration undertaken upon analysis of initial drilling results;
- Scoping study target to define a 1.0 – 1.5mtpa mining operation with estimated capital cost of USD\$0.5 – 0.75bn;

## POTENTIAL ADVANTAGES

- Key advantages if economic deposit is defined;
  - Close to port;
  - Solar evaporation;
  - Geothermal energy;
  - Solution mining potential;
  - MOP and SOP products; and
  - ***Cheap capital and operating costs.***

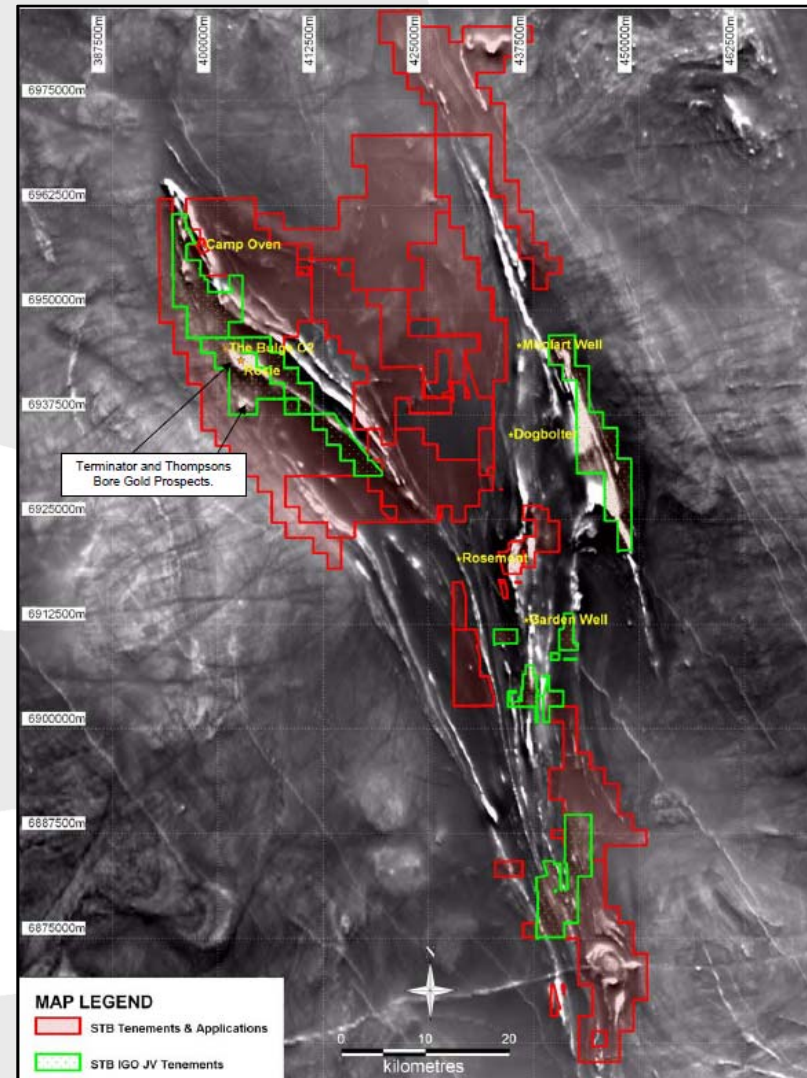


South Boulder drilling crews at the Colluli Potash Project, Eritrea.

# 8. Duketon Nickel Project

## QUALITY NICKEL ASSETS

- Successfully targeted extensions to massive Ni-Cu-PGE mineralisation intersected in TBDD080;
  - **Hole TBDD098 - 5.20m @ 9.13% Ni, 1.09% Cu, 7.09g/t PGE's (2.20g/t Pt, 1.74g/t Pd, 0.82g/t Rh, 1.79g/t Ru) (TW~3.3m);**
  - **Hole TBDD087 – 4.55m @ 4.05% Ni, 0.74% Cu, 2.71g/t Pt+Pd (TW~2.4m);**
  - **Hole TBDD093 - 3.20m @ 3.20% Ni, 0.41% Cu, 2.37g/t Pt+Pd (TW~1.8m) including;**
    - **1.68m @ 4.21% Ni, 0.46% Cu;**
- Preliminary met work has been highly encouraging;
- Further positive results at C2;
  - **9.70m @ 1.11% within a broader zone of 25.50m @ 0.70% Ni;**
  - **50.00m @ 0.92% Ni, 0.04% Cu, 0.08g/t Pt+Pd from 275.0m, including 37.00m @ 1.05% Ni.**



