EXPLORATION LICENCE 20/80 LAUNCESTON
FINAL REPORT ON AREA RELINQUISHED
22 AUGUST 1984

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1. SUMMARY

On 22 August 1984 the greater part of EL20/80, comprising an area of 884km^2, was relinquished. In its four years of tenure over EL20/80, CSR examined first the oil shale prospectivity, then the black and brown coal bearing potential of the relinquished area, completing in that time 29 drillholes to a cumulative metreage of 1,646.1m.

The relinquished area is underlain predominantly by the Tertiary Launceston Beds, deposited in the Tamar and Cressy grabens, although older rocks, Jurassic dolerite and Upper Pameener Super-Group sediments, crop out around the periphery of the basin and as basement highs.

Triassic strata referable to the Fingal Coal Measures were tested by drilling on the southern flank of the Hummocky Hills dolerite inlier, and in the Longford Coalfield to the dip of some minor old workings. Results from the former of these localities were negative, whereas three thin (0.9m, 1.1m and 0.4m) seams of black coal were recorded at depth close to outcropping coal measures at Longford. Economic potential is negligible.

Drilling by CSR of the Tertiary Launceston Beds in the vicinity of Carrick and Longford confirmed the presence of minor brown coal and low grade oil shale occurrences. However, only two of 14 holes completed in the area intersected any coal, proved by coring to be highly interbanded, thin, and of inferior quality. Exploratory drilling has significantly downgraded the economic potential of the Carrick-Longford part of the Launceston Basin.

Three other low ranked brown coal prospects, near Breadalbane, Epping Forest, and Conara Junction, identified on the basis of surface geological and previous drilling data, were not investigated in detail by CSR.

2. INTRODUCTION

2.1 Scope of Report

This report details geological investigations carried out over the period 19 September 1980 to 22 August 1984 by CSR Limited and its subsidiaries on that part of Exploration Licence (EL) 20/80 relinquished on 22 August 1984.

Exploration activity comprised background investigations, geological reconnaissance mapping, and rotary drilling, initially for oil shale, and subsequently black and brown coal.

2.2 Tenement Details

EL20/80, originally covering an area of 2,339km^2, was granted to AAR Limited (a wholly-owned subsidiary of CSR) on 19 September 1980. In February 1983 the Licence was transferred from AAR Limited to CSR Limited and the area reduced to 984km^2 (Ellis, 1983).

On 22 August 1984 EL20/80 was again reduced in area, from 984km^2 to 100km^2 surrounding the Rosevale Coalfield, as described in the schedule given as Table 2.2 and shown in Figure 2.2 and elsewhere.

2.3 Location, Access, Climate, Physiography, and Land Use

The relinquished portion of EL20/80 extends northwards from Conara Junction to the southern suburbs of Launceston, thence continues north-west from Longford as far as Westbury (Figure 2.2). That part retained comprises a single block in the Westbury-Rosevale area centred on the Rosevale Coalfield.

North-eastern Tasmania experiences a temperate climate, with cold winters and warm, drier, summers. Average annual rainfall varies within the relinquished portion of EL20/80 from about 1,000mm in the north-west, to about 500mm in the rainfall shadow zone around Campbell Town. Rain falls principally in the winter months, with

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TABLE 2.2

EXPLORATION LICENCE 20/80 LAUNCESTON
SCHEDULE DESCRIBING AREA RETAINED

	AMG m E	AMG m N
Commencing at the NW corner specified as	486 000	5 413 000
Thence grid E to	487 000	5 413 000
Thence grid N to	487 000	5 415 000
Thence grid E to	490 000	5 415 000
Thence grid S to	490 000	5 414 000
Thence grid E to	491 000	5 414 000
Thence grid N to	491 000	5 416 000
Thence grid E to	492 000	5 416 000
Thence grid N to	492 000	5 417 000
Thence grid E to	495 000	5 417 000
Thence grid S to	495 000	5 415 000
Thence grid E to	496 000	5 415 000
Thence grid S to	496 000	5 414 000
Thence grid E to	497 000	5 414 000
Thence grid S to	497 000	5 412 000
Thence grid E to	498 000	5 412 000
Thence grid S to	498 000	5 411 000
Thence grid E to	499 000	5 411 000
Thence grid S to	499 000	5 407 000
Thence grid W to	486 000	5 407 000
Thence grid N to point of origin	486 000	5 413 000

