

**RL 5 / 2005**

**PIONEER**

**NORTH EAST TASMANIA**

**VAN DIEMAN**

**ANNUAL REPORT**

**FOR THE YEAR ENDING**

**12<sup>TH</sup> MAY 2007**

**VAN DIEMAN MINES PTY LIMITED**

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## OVERVIEW

After the acquisition of the North East Tasmanian mining tenements from Mineral Holdings Australia (MHA) in 2004 and subsequent collection of the data package accompanying that acquisition, Van Dieman Mines Pty Limited (VDM) conducted a re-assessment of each of the tenements. This tenement, previously held as EL 12/2000, encompasses a substantial tin / sapphire bearing resource, reported in 2004 as being:

A Measured Resource containing 4.62 M bank cubic metres (bcm) at an average grade of 0.87 kg/bcm of 70% SnO<sub>2</sub>

And

An Inferred Resource containing 3.50 M bcm at an average grade of 1.00 kg/bcm of SnO<sub>2</sub>

In addition to cassiterite (tin) the same orebody contains a sapphire component which because of JORC Code restraints is reported as in the first instance an "Indicated Resource" and in the latter an "Inferred Resource".

In October 2004 VDM made application for an Exploration Licence covering the postulated resource extensions. The area applied for was in three blocks and encompassed a total area of 14 sq. km. in what is described as the central Ringarooma region. The tenement was subsequently granted in April 2005.

VDM subsequently made application to transfer title to a Retention Licence, that title was granted in 2006 as RL 5 / 2005. The company immediately commenced field work within the tenements. These works were oriented to collection of survey data, specifically drill hole locations, old workings, mining cultural features and other cultural features such as roads, fence lines, etc. Field crews managed to locate a number of old drill holes that enabled old drill location and resource plans to be accurately digitized and added to the VDM GIS database.

Results of these activities are presented here as a new basement topographic map. Field work is continuing.

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## 1.0 INTRODUCTION:

In 2005 VDM made application to transfer the EL 12/200 title into a Retention Licence. The licence was subsequently granted in 2006 as RL 5 / 2005.

The tenement comprises four blocks and encompasses a "Probable Resource" containing tin (cassiterite) and sapphire. The resource is located immediately adjacent to and west of the Pioneer Lake, the site of past alluvial tin workings. Work during the past twelve months has enabled VDM to more accurately define the boundaries of the resource and the Tertiary basement topography that controlled deposition of the tin bearing alluvium.

VDM is continuing to update its GIS database. In order to obtain sub-meter 3D location data, X, Y and Z coordinates, the company is continuing to conduct local DGPS surveys around the old worked and drilled areas.

The basement topographic map generated as a result of current work indicates three possible alluvial tin targets within the tenement, specifically:

- The western extension of the current resource;
- A possible tin bearing channel entering the resource from the south, the OK Lead; and
- Un-mined ground east of the Pioneer Lake buried under old sand tailings.

The company has commenced pre-DPEMP studies including baseline water sampling, flora and fauna studies, cultural heritage and Aboriginal heritage studies. The company will, during the coming year, along with ongoing field work continue these baseline studies. In addition the company plans to revisit the resource and commence recalculation based on more accurate drill hole location.

2.0 LOCATION AND ACCESS:

The tenement was granted as four blocks and is centered approximately 1 km north of the Township of Pioneer, see Figures 1, 2 and 3.

