

Cluff Resources Pacific NL

Monday, 1 November 2010

The Manager (Companies) Australian Securities Exchange Sydney

Dear Sir,

THE BINGARA EXPLORATION PROGRAM

The company has undertaken a major re-assessment of the Bingara diamond fields in EL 3325.

Dr Julian Hollis has been retained and with his assistance and consent Cluff has developed a new hypothesis on the formation and emplacement of diamonds at Bingara. A copy of the company's hypothesis is attached.

The company intends to further develop this hypothesis and to undertake further exploration and investigation and analysis of the Bingara tenements over the coming 12 months.

The company has just completed a detailed digital topographic survey of EL 3325 and will be further developing this data into 3D computer models of the licence with a focus upon the weathered pebble zone (referred to by us previously as the diamondiferous 'yellow zone' at Monte Christo) where Cluff has obtained diamonds in its sampling program earlier this year but at unproven economic grades. No detailed mapping of this zone has ever been achieved in the past, and although it is acknowledged by the company the zone is not continuous, it was the primary area of focus of the miners in the late 19th century. The modelling will also seek to include a reappraisal of the "drift" areas as previously mapped. The 3D modelling will also provide us with an ability to calculate the volume of the near surface material (and possibly the drift) that is likely to contain diamonds.

Dr Hollis's re-interpretation of all our recent data has encouraged the company to continue to pursue an active program of exploration at Bingara.

The company proposes the following program;

- 1. Examination and calculation of the likely volume of the near surface weathered diamondiferous yellow zone by means of 3D modelling on EL 3325;
- 2. Examination and calculation of the likely volume of the "diamondiferous drift" on EL 3325;
- 3. A focus upon the Adelaide shaft and Craddocks area, located in the north of the tenement, in the immediate future;
- 4. Completion of all restoration and rehabilitation requirements of NSW Forestry in respect to those areas of EL 3325 within Forestry-owned land, and the execution of an access agreement for future activities in this area;

Postal Address: Suite 21, Level 7, 44 Bridge St. Sydney 2000 Australia Tele-Communications: Tel: (612) 9247 2277 Fax: (612) 9247 7055 email: Cluff@bigpond.com Internet: www.cluff.com.au

- Desktop and data re-assessment of EL 7622 (Bingara regional area) which has just been issued to the company, located adjacent to EL 3325 to the north and north west and encompasses the extension of the NW-trending feature within EL 3325;
- 6. EL 7622 includes the Monte Christo open cut block, which had been excised from EL 3325 when Mineral Claim 194 was issued. Completion of all requirements to allow access and work to be continued on the Monte Christo block is a focus for the coming months;
- 7. Identification of contractors to undertake future ground work at Bingara;
- 8. Re-construction and re-configuration of the company's trommel and jig processing plant from Barrington to be re-located to freehold land in Bingara to provide for processing samples at Bingara;
- 9. Further re-assessment of all costs of operating the company to ensure the maximum value to all shareholders of the cash resources of the company; and
- 10. Continued sale of any excess plant and equipment of the company.

The company remains committed to continuing its exploration of Bingara and Copeton.

For further information contact: Scott Enderby on Phone (02) 9247 2277 Email: <u>Cluff@bigpond.com</u>

Yours faithfully,

Bulg

Scott Enderby, Company Secretary / Executive Director

CLUFF HYPOTHESIS ON THE FORMATION AND LOCATION OF DIAMONDS AT BINGARA

Prepared with the consent of Dr Julian Hollis

After many years of widespread exploration at Bingara, the Cluff Board have determined to adopt a new approach to its further exploration and subsequent exploitation of the diamond resources located within its exploration licences at Bingara.

Cluff has amassed a wealth of information, however that information has rarely been re-examined in detail with a view to seeking to understand the Bingara diamond fields.

One of the strengths of Cluff in the past has been its ability to undertake this ad hoc exploration and demonstrate widespread diamond occurrences, however the costs and the inability to define an economic resource can no longer justify the continuation of such a program. Immediately the new board commenced after the 2010 AGM, Cluff resolved to adopt a scientific program approach to its further exploration and to apply professional standards of management to the administration and operation of its various licences.



Core drilling on EL 3325

After the AGM your current board oversaw the completion of the percussion drilling program at Bingara and after the processing of material from two holes determined that further processing was not justified and suspended the processing of the remaining material whilst a review of the program was undertaken.

Subsequently some further processing of part of the remaining material that was extracted from a shear zone in the claystone has been processed and no diamonds were discovered. The company has thus determined that the claystone the target of the percussion drilling program is unlikely to contain economic grades of diamonds.

