



FLINDERS
DIAMONDS

Australian Stock Exchange Announcement

CODE CRACKED FOR COST-EFFECTIVE KIMBERLITE DISCOVERY IN FLINDERS RANGES

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The Manager
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Australian Stock Exchange
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HIGHLIGHTS

- 10 new kimberlites discovered in just three weeks in February 2005 program
- Eight dykes and one sill zone located and sampled for diamonds *see note
- FDL's first new kimberlite pipe located in Flinders Ranges Project
- Most dykes located about two metres in width—more than sufficient for a development should economic grades be discovered
- Flinders Ranges Kimberlite Province increased in size to about 120 kilometres by 45 kilometres—a total of 5,400 square kilometres

* Note: dykes are usually vertical thin sheets, sills usually horizontal thin sheets and pipes are vertical cylinders of kimberlite

Flinders Ranges Project, SA

Activities

Flinders Diamonds Limited (FDL) undertook an intensive exploration program during February over its key exploration acreage in South Australia. Drilling conducted between 11 and 21 February consisted of 55 reverse circulation percussion drillholes for 1042 metres which tested 19 magnetic anomaly targets (Figure 1). A trenching program carried out between 18 and 27 February tested 15 magnetic anomaly targets (Figure 2).

The majority of targets were selected from existing public domain airborne magnetic surveys of variable quality. All targets occur under regolith cover (soil and weathered rock) and exact locations for targeting were determined by detailed ground magnetic surveys conducted by FDL personnel.

Where kimberlites were located, a representative 20 kg sample was collected to be forwarded to the laboratory for



Figure 1 Drill rig at site 80a (Mookkra area) where a 2.5 metre wide kimberlite dyke was located in two holes.

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Figure 2 Excavator and trench at the JS Kimberlite Pipe, Pitcairn



Figure 4 Contact (under soil) of the JS Kimberlite Pipe in trench at Pitcairn—kimberlite on left, country rock on right

microdiamond determination by caustic fusion. Microdiamond results are expected in late March or early April. Additional kimberlite has been stockpiled for follow-up sampling of any particularly encouraging results.

Results and Implications

The program was successful in locating new kimberlites over a significantly larger area than in previous work, and increased the known size of the Flinders Ranges Kimberlite Province to about 120 kilometres in a north-westerly direction, and 45 kilometres in a north-easterly direction, as illustrated on Figure 3.

The area now totals about 5,400 square kilometres and is expected to increase. The drilling program (Figure 1) located 4 new kimberlite dykes, mostly in the Peterborough area. The trenching program (Figure 2) located 4 more dykes, one kimberlite sill zone and the JS Kimberlite Pipe (Figure 4), in the Mookkra, Peterborough and Pitcairn areas (Figure 3). The average width of kimberlite dykes intersected in this program was about two metres. This is wider than those previously intersected at Eureka and is more than sufficient for a development should economic grades be discovered. In South Africa, the average width of kimberlite dykes being mined at the six most significant operations is 60 to 80 centimetres.

The Pitcairn JS Pipe was a particularly important discovery, being the first new kimberlite pipe located by FDL in its recent Flinders Ranges exploration activities.

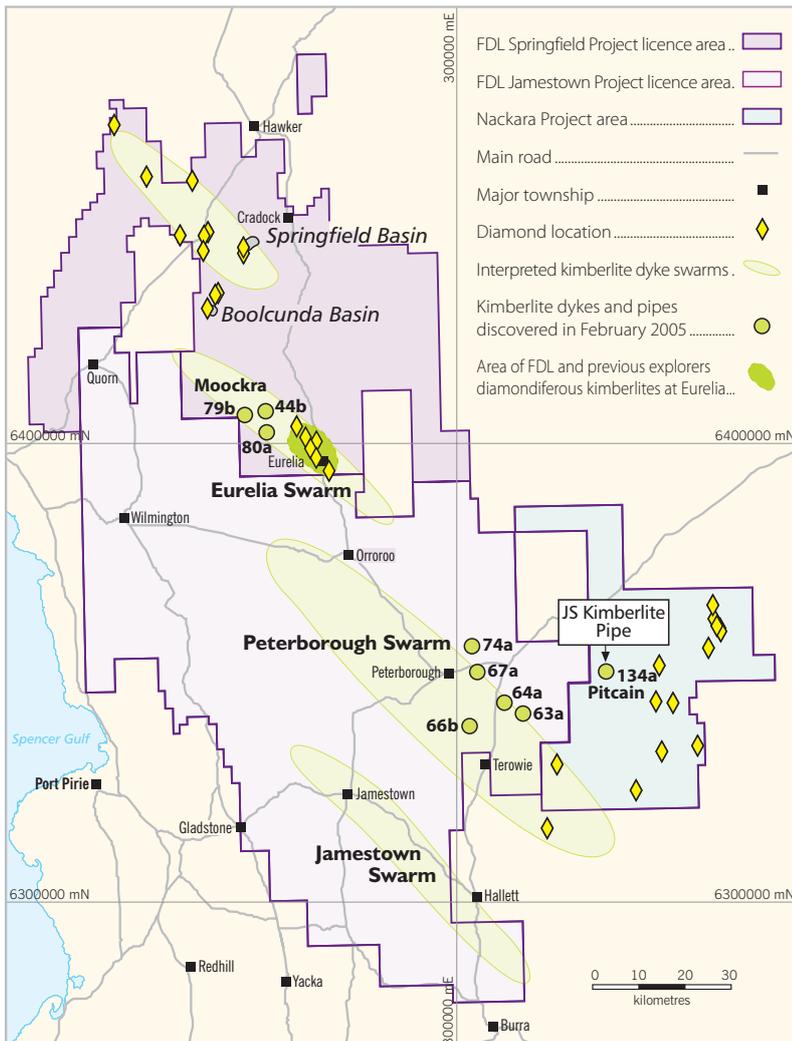


Figure 3 Regional location of Flinders Ranges kimberlites discovered in February 2005

