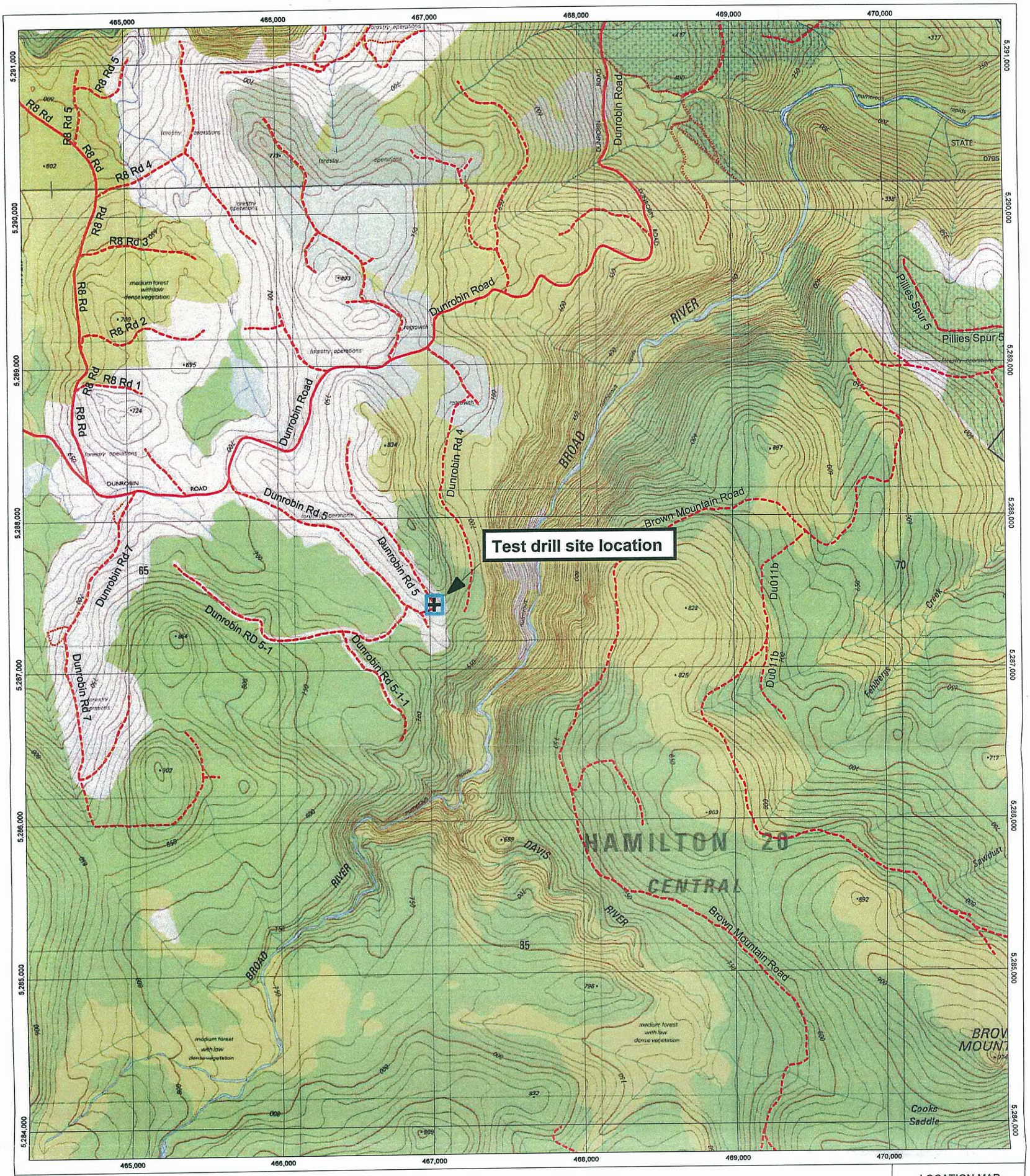

drill text

DPIW 25K Topo Map Image

RP033 Drill Site

Sigificant all weather 2 lane feeder road

Single lane all weather minor road

Single lane minor road

NOTE: Co-ordinates on this map are based on GDA94.