## 8. Duketon Nickel Project (CONT'D)

### MASSIVE NICKEL SULPHIDES FROM ROSIE

**TBDD098 - 5.20m  
Massive Sulphide  
Intercept.**

**Nickel = 9.13%**

**Copper = 1.09%**

**Cobalt = 0.21%**

**PGE's = 7.09g/t**

**Platinum = 2.22g/t**

**Palladium = 1.74g/t**

**Rodium = 0.82g/t**

**Ruthenium = 1.79g/t**

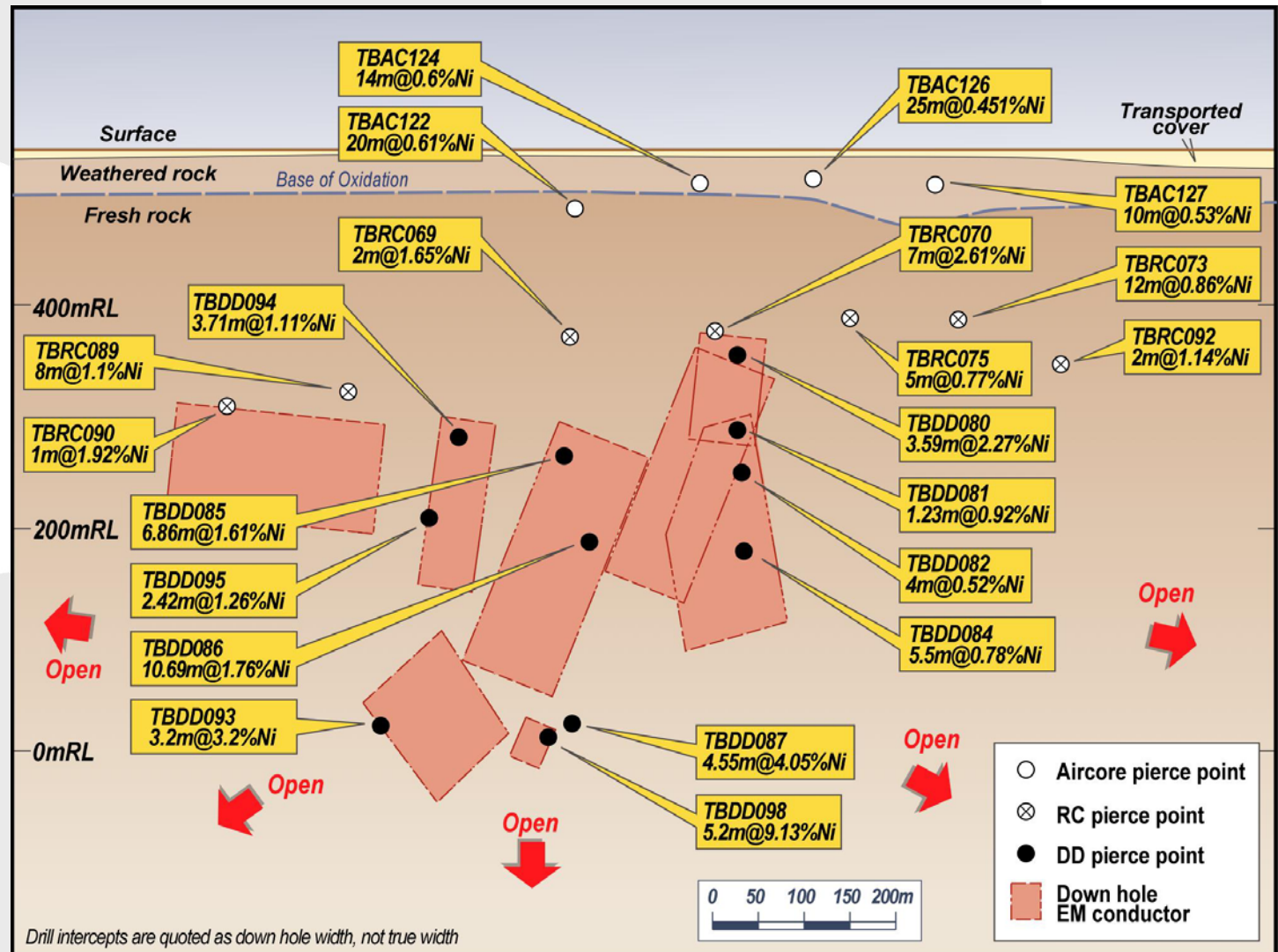