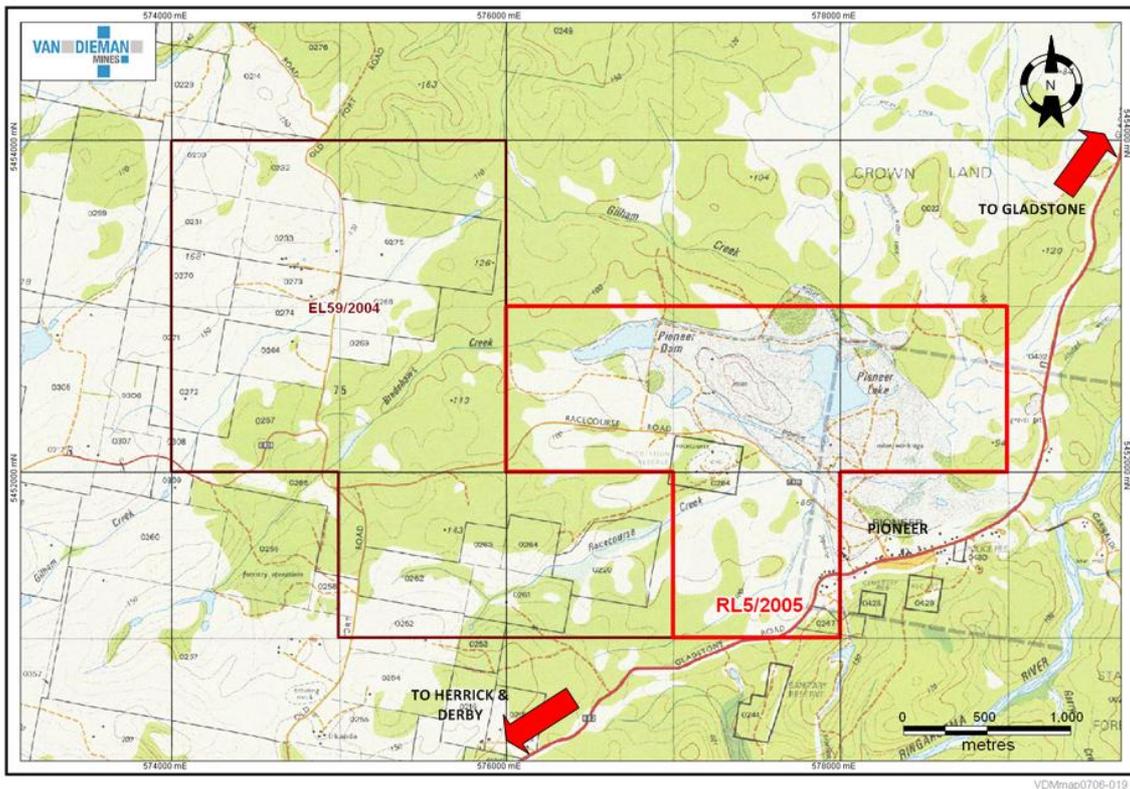


FIGURE 1 - LOCATION PLAN

TOPOGRAPHIC BASE

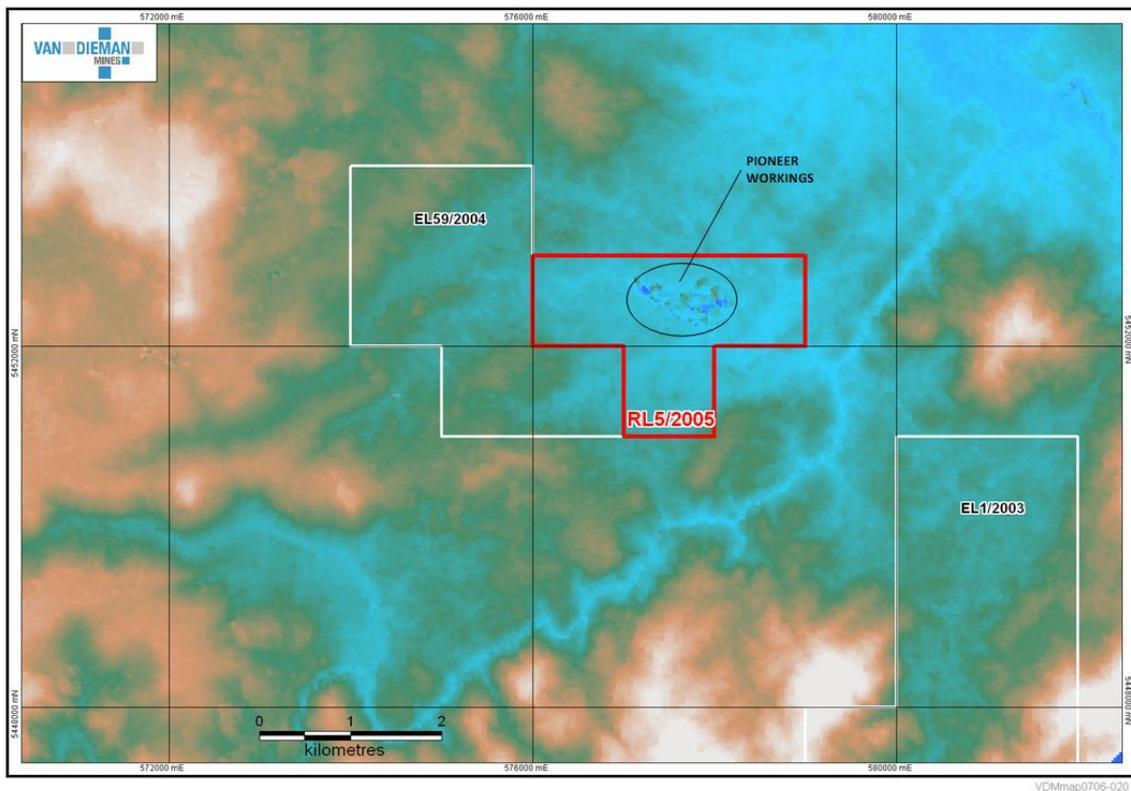
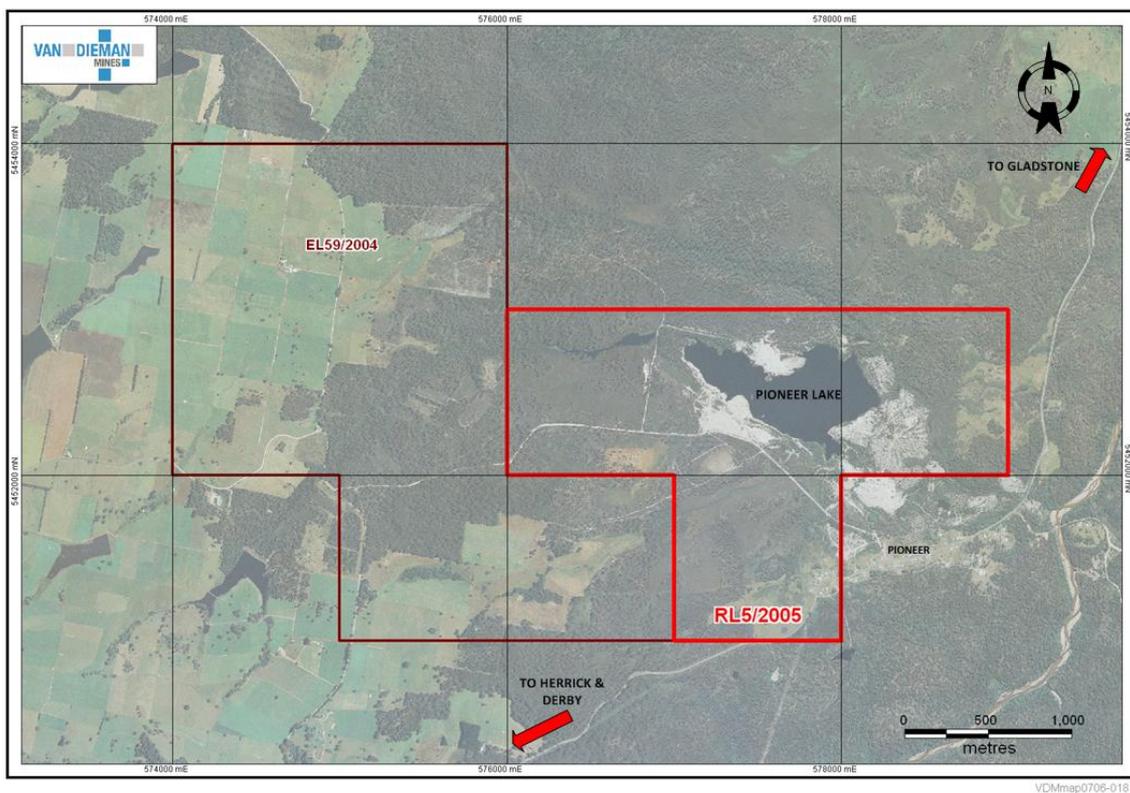


FIGURE 2 - LOCATION PLAN

SRTM BASE



**FIGURE 3: LOCATION PLAN - PIONEER**

**AIRPHOTO BASE**

At Pioneer access is gained via the Pioneer to Winnaleah road and thence throughout the tenement via farm and bush tracks. The resource is located immediately adjacent and to the west of Pioneer Lake.