Comprising an area of 100km^2

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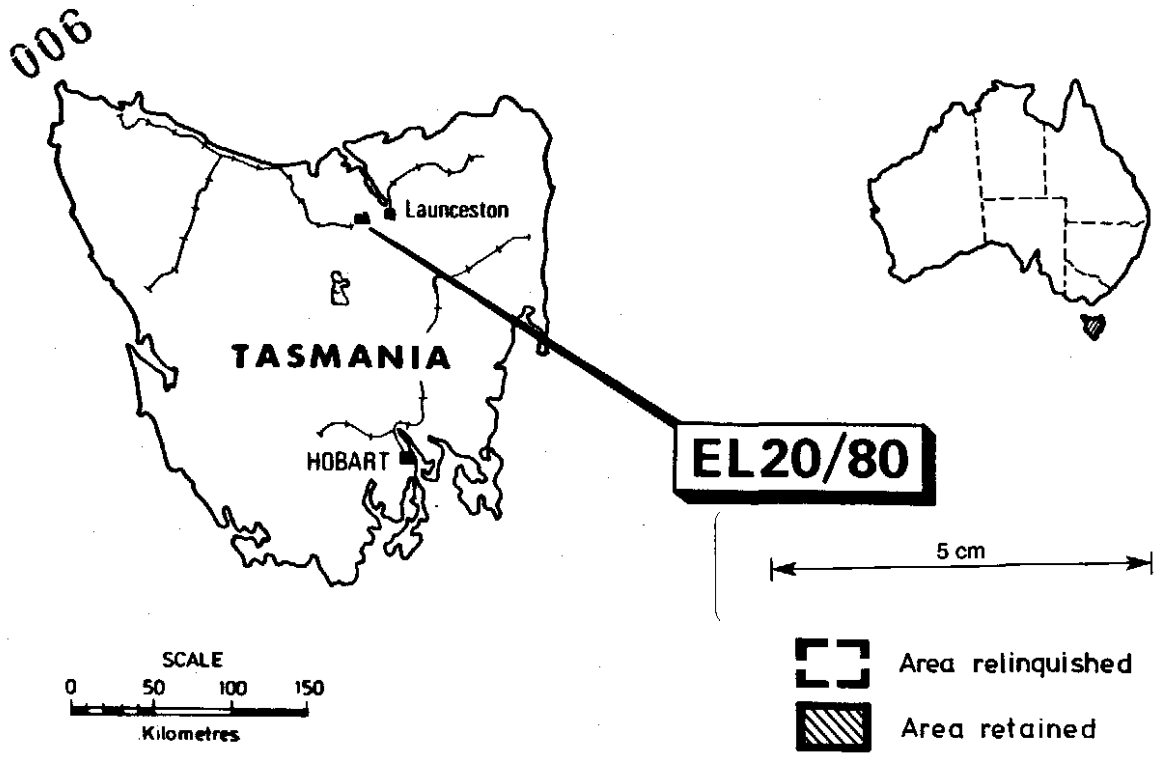