Analysis of heavy mineral assemblages from the fine concentrate of the shear zone is still underway, in order to further define the relationship beween indicator minerals and diamond occurrence.

At the same time as the board suspended the processing it engaged Survey Graphics to complete a highly detailed digital topographic map of the Bingara licence. Until this time Cluff had never undertaken any detailed surface mapping of the licence despite the fact that it had spent the majority of the last 20 years examining near surface targets for its ad hoc program. Very little of the Cluff data from this period was held in digital form and the company has been very busy over the past months converting data and inserting it into modern exploration software for ease of manipulation and interpretation. This process will continue over the coming months.

After the AGM the board engaged the services to two respected consultants both of whom were familiar with the diamond fields at Bingara, Mr Robert Adamson and Dr Julian Hollis, to review the Bingara program.

Mr Adamson immediately sought to apply some much needed discipline to our exploration thinking and practices and sought to enforce some basic scientific practices logic for the next phase of our program. Both Mr Adamson and Dr Hollis remained optimistic of the eventual success of a program of exploration.

Dr Hollis undertook some key research into the Bingara diamonds and associated minerals discovered by the company over the previous 12 months and has reached the following conclusions:

- Near 95% of the diamond suites discovered belong to a unique Group B of diamonds. These diamonds have unusual inclusions (coesite, clinopyroxene, grossular, sphene, melilite, molybdenite), carbon isotopes (s13c = -0.9 to + 2.9%) and extreme hardness. Approx. 5% of the diamonds belong to Group A which shows features typical of kimberlitic – lamproitic hosted suites.
- 2. Although showing extreme morphological diversity, diamond suites from Bingara show trans-regional similarities.
- 3. Most Bingara diamonds are unabraded. Some show percussional features that have subsequently been reabsorbed, indicating pre-eruption events.
- 4. There is a complete absence of micro-diamonds at Bingara. The smallest recorded are > 1mm. Peak size distribution near 2.3mm exhibits a sorting range typical of fluvial host sediments.
- 5. Localised diamond concentrations, some to very high grades, suggest local primary sources.
- 6. Diamonds occur in a "wrong environment." Hot mobile-belt terranes are >1000km distant from the nearest (horizontal) Proterozoic-Archean craton (Broken Hill-Wilyama).
- 7. Antarctic origins via glaciation would have to have been >240 Million years ago. Diamond eruption appears to have been later
- 8. Most diamond occurrences are closely associated with subsequent hydrothermal and alkali volcanic activity. Reset sedimentary zircon dates suggests peak activity near 124, 97 and 27 Million years ago.
- 9. There is no evidence (so far) of any surviving magmatic phase that could have been the direct eruption vehicle for the diamonds. The diamonds in dolerite dykes at Oakey Creek (dated 190 Million years ago) appear to be xenocrysts derived from an earlier diamondiferous tuffisite, through which the dolerites were intruded.
- 10. There is a total lack of kimberlitic indicator minerals, despite the presence of Group A diamonds. Associated zircons are no older than 500 Million years ago.
- 11. An unusual eruption-triggering mechanism is apparently required to explain rapid ejection via a mobile belt setting. This may have been a single event through eastern Australia.

The company accepts the modelled history of the provenance of the diamonds is complex, and the theoretical models set out below are unorthodox. The interpretation of previous exploration results suggests a third theoretical mode of diamond emplacement at Bingara, additional to the acceptable kimberlite model and the less familiar lamproite style. This third mode has been described by Dr Hollis and others as BINGARITE.

The company has determined to invoke the bingarite model to explain the unusual features exhibited by approx. 95% of the Bingara (and also Copeton) diamonds.

These include:

- Young formational ages (Pyroxene Inclusions centred around 340 Million years ago)
- Unusual inclusion suites, particularly coesite, calcium-rich garnet, unique to these diamonds
- Exceptional hardness due to twin or deformation planes (naats)
- A lack of orthodox accompanying heavy minerals
- A lack of sub-1mm crystals but unabraded (indications of transporting) nature of most crystals
- Record of extremely high concentrations in some locations, far in excess of any known primary sources
- Eruption age dated at 218 +/- 6 Million years ago (Late Triassic) from sphene inclusion, an age corroborated by stress and fission-track ages of accompanying zircon



Diamonds recovered from EL 3325, Bingara

The possible history of diamond emplacement and subsequent secondary enrichment of deposits is based on the oceanic crust subduction hypothesis. Dr Hollis has suggested that Bingarite eruptions would be most likely have been melts derived from water-rich subducted oceanic crust systems, such as the one beneath New England, and that eruptions are likely to have been extremely violent with base surges covering large distances around the eruption sites. These may have been small-scale and densely clustered. Dr Hollis has also suggested that there would have been insufficient follow-up volatile feeds to develop the classic pipes familiar with orthodox kimberlites, so Cluff has determined to focus upon the base surge diamond concentrations rather than the possible primary pipes.