### 3.0 HISTORICAL BACKGROUND:

Alluvial tin was first worked in the general area in about the early 1880's.

The following historical data has been reproduced from a report by Amdex Mining dated 24th March 1980, specifically:

William Bradshaw discovered tin in the Pioneer district in 1877. The initial discovery by Bradshaw was at the junction of Bradshaw's Creek and the Ringarooma River in recent alluvium probably derived from the reworking of the Pioneer Lead by the Ringarooma River.

The Pioneer Tin Mining Company was formed in 1882 to work these shallow deposits however the operations were not successful and the workings were let on "Tribute" to Chinese miners who carried out successful operations until the late 1890's. Their activities and the working of the ground in a westerly direction led to the discovery of the rich "Pioneer Deep Lead". As a result of this discovery the Company took steps to restart the mine. They conducted drilling and constructed dams and water races prior to a restructuring of the Company in 1900.

Mining recommenced in 1900 and was carried out using hydraulic monitors with gravel being pumped to sluice boxes by steam driven pumps. Hydraulic elevators or conveyors were used to dispose of tailings. In 1909 the Company completed installation of a hydroelectric facility at the Frome Dam and during the same year the mining equipment was converted from steam to electricity.

Company operations were continued successfully until 1929 when the Ringarooma River, swollen by three days of continuous rain rose to record levels and despite pumping efforts flooded the workings. Sluicing recommenced in 1930 but declining grades and falling tin prices led to a cessation of operations in December 1931. At that time the workings were let to local "Tributors".

In October 1933 the Endurance Tin Mining Company purchased the Tasmanian assets of the Pioneer Company. Local operators continued to "Tribute" the workings until the mid 1940's. During that period the Endurance Company removed most of the plant and equipment for use at its Mt Cameron operations.

In 1935 the Austral Malay Tin Mining Company drilled 18 scout holes ahead of the old workings. Although no report is available pencilled comments on a plan at the Department of Mineral Resources suggests their assessment placed the reserves at 7.6

million m<sup>3</sup> of 297 gm SnO<sub>2</sub> / m<sup>3</sup>. Storey's Creek Tin Mining Company carried out further drilling during the period 1960 to 1961, drilling 15 holes in the vicinity of the old Pioneer pit.

By the time of these works the Endurance Company appears to have relinquished the Pioneer tenements favouring to retain the Frome Dam and water licenses to their Mt Cameron operations. Results of the Storey's creek drilling were disappointing, grades reported were lower than those reported in 1935 although this may be attributed to poor drilling and sampling procedures.

In the mid-1960's Utah Development Corporation acquired extensive exploration tenements in the area, these included the old Pioneer workings. In 1967 Mr. Vern Woods, a local resident, acquired the Pioneer Leases from Utah and commenced mining along the south-east edge of the old pit. Initially Woods used hydraulic monitor and gravel pumps to deliver wash to sluice boxes. Woods obtained his water supply from the Pioneer Race owned by the Endurance Company.

In 1970 B.M.I. acquired the Endurance operations and restricted the amount of water available to Woods. In 1973 Woods purchased the Frome Dam, power station and water races from B.M.I. and with larger volumes of water available was able to replace the sluice boxes with a modern jig plant.

Woods continued to mine until early 1976 when the Pioneer Operations were acquired by the Triako and Buka and operated as Kibuka Mines. Following that acquisition Amdex Mining, an associate of those groups continued to mine westward following the deep lead and in addition conducted an extensive drilling program in the area.

The estimated production from the Pioneer lead up to that period is given as Table 1.

TABLE 1: PIONEER LEAD TIN PRODUCTION

PERIOD	OPERATOR	VOLUME TREATED (m <sup>3</sup> )	STREAMED SnO <sub>2</sub> (Tonnes)
1877 - 1900	Pioneer Tin Co. & Tributors	-	500 estimated
1900 - 1931	Pioneer Tin Co.	10,915,000	9,360
1931 - 1933	Pioneer Tin Co. & Tributors	Residues	142 estimated
1933 - 1946	Tributor for Endurance Co.	Residues	100 estimated
1967 - 1976	Vern Woods	1,000,000	242
1976 - 1979	Kibuka Mines	750,000	210
<b>TOTAL</b>			<b>10,554</b>

The Kibuka operations ceased in late 1979 following the collapse of the world tin price and introduction by the Australian Government and the International Tin Council of production quotas.

Little if any work has been undertaken in the Pioneer area since that time. In 2001 the area was acquired by Mineral Holdings Australia as an effort by the principal to aggregate the alluvial resources of the Middle and Lower Ringarooma basin into an economic resource base. Acquisition of drill data has enabled Mineral Holding to reassess the resource status at Pioneer in light of modern mining and alluvial treatment techniques.

A summary of the various drilling campaigns conducted around the Endurance area appears here as Table 2.

TABLE 2: SUMMARY OF HISTORICAL DRILLING AT PIONEER

COMPANY	AREA	YEAR	TYPE	NO OF HOLES
Pioneer Tin Mining Co	Unknown	1898 - 1928	Hand Plant	224
Austral Malay	East Pioneer	1935	Hand Plant	18
Storeys Creek	Unknown	1961	Pecussion	31
Amdex	Poverty Point	1979	Auger	19
Amdex	Pioneer	1977 - 1980	Percussion	118
Amdex	Pioneer	1980	Rev. Circulation	20
Amdex	North Pioneer	1980	Auger	9
Amdex	Poverty Point	1980	Auger	11
Amdex	Pioneer	1981	Percussion	10
Anglo	Pioneer	1982	Rev. Circulation	63
Anglo	Pioneer	1983	Percussion	29
<b>TOTAL</b>				<b>552</b>

## 4.0 GEOLOGY:

Since acquiring tenure to this property VDM has continued to reassess the regional geological setting particularly as it pertains to the alluvial deposition during the Tertiary period. Historical data; mine locations, drill hole locations and geophysical data are being progressively added to a regional database.

### 4.1 REGIONAL SETTING:

It is not proposed to provide a detailed description of the older geological units, a brief outline of the nature of each major unit is provided, in tabulated form, Table 3 and a geological map as Figure 4.

The tabulation sets out the significance of each unit. It is the Tertiary units, in particular the basal sections, that are of economic significance as they contain the heavy mineral concentrations; cassiterite, tantalite, gold and sapphire being the most economically important.