Any topographic data on this map has been supplied by DPIWE.

Data has been captured at differing scales & boundaries may not always co-locate

LOCATION MAP

4431	4631	4831
4430	4630	4830
4429	4629	4829
4428	4628	4828
4427	4627	4827
4426	4626	4826

A3P

GSLM drill site location

GDA GEOCENTRIC DATUM OF AUSTRALIA

Plot identifier:	Prepared by: bsp
Date: Thursday, 31 July 2008	Prepared for:

Scale 1:25,000

0 0.5 km

Forestry Tasmania
GROWING OUR FUTURE

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SUPPLEMENT TO EXPLORATION DRILLING PROGRAM DOCUMENT

SPECIFICATION AND RECOMMENDATIONS
MATTERS OF AQUIFER PROTECTION AND HOLE COMPLETION

BELLEVUE LAKE ECHO (BV#1)

Prepared for Great South Land Minerals Limited by D. F. Leaman for Leaman Geophysics. August 2008.

The following specifications are based on a well prognosis prepared by Great South Land Minerals as supplied to Leaman Geophysics in August 2008, and are in accord with guidelines for hole abandonment and aquifer protection published for Western Australia (November, 2002) and Victoria (December, 2002). Where appropriate, these guidelines have been modified so as to be conservative in the unknown conditions applying at the site. These specifications represent expansion of items within, and including the Abandonment Procedure, of the current Exploration Drilling Program draft document as prepared by Great South Land Minerals Limited Engineering Division.

The well, to be spudded in Jurassic dolerite (northwest of Lake Echo at 465 660 mE, 5 338 904 mN), is expected to encounter Triassic rocks at perhaps 400 m, and Late Permian coal measures between 640 and 680 m (possible source rocks). A complete and representative section of Permian rocks is then anticipated to a depth of perhaps 1550m. This suite will include various sandstones, siltstones and mudstones, and tillite, typical of north Tasmanian Tiers sections.

Late Permian coal measures between 640 and 680 m are regarded as possible source or reservoir rocks. Other possible source rocks are the carbonaceous rocks expected at 1100 to 1150 m and oil shales at perhaps 1320 m. Possible reservoir rocks may be present at various levels: 800 m, 880 m, 1100 m.

Possible seal rocks of the Eldon Group (Silurian) are inferred to depths of about 2200 m beneath a major unconformity. Potential reservoir rocks (Crotty Quartzite) are inferred from 2200 m, and Gordon Group limestones from 2410 m.
Planned total depth of drilling is 2600 m.

Water conditions will be normal and unconfined at surface and quite fresh (perhaps <300-500 mg/L). Some water recovery is anticipated throughout the first 100 m of the

well, but there is also potential to lose water and fluids from the drilling in this zone due to regional fracture systems. Flows to, or from, the hole should be carefully monitored whilst drilling the dolerite. Lesser risks apply to the Triassic section from 400 to 600 m.
Much of the Permian segment of the hole may be tight with very low yields. No significant flows are expected generally. It is not known what behaviour may be expected of the deeper Permian rocks at the depths predicted (600-1500 m) since cement retention, joint closure or absence, are variable factors, and some units may also act as modest aquifers. Confined conditions could apply in such circumstances, depending on flow paths from the surrounding, more elevated region, but flows will be small unless a large fracture system (or fault) is encountered. In such cases sub-artesian conditions could well occur and the water itself may have raised temperature. No realistic estimate of water quality can be offered at this stage.

Since some of the Permian formations may possess significant porosity water gain, or water loss may occur. This should be monitored and any zones noted should be sealed to avoid contamination – since lateral flow at modest depth is possible from this site.

No significant flows or changes in aquifer conditions have ever been recorded at the base Permian unconformity irrespective of the underlying lithology (whether Cambrian volcanics, Precambrian dolomite, Mathinna Beds, - or Silurian-Ordovician groups for which there is very little deep experience). None of these materials have been associated with high flows at the predicted depths.
There is, however, potential for a sequence of confined aquifer conditions with variable water volumes and quality. Given the location of the site it is highly unlikely that confined conditions will prove artesian and any water level changes will be retained within the well.