The proposed model for Bingarite deposition and subsequent diamond emplacement is discussed below. It remains a matter of conjecture as to how these diamonds could have been erupted intact and then to be formed over such a wide area of Eastern Australia. The following sequence attempts to theorise the likely events which have led to the emplacement and distribution of the Bingara diamonds within the various identified layers.

SUGGESTED STAGES IN THE EMPLACEMENT OF BINGARA DIAMONDS

1. DELIVERY TO SURFACE

Dr Hollis has postulated that transport from source to eruption must have been extremely rapid, at least as fast as proposed for kimberlite-lamproite volcanic models. Extreme depressurisation katabatic cooling could be expected to erupt super-cooled (extremely dense) ashy material that would spread laterally rather than vertically (ie. cool ignimbrite). Dr Hollis hypothesises the ash would have likely had the composition of an alkali rhyolite, being highly siliceous (eg. comendite). The only trace of a former magmatic component would be glass shards and particles, with little else other than diamond and perhaps orange (eclogitic) garnets surviving. (diagram below shows theorised blast pattern).



1. Situation prior to phreatoclastic volcanic activity.

2. SURFACE DISPERSION

Subsequent to the late Triassic eruption this hypothesises suggests a broad series of thin diamondiferous covers spread over the terrain. Stage 2 was the secondary concentration of diamonds in troughs and basins by removal of finer ash (by wind, fluvial etc. action). These concentrates could be expected at favoured sites across the late Triassic terrain.

3. STREAM EROSION AND DEPOSITION

The New England Area was undergoing uplift and cratonisation that started prior to the Bingarite event. Higher areas have been actively eroding with a Mesozoic drainage system eroding and recycling diamonds in ever diluting concentrations. Many of these streams were directed through trough and basin systems, cutting into Stage 2 diamond deposits. Where this occurred, locally enhanced grades developed in alluvial systems, such as the Monte Christo Grades (Stage 3).

EARLY CRETACEOUS Circa 120 million years ago



4. HYDROTHERMAL ACTIVITY

Zircon-Apatite fission-track dating indicates that the Mesozoic drainage system was disrupted at approx 97 million years ago. This is at the time generally accepted as the initiation of the Tasman Sea Opening. Locally, more likely along NW-linear fracture systems (such as Elliot's 'Pipe'), vigorous hydrothermal activity occurred. The apparent structure through EL 3325 from Monte Christo to Eaglehawk is distinctly linear and north west in direction. This frequently coincided with Stage 3 stream system gravels and even protected relics of Stage 2, with their very high diamond grades. Gravels and country rock were leached of silica and iron with refractory heavy minerals such as topaz, tourmaline and diamond forming gravity concentrates across boiling zones beneath hydrothermal systems. Where temperatures exceeded approx 600 degrees, both diamonds and topaz were destroyed.



Although topaz is unrelated to diamond, it is a constant associate in Stage 3 deposits and this makes a significant indicator. This indicator is being sought and its extent mapped in the current Cluff ground geology exploration survey. The areas upon which Cluff is now focusing are indicated on the digital topographic survey. Hydrothermal basin structures can be likened to the present systems observable in the Rotorua Thermal Region, New Zealand, in particular the Wymangu fracture system which offers a direct scalar suggestion for Elliot's 'Pipe'.

Stage 4 systems are also likely to be important at the Copeton Diamond Prospect, and Dr Hollis has postulated that these are likely to provide some of the richest diamond deposits in the region. Where hydrothermal systems lack diamonds, they were either too hot for diamond survival or they involved diamond-free material.

5. FURTHER STREAM ACTIVITY AND DISPERSION OF MATERIALS

Subsequent re-working of materials left from Stages 1 to 4 has apparently resulted in progressively decreasing diamond grades, but the ad hoc nature of the program to date cannot completely confirm or deny this suggestion.



Further attack by regional denudation was particularly strong post-basalts (approx. 15 million years ago) and it is probably only where protected by basalt hills, that any of Stages 1-4 are likely to be found. For this reason the Adelaide Shaft area, located to the north of the EL 3325 tenement area, is a highly prospective exploration target.