Although the basic basement and regional geological settings apply to this tenement the resource is contained within a Tertiary age outwash deposit related to the "Wyniford Lead". The deposit derives its alluvial component from the Blue Tier Granite massif, from Older and Younger Tertiary Basalt flows and to a minimal extent from the Mathinna Bed metasediments. The alluvials have a very strong granitic component and the heavy mineral content a mixed source; granitic and basaltic (zircospilic).

Uplift and massive erosion in the Tertiary is the main influence controlling the development of all the tin bearing deposits of the north east. Locally the deposits may vary in the nature of their deposition however the sediment source of the alluvial gravels remains basically the same. In some instances granite based sediments predominate and in others meta-sediment, at Pioneer there is a mixing of both components with granite based sediments predominating.

Tertiary geomorphology is not fully understood, the palaeo-channels of the ancient Ringarooma, Boobyalla and Musselroe Rivers that dominated the drainage system in the north east have yet to be accurately defined and features such as the broad Endurance channel and the Pioneer outwash fan deposit appear to contradict the generally northwards drainage system.

Periods of uplift and faulting, marine transgression and regression are also not well understood. Faulting observed in Tertiary gravels at Pioneer and postulated at Endurance indicate that the area was geologically quite unstable up to and including the period of younger Basalt volcanism.

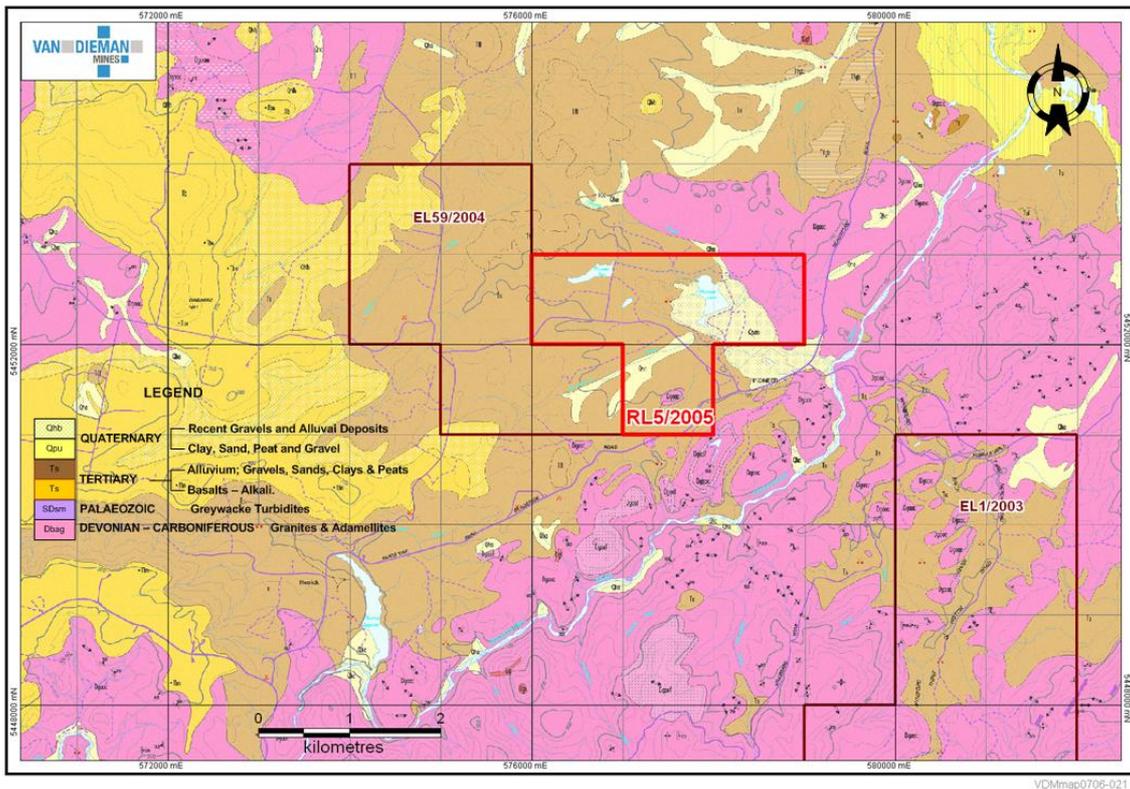


FIGURE 4 - GEOLOGICAL PLAN OF EL 59 / 2004

**TABLE 3**  
**REGIONAL GEOLOGICAL SETTING**  
**MAJOR GEOLOGICAL UNITS**

AGE	UNIT	DESCRIPTION	SIGNIFICANCE
DEVONIAN - CARBONIFEROUS	Blue Tier Batholith	Porphyritic fine to coarse grained granite / adamellite and biotite-hornblende granodiorite	Forms the tin rich Mt Cameron Massif to the south of Aberfoyle and basement around the southern edge of the Tertiary marine embayment. Locally may be a source of tin.
JURASSIC	Dolerite	Dolerite	Forms a resistant basement outcrop and is the bounding feature of the eastern edge of the Tertiary marine embayment. Sporadic outcrops may occur resting on granite basement along the southern edge of the embayment
ORDOVICIAN TO DEVONIAN	Mathinna Beds	Quartzwacke turbidite sequence locally hornfelsed adjacent to granite bodies	Forms basement in parts of the Aberfoyle area and its low weathering resistance may lead to the development of tin rich Tertiary channels cut into this unit.
TERTIARY	Unnamed	Sands, clays and gravels, locally bouldery. Lignite zones at some localities. Some evidence of ferricrete and silcrete development.	Basal layers are generally tin (cassiterite) enriched, locally of economic significance. Also known to contain gold, sapphire, rutile, zircon and ilmenite.
QUATERNARY	Unnamed	Highly variable; sands, clays, peats, Aeolian dune deposits, swamp and marsh deposits.	Locally represent overburden zones over Tertiary tin bearing alluvial deposits

## 4.2 LOCAL GEOLOGY:

Local geological settings for each of the three sectors of the tenement are briefly described in the following text.

The original Pioneer discovery was apparently made where the modern Ringarooma River cut the older Tertiary Wyniford Lead. From that point the Pioneer deposit trends north and then north-west toward the buried palaeo-channel of the Ringarooma River. The junction of these two systems is postulated to lie approximately 3 to 3.5 km north west of the Pioneer workings and within the adjoining tenement, EL 59 / 2004.