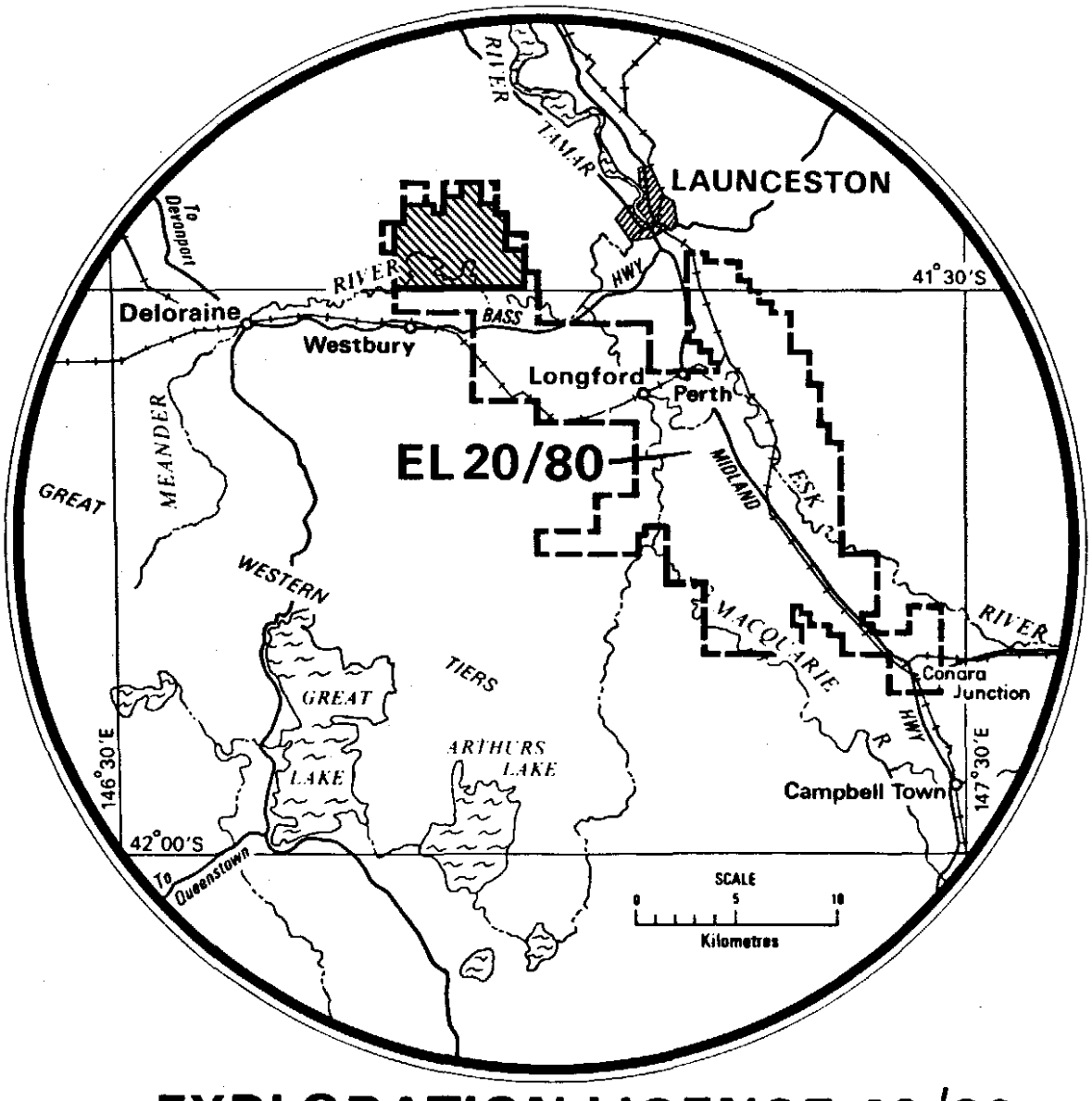

EXPLORATION LICENCE 20/80 TASMANIA

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FIGURE 2 2

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January through to April being generally dry and the ideal time for exploration activity.

Topography of the area is a reflection of local geology, with the soft Tertiary Launceston Beds expressed as physiographic lows, and the more erosion-resistant Jurassic dolerites and Permo-Triassic sediments occurring as peripheral hills. Apart from these fringing hills, and the conspicuous Hummocky Hills dolerite inlier, Launceston Basin topography is subdued, and comprises alluvial plains and low rolling hills underlain by Tertiary and Quaternary sediments, and occasionally, Tertiary basalt and older rocks.