Possible seal rocks of the Bell Shale (Devonian) are inferred to depths of about 1880 m beneath a major unconformity. Potential reservoir rocks (Crotty Quartzite) are inferred at 2450 m, and Gordon Group limestones from 2700 m.

The well will be established with safeguards as described in the principal specification document in order to control any run off and seepage at surface. No significant risk, or expectation of flow from the well, exists.

The designed collar configuration should provide adequate retention in essentially unconfined conditions (see Well Plan for casing specifications).

In view of these expectations the well will be completed in the following manner.

a) Chip and mud logging will be undertaken in association with wire-line logging to identify lithology and unit thickness at those sites where water is either lost or gained during drilling.
b) Wireline logging observations will be used to estimate porosity and aquifer character – fracture type, grain size or other relevant features.
c) Water quality will be determined where possible and where samples can be separated.

d) All significant aquifers, or groups of aquifers in which quality is comparable, will be sealed and separated with plugs. This condition may arise in the Permian section.
e) Plugs will be placed from bottom up and set from 2 m below the relevant zone to at least 5 m above all confined water, and have a minimum length of 20 m irrespective of aquifer thickness. Bridging plugs will be used to set the main block.
Plugs may be composed of concrete, clay grout or cement as required to suit aquifer type of conditions. Low viscosity grouts will be used in fine-grained, low permeability units – as expected in all rock sequences at some stage (especially parts of the Permian and Silurian). Fresh water will be used for all grouts and clay mixes.
f) Cement grouts will be used for any significant aquifer. Bentonite grouts may be used in other cases.
g) If no, or negligible, confined water is encountered (as expected) then surface casing will be removed (if possible) and replaced with a cement plug at least 2 m long with a mounded cap about .03 m above ground level. This form of capping will also be used where water is flowing from a shallow, unconfined aquifer, but this condition is not anticipated at this site.
h) If the water quality is found to vary markedly (salinity variation in excess of 100%) due to the presence of several confined beds or structural zones, then it will be necessary to plug and isolate those which differ, in order to minimise or prevent mixing. Specification of plugs: at least 4 m long across interfaces. This condition is considered unlikely at Bellevue-Lake Echo BV #1.
j) The hole will be tagged on completion of capping.
k) The hole report will describe aquifers encountered. Details will include aquifer type, lithology, salinity, depth, yield if known, standing levels, nature of completion (plug locations and capping style).

D. Leaman

Dr. D. E. Leaman

Date: 21/8/08

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SUPPLEMENT TO EXPLORATION DRILLING PROGRAM DOCUMENT

SPECIFICATION AND RECOMMENDATIONS
MATTERS OF AQUIFER PROTECTION AND HOLE COMPLETION

BELLEVUE #1

Prepared for Great South Land Minerals Limited by D. E. Leaman for Leaman Geophysics. December 2007.

The following specifications are based on the well prognosis prepared by Great South Land Minerals in December 2007, and are in accord with guidelines for hole abandonment and aquifer protection published for Western Australia (November, 2002) and Victoria (December, 2002). Where appropriate, these guidelines have been modified so as to be conservative in the unknown conditions applying at the site. These specifications represent expansion of items within, and including the Abandonment Procedure, the current Exploration Drilling Program draft document as prepared by Great South Land Minerals Limited Engineering Division.

The well, to be spudded in Jurassic dolerite (northwest of Lake Echo at 467 141 mE, 5 339 284 mN), is expected to encounter Upper Permian rocks between 400 and 420 m, Permian presumed source rocks at about 1000 m and 1250 m, and basal Permian rocks near 1320 to 1350 m. Possible reservoir rocks are inferred at approx 700, 950 and 1100 m. A major unconformity is implied at about 1350 m with Silurian-Early Devonian Eldon Group to about 2200 m (which may include possible reservoir rocks), and Ordovician Gordon Group rocks, including limestones with both source and reservoir potential to final depth of about 3800 m.