The palaeo - geography of the area is somewhat problematical. The ancestral channel of the Ringarooma is marked by a linear basalt flow. The possible basalt filled channel just north of and postulated to parallel the Pioneer - Derby road may represent an un-recognised pre-basalt palaeo-channel although there is no evidence as to which direction of flow this channel may have taken. A number of alternatives exist, specifically:

- ❖ The channel may commence on the area of basement high that separates the Wyniford Lead from the present day channel of the Ringarooma River;
- ❖ The OK Lead joins the channel and both flow westward from the basement high and then joining the ancestral Ringarooma near Herrick;
- ❖ The Wyniford Lead was entrenched along and beside a granitic basement high probably in a similar fashion to the Endurance deposit probably as a result of headwater capture of the Wyniford and Gladstone Leads by a major south bank tributary of the ancestral Ringarooma; or
- ❖ If this channel in fact existed the Wyniford Lead may have cut and captured the stream prior to basalt outflow.

## 4.3 RECENT EXPLORATION:

Field survey work was continued during the year and significant new data added to the GIS database. The new data allowed X,Y and Z coordinate corrections to be applied and the basement topographic map enhanced. Figure 5 depicts current drill hole and ore resource boundaries within the RL and the adjoining EL.

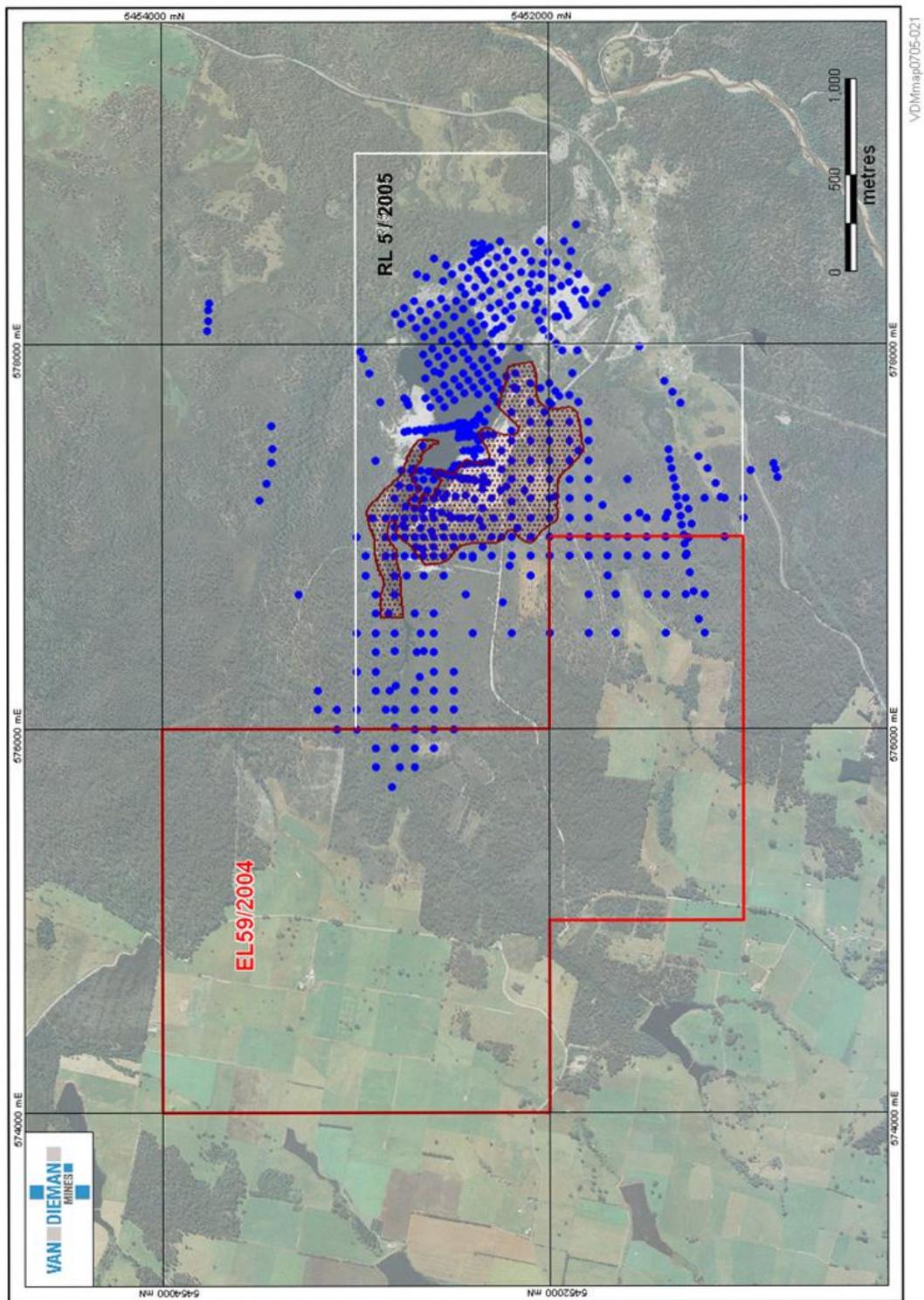
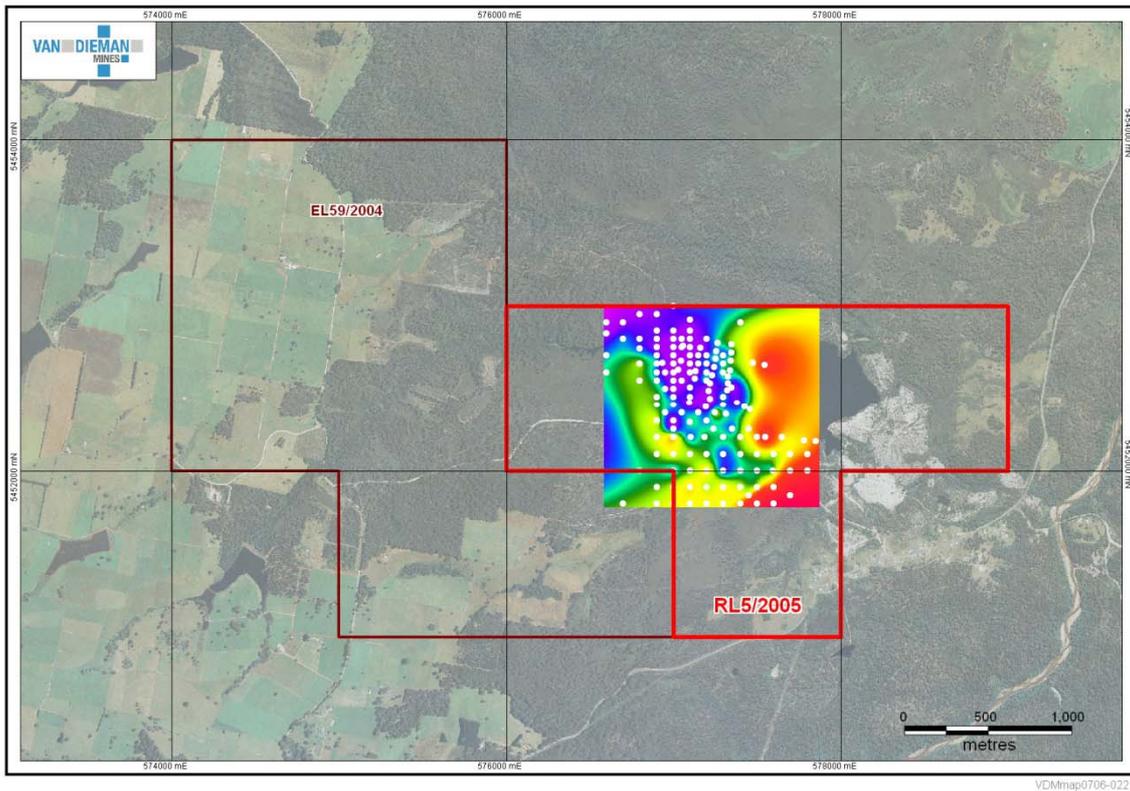