Whereas the more hilly parts of EL20/80 remain lightly forested, the bulk of the area has been cleared and is intensively farmed. Sheep and cattle grazing and stud farming remain the predominant land uses, although cultivation of legumes, vegetables, poppy, and cereal crops are important on the Meander River floodplain around Carrick and Westbury.

Excellent access to the area is available from a network of good quality district and shire roads linking Launceston, Perth. Longford, Westbury, Cressy, and Campbell Town, and the Midland and Bass Highways. Farm roads and tracks provide good dry weather acess to most selected drilling sites.

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3. GEOLOGY

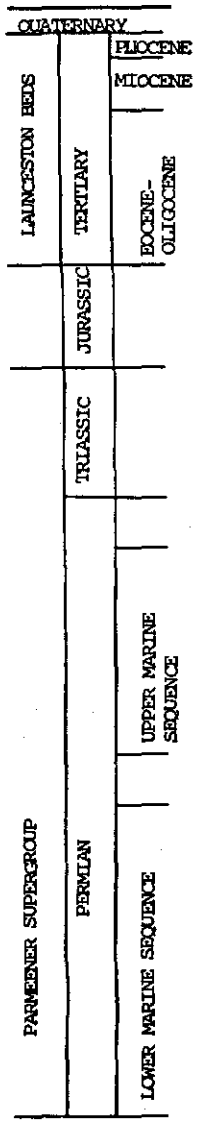
3.1 Regional Geological Setting

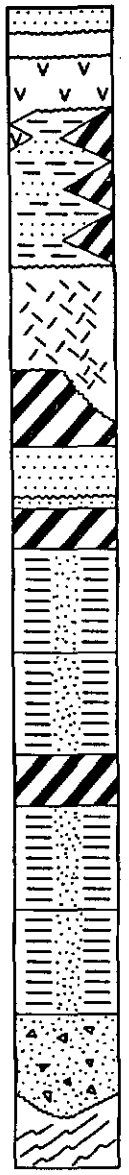
Triassic Upper Parmeener Super-Group sediments, referable to the Ross (or Knocklofty) Sandstone and Fingal Coal Measures comprise the oldest rocks in the relinquished portion of EL20/80 (see stratigraphic column, Figure 3.1.1). In outcrop they are limited to the Hummocky Hills inlier to the south of the EL, and to a small downfaulted block north of Longford ("Longford Coalfield"). Triassic sediments, and perhaps older rocks, are probably more extensively developed beneath younger cover, which occupies nearly 90% of the tenement area.

As elsewhere in Tasmania, Jurassic tholeiitic dolerite sills and dykes, and related rocks, have extensively intruded the Parmeeener Super-Group close to the base of the Triassic succession. It is these dolerites which make up the core of the Hummocky Hills inlier and fringing hills on all sides, and generally provide the basement to the Tertiary brown coal bearing Launceston Beds.

Tertiary "coal measures" have been the prime source of interest in EL20/80, which was originally taken up in the search for oil shale and lignite. Area reduction in February 1983 eliminated most pre-Tertiary outcrop from the Licence.

During the early Tertiary in Tasmania a series of north to north-west trending grabens formed, in which predominantly non-marine sediments ranging up to 1,000m in thickness accumulated. Four main grabens are recognised, and each contains traces of brown coal or carbonaceous material. The northern part of the Midlands Graben (Figure 3.1.2), known as the Launceston Basin, contains the largest volume of Tertiary sediments in Tasmania, and consequently has the best potential for development of brown coal deposits in the State. The Launceston Basin is further subdivided by the Hummocky Hills Horst into a western (Cressy) graben and an eastern (Tamar) graben.