Water conditions will be normal and unconfined at surface and probably quite fresh (perhaps 300-500 mg/L). Some water recovery is anticipated throughout the first 200 m of the hole.
Much of the Permian segment of the hole may be tight with very low yields. No significant flows are expected generally. It is not known what behaviour may be expected of the deeper Permian rocks at the depths predicted (1000-1300 m) since cement retention, joint closure or absence, are variable factors, and some units may also act as modest aquifers. Confined conditions could apply in such circumstances but flows will be small unless a large fracture system (or fault) is encountered. In such cases sub-artesian conditions could well occur and the water itself may have raised temperature. No realistic estimate of water quality can be offered at this stage.

No significant flows or changes in aquifer conditions have ever been recorded at the base Permian unconformity irrespective of the underlying lithology (whether Cambrian volcanics, Precambrian dolomite, Mathinna Beds, - or Silurian-Ordovician groups for which there is very little deep experience). None of these materials have been associated with high flows at the predicted depths.
There is, however, potential for a sequence of confined aquifer conditions with variable water volumes and quality. Given the elevation of the site it is highly unlikely that confined conditions will prove artesian and any water level changes will be retained within the well.

The well will be established with safeguards as described in the principal specification document in order to control any run off and seepage at surface. No significant risk, or expectation of flow from the well, exists.

The designed collar configuration should provide adequate retention in essentially unconfined conditions (see Well Plan for casing specifications).

In view of these expectations the well will be completed in the following manner.

a) Chip and mud logging will be undertaken in association with wire-line logging to identify lithology and unit thickness at those sites where water is either lost or gained during drilling.
b) Wireline logging observations will be used to estimate porosity and aquifer character – fracture type, grain size or other relevant features.
c) Water quality will be determined where possible and samples can be separated.
d) All significant aquifers, or groups of aquifers in which quality is comparable, will be sealed and separated with plugs.
e) Plugs will be placed from bottom up and set from 2 m below the relevant zone to at least 5 m above all confined water, and have a minimum length of 20 m irrespective of aquifer thickness. Bridging plugs will be used to set the main block.
Plugs may be composed of concrete, clay grout or cement as required to suit aquifer type of conditions. Low viscosity grouts will be used in fine-grained, low permeability units – as expected in all rock sequences at some stage (especially parts of the Permian and Ordovician). Fresh water will be used for all grouts and clay mixes.
f) Cement grouts will be used for any significant aquifer. Bentonite grouts may be used in other cases.
g) If no confined water is encountered (as expected) then surface casing will be removed (if possible) and replaced with a cement plug at least 2 m long with a mounded cap about .03 m above ground level. This form of capping will also be used where water is flowing from a shallow, unconfined aquifer.
h) If the water quality is found to vary markedly (salinity variation in excess of 100%) due to the presence of several confined beds or structural zones, then it will be necessary to plug and isolate those which differ, in order to minimise or prevent mixing. Specification of plugs: at least 4 m long across interfaces. This condition is considered unlikely at Bellevue #1.
j) The hole will be tagged on completion of capping.

k) The hole report will describe aquifers encountered. Details will include aquifer type, lithology, salinity, depth, yield if known, standing levels, nature of completion (plug locations and capping style).

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Dr. D. E. Leaman

14/12/07

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SUPPLEMENT TO EXPLORATION DRILLING PROGRAM DOCUMENT

SPECIFICATION AND RECOMMENDATIONS
MATTERS OF AQUIFER PROTECTION AND HOLE COMPLETION

THUNDERBOLT (TB#1)

Prepared for Great South Land Minerals Limited by D. E. Leaman for Leaman Geophysics. August 2008.

The following specifications are based on a well prognosis prepared by Great South Land Minerals as supplied to Leaman Geophysics in June 2008, and are in accord with guidelines for hole abandonment and aquifer protection published for Western Australia (November, 2002) and Victoria (December, 2002). Where appropriate, these guidelines have been modified so as to be conservative in the unknown conditions applying at the site. These specifications represent expansion of items within, and including the Abandonment Procedure, of the current Exploration Drilling Program draft document as prepared by Great South Land Minerals Limited Engineering Division.