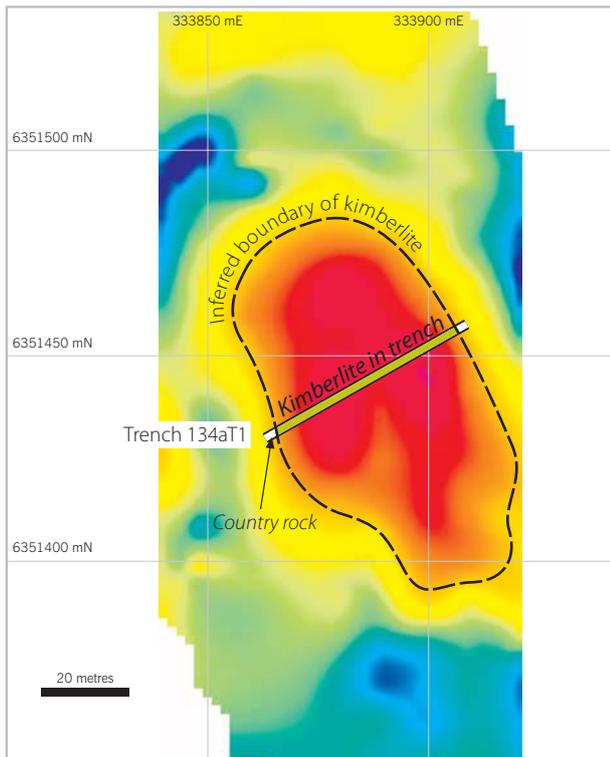


Figure 5 JS Kimberlite Pipe and trench location on ground magnetic image at Pitcairn

It has dimensions of about 46 metres by 86 metres (0.37 Ha) and contains kimberlite diatreme facies breccias and apparent mantle xenoliths. This body, illustrated in Figure 5, was originally located as a small exposure in a creek bank by Mr John Simnovec, the vendor of the Nackara Project. FDL has since conducted a ground magnetic survey which outlined an elliptical magnetic target. Trenching across the anomaly in a north-easterly direction exposed continuous kimberlite over a 46 metre length, as shown in Figure 5

Exploration Code Cracked

Mineral exploration is similar to detective work, where various lines of evidence are drawn together to create a solution to a mystery. Previous exploration for kimberlites in the Flinders Ranges has focused mainly on follow-up of diamond indicator mineral sampling results. This process is both time consuming and expensive and has led to project fatigue and withdrawal by some previous explorers. By focusing on the application of government supplied airborne magnetics and relatively inexpensive ground magnetic surveys, FDL has been able to create an exploration solution, ie to "crack the code" which will cost-effectively locate many new kimberlite bodies as the program progresses. A proportion, about 25% to date, also have the potential to contain diamonds. ***It follows that as more new kimberlites are found, there is a significantly increased prospect of locating a commercial deposit.***

Microdiamond Determinations

Microdiamond determinations are being assessed at a Perth laboratory, using the caustic fusion method. This method involves total dissolution of all minerals other than diamonds in a high temperature (600°C) mixture of sodium hydroxide and sodium peroxide. This technique has only become available in about the past 10 years as a result of research by Canadian diamond explorers. In the past, once a new kimberlite was located, it was evaluated for diamonds by bulk sampling of hundreds of tonnes of kimberlite in a diamond pan or a dense media separation plant.

The bulk sampling process is highly expensive and is now often preceded by microdiamond determinations to decide if bulk sampling is justified. Kimberlites that contain microdiamonds (diamonds under 0.5 mm in size) are also likely to contain macrodiamonds, and there is a known relationship between the numbers and sizes of microdiamonds and the numbers and sizes of macrodiamonds in commercial deposits. Bulk sampling remains necessary during a feasibility study to determine the average value of all diamonds in a kimberlite so that predicted returns after treatment can be estimated.

Future Program

In 2005, FDL is planning a significant program of kimberlite location and evaluation in its Flinders Ranges Project. The areas thought to be most prospective will be re-flown by more detailed, 100 metre line spaced airborne magnetic surveys. FDL believes this will enable the identification of many more kimberlite targets. These targets will then be confirmed with detailed ground magnetic surveys. FDL has recently acquired a "state of the art" ground magnetometer system with differential GPS control providing fast, high-resolution definition. Targets will be tested by excavation and samples sent for microdiamond determination. As soon as kimberlites with sufficiently high microdiamond results are located, bulk sampling will be undertaken to determine their economic potential.

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