Stratigraphic Name		Lithological Description	Prospective Area in EL 20/80	Thickness Range
		Alluvium		
Upper Zone		Gravel, boulder beds		
		Alkali - Olivine basalts		Up to 60m
Middle Zone		Clay, Silt, Sand Brown Coal and Oil Shale	Loatta, Pipers Lagoons and Selbourne Deposits	0-1,000m
Lower Zone			Breadalbane Lignite	
Dolerite Intrusion		Medium to course grained, tholeiitic dolerite		0-305m
Fingal or Newtown Coal Measures		Feldspathic Sandstone Black coal Seams	Longford Coal Field Norwich and Pateena Mines	0-200m
Knocklofty or Ross Sandstone		Quartzose Sandstone		60-100m
Cygnet Coal Measures Jackey Formation		Carbonaceous Sandstone and Shale with Plant Fragments.	thin coal seams	less than 45m
Bogan Gap Group		Predominantly unfossiliferous mudstone		up to 200m
Poatina Group		Fossiliferous Mudstone and Sandstone		40-100m
Mersey Coal Measures Liffey Group		Carbonaceous Quartz-Mica Sandstone and Shale, thin coal seams		30-49m
Golden Valley Group		Unfossiliferous erratic rich mudstone, shale limestone and sandstone		45-60m
Quamby Mudstone		Unfossiliferous, dark grey pyritic mudstone. Includes Tasmanite Oil Shales of Railton-Latrobe Area		75-120m
Stockers Tillite		Tillite and erratic rich mudstone		0-140m
Basement	Silurian	Turbidite sequences, dominately shale and siltstone		
	Ordovician	Siliceous conglomerate		
	Cambrian	Turbidite sequences containing quartzite		
	Precambrian	Quartzite		