The well, to be spudded in Jurassic dolerite (in the range southwest of Lake Repulse at 466 844 mE, 5 287 200 mN), is expected to encounter Triassic rocks at about 500 m, and Late Permian coal measures between 730 and 810 m (possible source rocks). A complete and representative section of Permian rocks is then anticipated to a depth of perhaps 1750 m. This suite will include various sandstones, siltstones and mudstones, and tillite, typical of south Tasmanian sections (including Ferntree Formation, Malbina Formation, Cascades Group, Faulker Group – with possible coal measures at 1250-1300 m, Bundella Formation, Woody Island Formation and Truro Formation – with tillite).
A major unconformity is predicted at 1770-1800 m with underlying rocks of Gordon Group including paleokarst at the erosional boundary and limestone members to at least 2500 m. Other limestone members have been inferred to depths of at least 3150 m. Planned total depth of drilling is 2500 m.

Water conditions will be normal and unconfined at surface and may be quite fresh (perhaps 500 mg/L). Some water recovery is anticipated throughout the first 50-100 m of the hole, but there is also potential to lose water and fluids from the drilling in this zone due to regional fracture systems. Flows to, or from, the hole should be

carefully monitored whilst drilling the dolerite. Much reduced risks apply to the Triassic section from 500 m.
Most of the Permian segment of the hole may be tight with very low yields. No significant flows are expected generally. It is not known what behaviour may be expected of the deeper Permian rocks at the depths predicted (>800 m) since cement retention, joint closure or absence, are variable factors, and some units may also act as modest aquifers. Confined conditions could apply in such circumstances but are highly unlikely. No realistic estimate of water quality can be offered at this stage.
Since some of the Permian formations may possess significant porosity water gain, or water loss may occur but contamination is most unlikely given the heads feasible and depths involved.

No significant flows or changes in aquifer conditions have ever been recorded at the base Permian unconformity irrespective of the underlying lithology (whether Cambrian volcanics, Precambrian dolomite, Mathinna Beds, - or Silurian-Ordovician groups for which there is very little deep experience). None of these materials have been associated with high flows at the predicted depths.
There is, however, potential for a sequence of confined aquifer conditions with variable water volumes and quality in this case given the prediction of karst conditions below the unconformity. Careful drilling and monitoring will be essential once the hole leaves the Woody Island Formation (assuming it to be present) to ensure control of any hydrological changes.
The well will be established with safeguards as described in the principal specification document in order to control any run off and seepage at surface. No significant risk, or expectation of flow from the well, exists.

The designed collar configuration should provide adequate retention in essentially unconfined conditions (see Well Plan for casing specifications).

In view of these expectations the well will be completed in the following manner.

a) Chip and mud logging will be undertaken in association with wire-line logging to identify lithology and unit thickness at those sites where water is either lost or gained during drilling.
b) Wireline logging observations will be used to estimate porosity and aquifer character – fracture type, grain size or other relevant features.
c) Water quality will be determined where possible and samples can be separated.
d) All significant aquifers, or groups of aquifers in which quality is comparable, will be sealed and separated with plugs.
e) Plugs will be placed from bottom up and set from 2 m below the relevant zone to at least 5 m above all confined water, and have a minimum length of 20 m irrespective of aquifer thickness. Bridging plugs will be used to set the main block.
Plugs may be composed of concrete, clay grout or cement as required to suit aquifer type of conditions. Low viscosity grouts will be used in fine-grained, low permeability units – as expected in all rock sequences at some stage (especially parts of the Permian and Ordovician). Fresh water will be used for all grouts and clay mixes.

f) Cement grouts will be used for any significant aquifer. Bentonite grouts may be used in other cases.
g) If no, or negligible, confined water is encountered (as expected) then surface casing will be removed (if possible) and replaced with a cement plug at least 2 m long with a mounded cap about .03 m above ground level. This form of capping will also be used where water is flowing from a shallow, unconfined aquifer.
h) If the water quality is found to vary markedly (salinity variation in excess of 100%) due to the presence of several confined beds or structural zones, then it will be necessary to plug and isolate those which differ, in order to minimise or prevent mixing. Specification of plugs: at least 4 m long across interfaces. This condition is considered unlikely at Thunderbolt TB #1.
j) The hole will be tagged on completion of capping.
k) The hole report will describe aquifers encountered. Details will include aquifer type, lithology, salinity, depth, yield if known, standing levels, nature of completion (plug locations and capping style).

D. Leaman

Dr. D. E. Leaman

Date: 1/8/08