# 8. Duketon Nickel Project (CONT'D)

QUALITY NICKEL  
SULPHIDE  
MINERALISATION  
IS OPEN

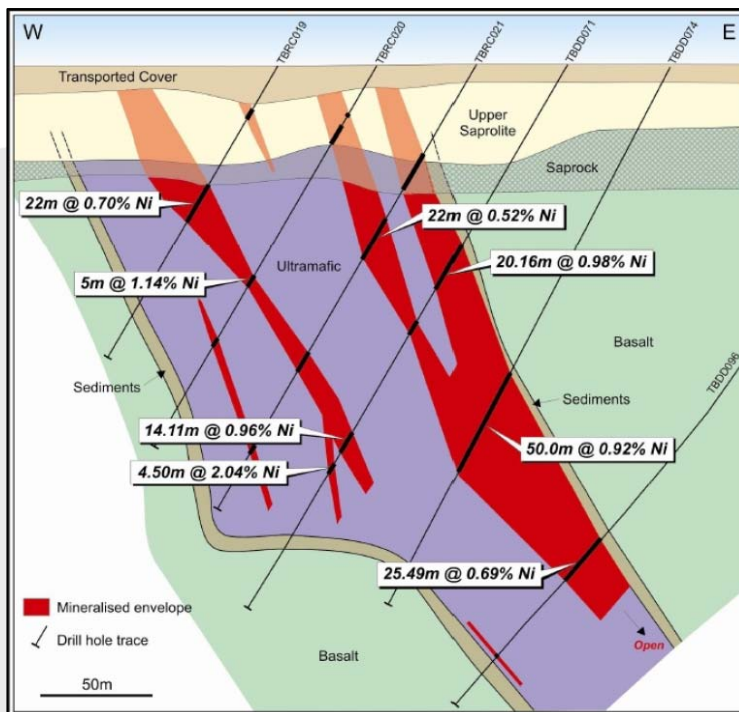
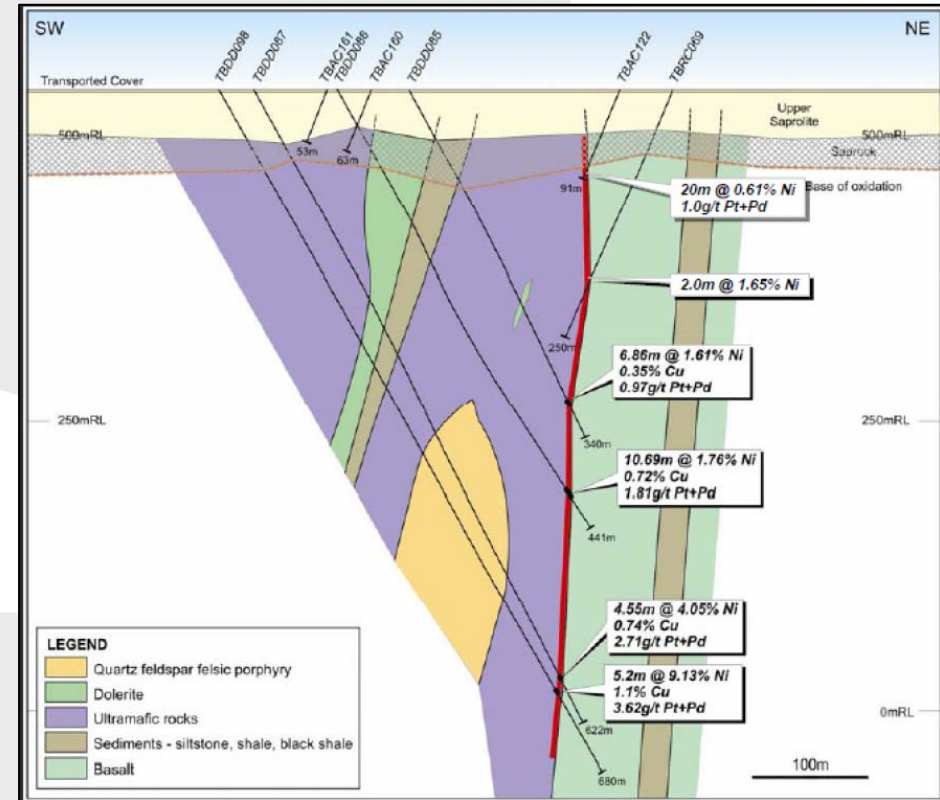
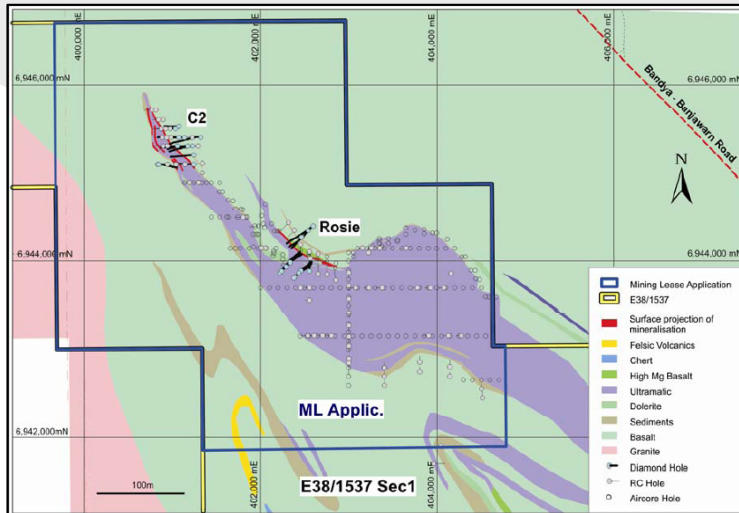
MINERALISATION  
CURRENTLY  
INTERSECTED  
OVER 750m  
STRIKE; 400m DIP