6. THE COMPLICATING INFLUENCE OF THRUST FAULTS

The Bingara Range geology has been further complicated by low-angle thrusting, occurring as recently as post Lower Basalt (approx 30 million years ago) seen in the Upper Four Mile Pit, in Calweld drilling sections and part of the recent percussion drilling program which focused on one shear thrust zone. Dr Hollis has postulated that some of this thrusting may have partly protected relics of diamond-bearing late Triassic surface deposits (Stages 1 & 2) or Stage 4 boiling concentrates.

These are an almost unpredictable scenario even to the extent that diamond-bearing material may be smeared along some shears. As with most faulting, low angle shears may represent re-activation of preexisting structures of an unknown age. Dr Hollis maintains that it is in the NW-trending trough systems which offer the real potential. (A shear is representing in the diagram below) The latter are most likely to preserve Stage 2 (and even Stage 1) relics albeit deeply buried beneath Cenozoic sediments (eg. sands, clays, brown coal as recorded in the Upper Four Mile pit projected along the northward extension of Elliot's 'Pipe').

TO SUMMARISE

Stage	Details	"Resource" volume	Grade
1	Primary Bingarite Systems	Small	Low-
	Tuffisite-filled fracture systems and base-surge deposits.		medium
2	Trough and Basin Deposits	Medium	Very high
	Reworked base-surge deposits in topographic lows, late Triassic		, ,
3	Reworked alluvial deposits (Monte Christo Gravels)	Large	Low-
	Mesozoic gravels of major river systems, pre 97 Ma	-	medium
4	Boiling zone deposits, hydrothermal systems	Medium	Very high
	Approx. 97 Ma hot spring pits concentrating Stage1-3 material		, ,
5	Cenozoic alluvial reworking	Large	Very low
	Dilution from Stage 3 etc. (Eaglehawk Series)	Ū	2
6	Low-angle shears (late Cenozoic)	Minimal	Very low
	Smears of diamond-bearing material. These may protect Stage 1-4		-
	occurrences		



All diagrams and table courtesy of Dr Hollis (2010). Dr. Hollis is an independent consultant geologist with over thirty years experience in the field of minerals exploration. His geological qualifications comprise BSc(hons) and PhD from Kings College, University of London. He is a member of the Geological Society of Australia, the Royal Society of Victoria and an honorary Research Associate at the Melbourne Museum and the Australian Museum, Sydney. He has published extensively in the fields of mineralogy and petrology and has run University courses in geology.

An on-site inspection of Bingara has been arranged for early in December 2010. In the meantime, digital data from the topographic survey will have been received and entered into the company's data base, and a ground geological survey of the prospective areas of EL 3325 will have been completed before the inspection. The company has recently secured permit EL 7622, which substantially extends the areas of interest as it includes the northern extension of the NW-trending feature (Elliot's 'Pipe') referred to previously.

The company intends to thereafter prepare an exploration program scheduled for completion in 2011, which will include in the first instance the production of a 3D computer model of the surface and near surface features of EL 3325.

It is anticipated that this modelling will further confirm parts of Dr Hollis's hypothesis set out above, and will assist us to identity areas of particular interest for pitting and sampling.

We will be seeking to identify the extent of the weathered pebble zone (referred to by us previously as the 'yellow zone' at Monte Christo), where Cluff has obtained diamonds in its sampling program but at as yet unproven economic grades. No detailed mapping of this zone has ever been achieved in the past and although it is acknowledged by the Company that the zone is not continuous, it was the primary area of focus for the miners in the late 19th century.

The modelling will also seek to include a reappraisal of the "drift" areas as previously mapped. The 3D modelling will also provide us with an ability to calculate the volume of the near surface material (and possibly the drift) that is likely to contain diamonds.

Restoration progress

Cluff's widespread program has made further major exploration on the Forestry lands difficult until a thorough clean up, restoration and rehabilitation of the old disturbed sites, particularly the Upper Four mile, have been completed.

We are pleased to report that efforts by the new board of Cluff to address these responsibilities (which are essential to ensure the maintenance of these licences for the benefit of the company) are now being realised. The restoration of the Upper Four Mile workings is now almost complete and a final inspection by NSW Forestry is envisaged in the coming months.



Cluff's restoration of Upper Four Mile area during September 2010

Further restoration is still required on other parts of the licence and is being programmed as part of our ongoing exploration program. The Board is confident of securing access to the Adelaide shaft, Craddocks and Eaglehawk areas this year for a further sampling program in the early part of 2011.

For further information contact: Scott Enderby on Phone (02) 9247 2277 Email: <u>Cluff@bigpond.com</u> or

Scott Enderby Company Secretary / Executive Director