Unconformity

Disconformity

Unconformity

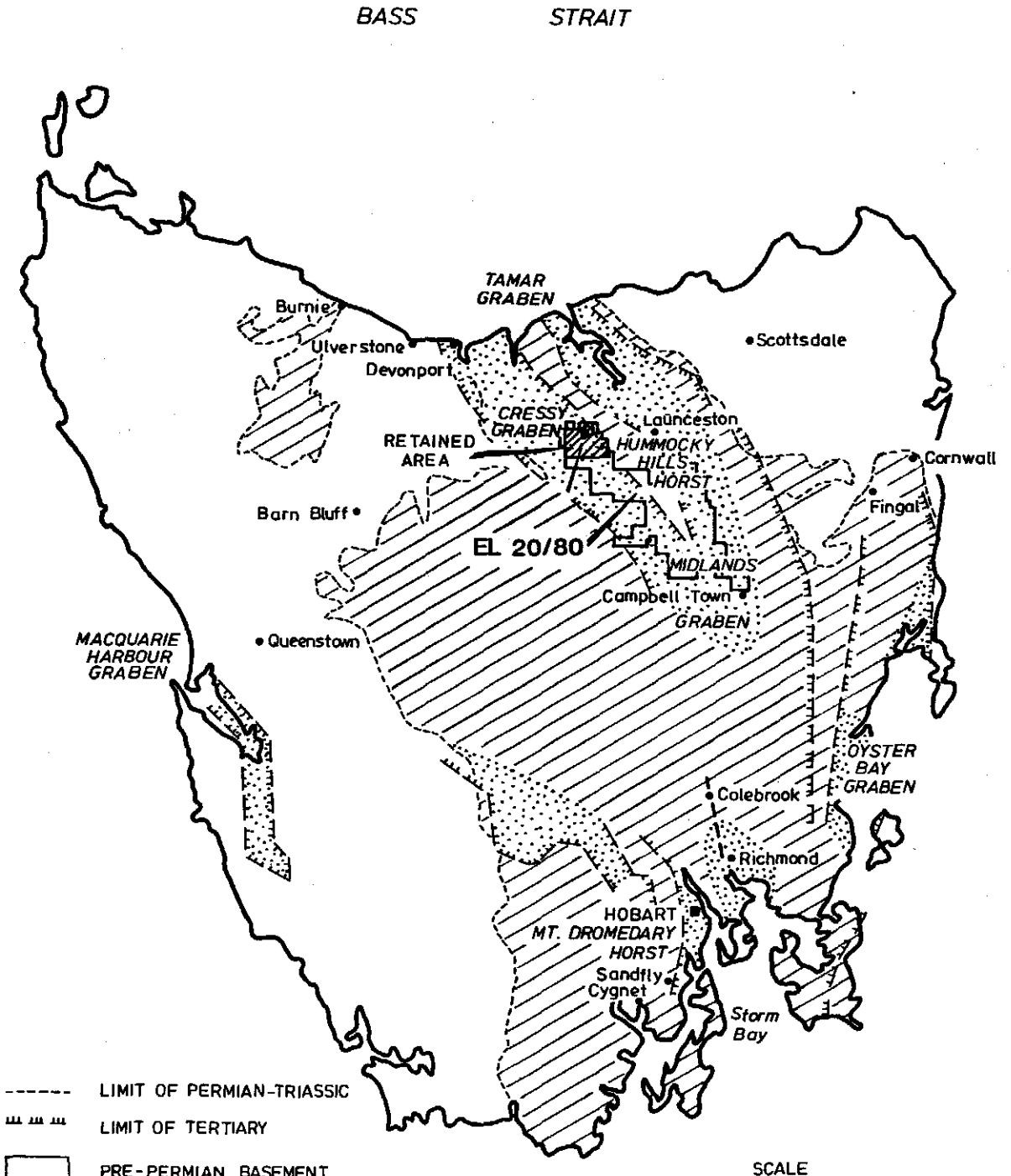
Unconformity

Unconformity

Note: Column 2 after Johnson 1873 only applies to Stratigraphy of Launceston Area

Compiled from information contained in Mathews (1974).

CSR Limited Coal Division	EXPLORATION AND EVALUATION GROUP	CSR
DRAWING	DATE	SCALE
DRAWN C.J.	Nov. '82	STRATIGRAPHY OF THE PARMEENER SUPERGROUP AND LAUNCESTON BASIN IN EL 20/80
CHECKED		FIGURE 3.1.1
REVISED	Aug. '84	DRAWING No 70020 - 90



CSR Limited Coal Division	EXPLORATION AND EVALUATION GROUP	CSR
DRAWING / DATE DRAWN C.J. Dec. '82 CHECKED REVISED Aug '84	SEDIMENTARY BASINS AND TERTIARY STRUCTURAL ELEMENTS OF TASMANIA	SCALE AS SHOWN FIGURE 3-1-2 DRAWING No 70020 – 92

Deposition of sediments in the grabens commenced in the Paleocene to Lower Eocene and continued until the Upper Oligocene. The sequence is composed primarily of non-marine clays, silts, sands and gravel, with brown coal and carbonaceous facies, together with minor marine or brackish water sediments. Environments of deposition were in a state of constant flux during the Tertiary, alternating from fluviatile to lacustrine to subaerial, and are reflected in the rapid lateral facies changes revealed from exploratory drilling. The primary source of the inorganic sediments which infilled the Tertiary grabens was the sandstone, siltstone and mudstone of the Parmeener Super-Group and the Jurassic dolerite.

Basin-wide correlation of Tertiary strata, and particularly brown coal horizons, has not been established in the Launceston Basin, nor has a formal intrabasinal stratigraphic sequence. Johnston (1888) proposed the term "Launceston Beds" for the Tertiary succession and arbitrarily divided it into three zones. The lower zone contains laminated strata, with brown coal seams and fossilised leaves, resting unconformably upon Parmeener Super-Group strata. It is presumed to have accumulated in a lacustrine flood-plain environment. The middle zone is represented by cross-bedded fluviatile sands, as well as clay, silt, oil shale and brown coal. The upper zone comprises gravel and boulder beds on terraces flanking the present course of the Tamar River.