Strong potential for additional high grade intercepts is supported by the interpretation of down-hole transient-electromagnetic (DHTEM) survey results from holes TBDD093 and TBDD098 which suggests that the strongest mineralisation is situated between these holes and continues steeply down plunge to the north west.

# 8. Duketon Nickel Project (CONT'D)

QUALITY  
NICKEL  
ASSETS



**“The most promising and exciting Greenfields nickel project in Australia”. Terry Grammer.**

# 9. Reasons to Invest

- ✓ South Boulder is a diversified explorer with **recent** significant new greenfield discoveries of potash in Eritrea as well as gold and nickel in Western Australia;
- ✓ The Colluli project is situated in the prime location in an emerging potash province with the potential to define **world class** deposits;
- ✓ The **potash sector** has excellent long term growth drivers and very large multinational resource companies participate in the sector, BHP and Potash Corp, competitor activity;
- ✓ The Colluli project is **proximal to major markets and infrastructure (China, India)**;
- ✓ Tight capital structure with 67.6M shares on issue, **highly leveraged** to success;
- ✓ Well funded with approximately **\$6.0M** in liquid assets;
- ✓ The Duketon Ni-Cu-PGE Project is set to take off with the commencement of follow-up drilling and completion of a scoping study over the next 4-6 months;
- ✓ **On-going news flow from drilling and scoping study** results in coming months.



# CONTACT

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# Disclaimer

## **Forward-Looking Statements**

The following presentation represents South Boulder Mine's best judgement at the time of presentation. This document is in summary form and does not purport to be all inclusive or complete. The contents include forward looking statements prepared on the basis of assumptions which may prove to be incorrect. This presentation should not be relied upon as a recommendation or forecast by South Boulder Mine Limited. No representation or warranty is made as to the accuracy, completeness or reliability of the information.

## **Competent Persons**

Information that relates to Exploration Results including exploration data and geological interpretations is based on information compiled by Lorry Hughes who is a full time employee at South Boulder Mines Ltd. Exploration results from the Duketon Nickel JV has been supplied by Independence Group who are operator of the Duketon Nickel JV. Lorry Hughes is a member of the AusIMM and has experience which is relevant to the style of mineralisation and type of deposits under consideration, and to the activities which is being undertaken to qualify as Competent Persons as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

## **JORC- Exploration Targets**

It is common practice for a company to comment on and discuss its exploration in terms of target size and type. The information in this presentation relating to exploration targets should not be misunderstood or misconstrued as an estimate of Mineral Resources or Ore Reserves. Hence the terms Resource(s) or Reserve(s) have not been used in this context. The potential quantity and grade stated or implied is conceptual in nature, since there has been insufficient work completed to define them beyond exploration targets and that it is uncertain if further exploration will result in the termination of a Mineral Resource.

## **JORC- Exploration Targets**

This ASX release has been compiled by Lorry Hughes using information on exploration results supplied by South Boulder and in the case of the Duketon Nickel JV, Independence Group who are the operator of the Duketon Nickel JV. Lorry Hughes is a member of the Australian Institute of Mining and Metallurgy. Mr Hughes is a geologist and he 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 2004 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Lorry Hughes consent to the inclusion in the report of the matters based on his information in the form and context in which it appears. The data, interpretation and diagrams for the Duketon Nickel JV have been provided courtesy of Independence.