FIGURE 5: PIONEER DRILL HOLE AND RESOURCE LOCATION PLAN

Addition and accurate location of new drill hole information in the east and the west and south west of the old Pioneer Mine has enabled VDM to update the basement topographic map for the Pioneer region. The three generations of basement topographic map are presented here along with the most recent line contour basement mapping. Figure 6 depicts the 2004 basement data, Figure 7 the 2006 data and Figures 8 and 9 the most recent data.



**FIGURE 6: BASEMENT TOPOGRAPHIC MAPPING - PIONEER 2004**

The data presented in Figure 6 represents uncorrected digitized location information taken from old Amdex drill hole and resource location maps of the period 1977 to 1983. Datasets were limited to only those areas within and immediately adjacent to the Amdex open cut workings at Pioneer. During the last two years several new sets of data were located and digitized to the VDM GIS database. In addition field crews managed to locate, in the field, many of the 1970 - 80 period drill holes. These enabled X, Y and Z controls on the digitized locations. Rapid improvements to the basement topographic may have been achieved, Figures 6 to 9 depict how addition to the datasets has improved local knowledge.

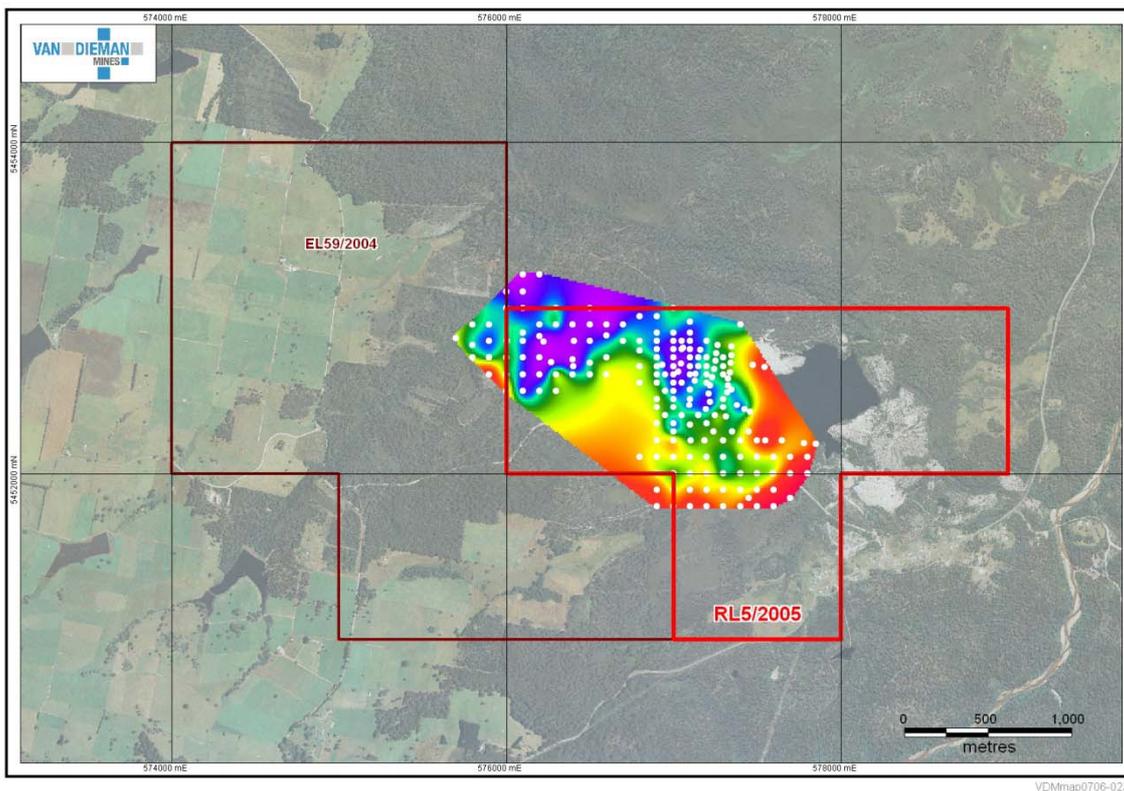


FIGURE 7: BASEMENT TOPOGRAPHIC MAPPING - PIONEER 2006

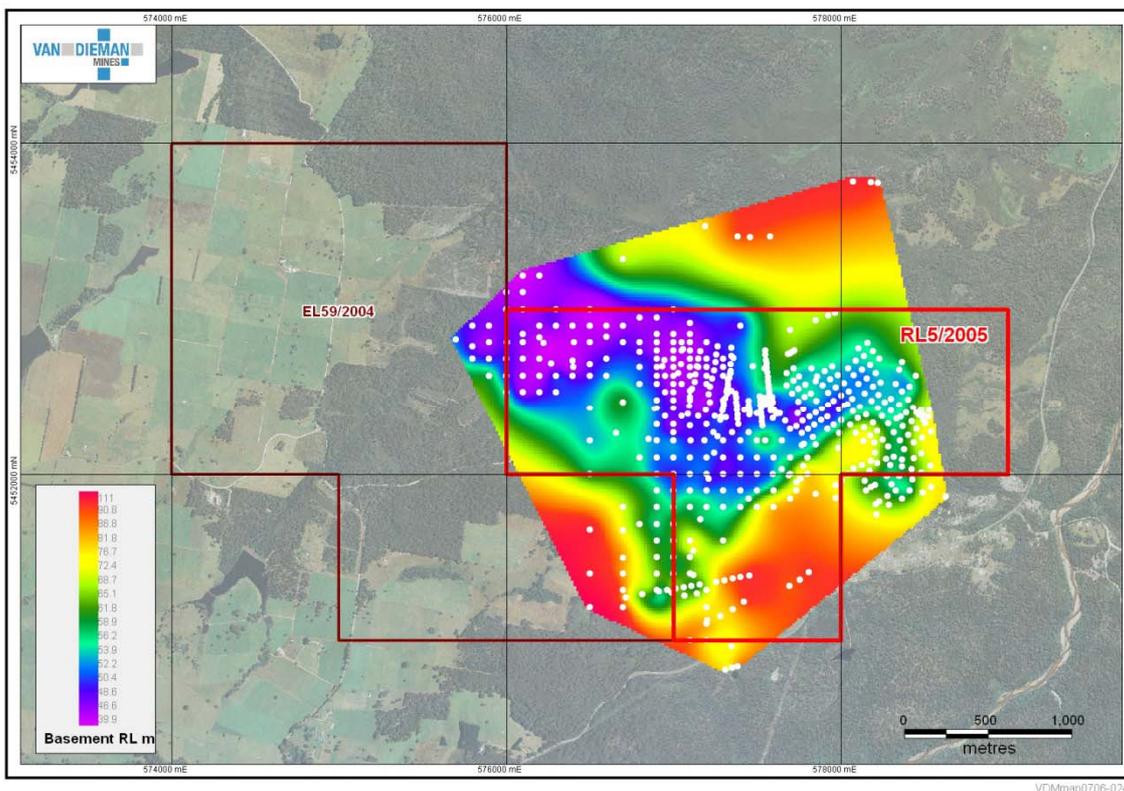


FIGURE 8: BASEMENT TOPOGRAPHIC MAPPING - PIONEER 2007

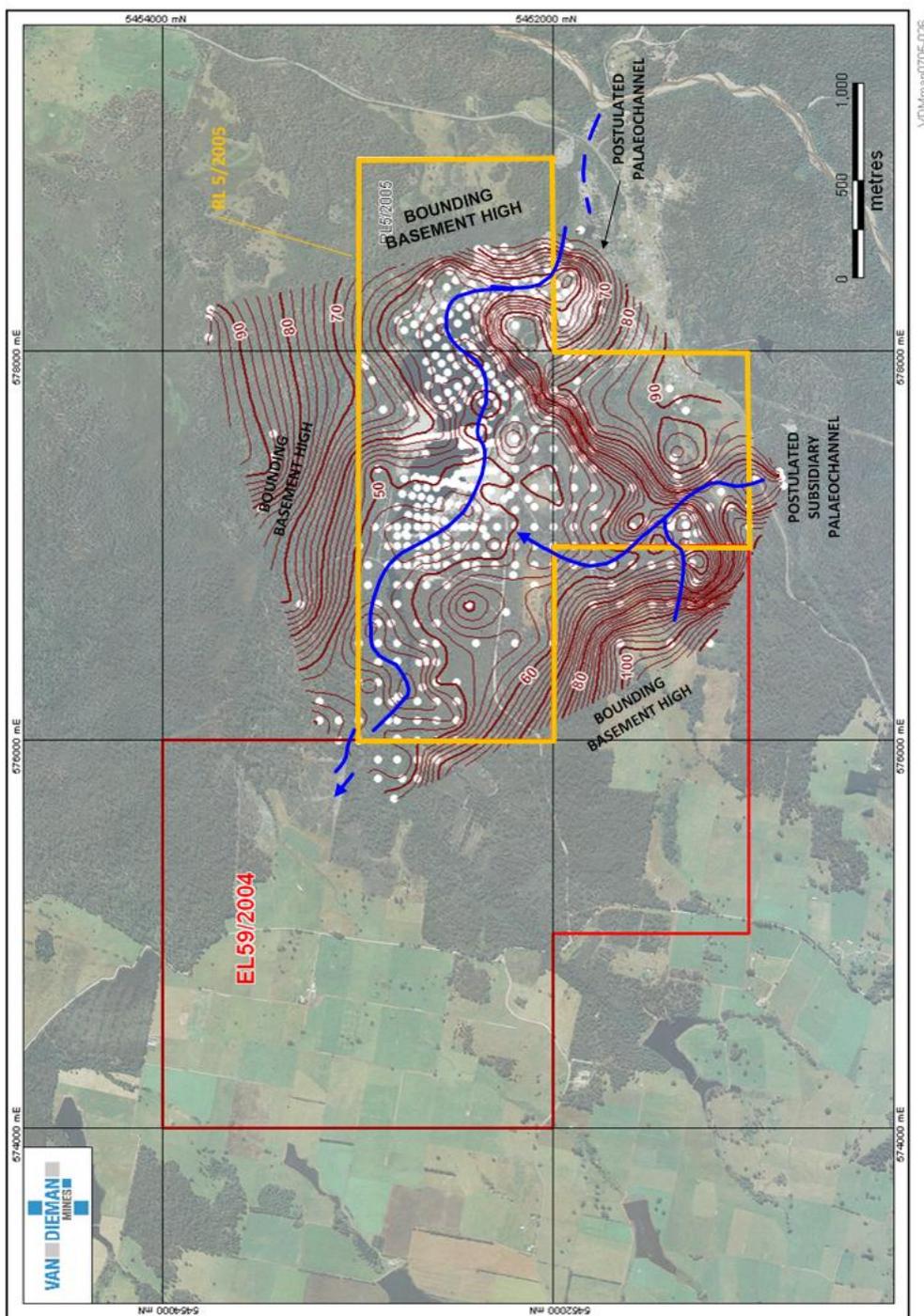


FIGURE 9: BASEMENT LINE CONTOURS - PIONEER 2007

The 3D visualisation of the basement topography, Figure 10, illustrates more clearly the position of the OK and Wyniford Leads. It appears from the figure that the OK Lead is a shallow feature that meanders into the main Lead over elevated basement.

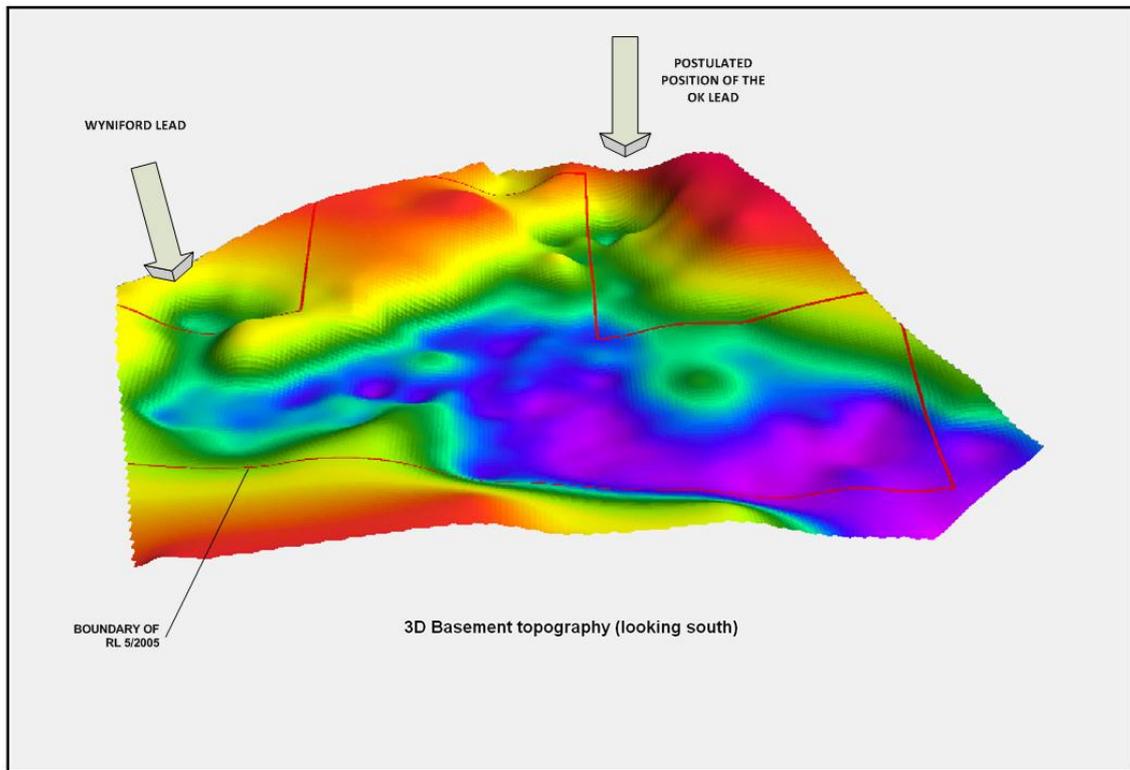


FIGURE 10 - 3D VISUALISATION OF BASEMENT TOPOGRAPHY

## 5.0 DISCUSSION OF RESULTS:

The 2007 generation of basement topographic maps have shed new light on a number of geological interpretations in relation to the mode of formation of the alluvial orebody at Pioneer.

The addition of a considerable number of new drill holes to the GIS database has resulted in a much more accurate picture of the basement at Pioneer, in particular to basement east of the resource within the mined zone now occupied by Pioneer Lake. The new basement topographic maps, Figures 6 and 7 depict the development and progress towards the 2007 basement plan, Figures 8 and 9. The tin bearing palaeo-channel has been more clearly defined and appears to indicate that the Wyniford Lead was in fact quite narrow and deeply incised into the palaeo-basement. The lead broadened at about the confluence with the OK Lead.

The major workings at Pioneer appear to have been developed at, and below, a major gradient change in that lead where the river profile flattened and a broader fan like tin bearing deposit was developed. The deposit was probably lake or swamp like although the absence of references to carbonaceous material and the clean washed nature of the deposit suggests that the lake like deposit is the more likely. Profiles in the old pits indicate strong cross bedding and multi-directional water movement typical of a rapidly deposited fan type environment. The basement map further indicates that the fan deposit again narrows into a deeply incised, up to 50 metres, stream, shedding westwards into open farmland towards the present town of Winnaleah.

In addition, a second subsidiary lead, probably the OK Lead, Figure 10, enters the Pioneer system from the south just to the west of Pioneer township. This lead is also deeply incised and very narrow. The basement topographic depiction seen in Figures 9 and 10 indicates that erosion subsequent to the deposition of the Pioneer deposits may, during the early Tertiary, and even in more Recent times, have removed much of the ancestral tin bearing OK channel to the south of Pioneer between that deposit and the current location of the Ringarooma River.

## **6.0 PROPOSED WORK PROGRAMS:**

Proposed work programs include:

- i. Continued location of past drill holes, mine related and cultural features;
- ii. Continuing of DGPS surveying;
- iii. Completion of digitizing of old data and conversion of drill logs to AMG and metric measurement;
- iv. Commence pre-DPEMP studies including baseline water sampling, flora and fauna surveys, cultural heritage and Aboriginal heritage surveys; and
- v. Recalculate ore resources and determine possible extensions to the west.

## **7.0 CONCLUSIONS:**

The 2007 generation basement map has delineated two new target zones, one, the main palaeo-channel west of the Pioneer Resource, the other to the south, the OK Lead zone. There is also evidence to suggest that not all of the eastern section of the Pioneer deposit has been worked out and that some shallow tin bearing ground exists along the eastern edge of Pioneer Lake under old sand tailings heaps.

The company is now undertaking a review of the resource base at Pioneer and will during the next twelve months commence pre-DPEMP studies as set out in the previous section.

## 8.0 BIBLIOGRAPHY:

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**9.0 APPENDICES:**

**9.1 DRILL HOLE LOCATION DATA SHEETS, PIONEER**

See Separate Electronic File RL52005\_200706\_02\_Appendix