Late Tertiary "Newer" volcanics (basalt flows) locally overlie the Launceston Beds, and because the Tertiaries occupy topographically low areas, there is widespread veneering by uppermost Tertiary and Quaternary colluvial and alluvial deposits.

3.2 Local Geology and Economic Potential

3.2.1 Upper Parmeener Super-Group

Hummocky Hills Inlier: Triassic sediments, believed referable to the Fingal Coal Measures, crop out over an area of about 7km^2 just south of the Hummocky Hills dolerite

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sill, apparently overlying quartzose Ross Sandstone. Outcrops of these Triassic rocks are predominantly of baked (contract metamorphosed) mudstone, with lesser fine quartz-lithic and quartzo-felspathic sandstone.

The relationship between the Jurassic dolerites and the sediments is not altogether clear on field evidence. In the rolling hills just south of the main dolerite sill, dolerite tends to crop out on all topographic highs, whereas metasediments dominate the low areas. Thus the situation has been intepreted as implying that the coal measures have been exhumed from beneath an overlying sill. However, it had also been observed that close to the summit of the Hummocky Hills about 30-50m of hornfelsed coal measures appear to be sandwiched between the main sill and an upper sill.

West and north-west of the Hummocky Hills shallow dolerite is overlain by a thin veneer of Launceston Beds and younger colluvium or alluvium. A little further from the Hummocky Hills, just east of Cressy, there is some suggestion of Triassic strata underlying dolerite beneath Tertiary cover in Getty's uranium exploration borehole 07 (41.6m of logged Triassic including some carbonanceous zones), whereas Mines Department water investigation holes 1 to 6 reported thin Triassic strata overlying dolerite. The relationship between the Triassic rocks, if indeed that is what was drilled, and the dolerites in the Cressy area, is thus far from unambiguous.

Exploratory drilling by CSR for black coal in the Triassic strata south of the Hummocky Hills failed to confirm the hyothesised relationship between dolerite and sediments (see Section 4.2.1), and no coal was intersected. The reported Cressy area Upper Parmeener Super-Group subcrops were not investigated further.

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Longford Coalfield: Feldspathic sandstone with shale intercalations, referable to the Fingal Coal Measures, crops out over an area of some 10 hectares on the properties "Norwich" and "Esk Lynn", north of Longford.

Coal crops out in Jordans Creek, near the Cressy Highway, and the area, known loosely as the "Longford Coalfield", was worked for coal in a small way late last century and during WWI. A small tonnage of coal was won from the Norwich Colliery, comprising several shallow shafts, and between 1916 and 1919 about 800 tonnes was extracted from the Pateena Mine via a dip tunnel from Jordans Creek.

The coal measures are truncated to the east by the Pateena Fault, and from what is known of the old workings coal seams are thin and discontinuous. To the west and south the extent of the Triassic sediments is uncertain. Two diamond drillholes to 210m and 272m completed in 1886 on the property "Belmont", west of the Cressy Highway, failed to intersect the Triassic coal measures, whereas contract water bores CW1 - CW4 to the south drilled dolerite at depths of 5-24m, below Tertiary cover.

From field evidence it is not clear whether the Triassic sediments of the Longford Coalfield overlie or underlie the Jurassic dolerites. Longman and Leaman (1971) considered that the former was the case. If this is so, the coal measures must have a very limited subsurface extent. Hills et al. (1922) estimated indicated reserves at Longford at 0.9Mt, and postulated large inferred resources.

Of two exploration holes drilled by CSR down dip of outcropping coal measures, only one intersected Triassic strata. Three thin coal seams were recorded (refer to Section 4.2.2). Recoverable reserve potential is assessed as negligible.

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3.2.2 Launceston Beds

Tertiary strata infilling the Launceston Basin have been known since last century to contain carbonaceous zones and inferior lignite. In fact, brown coal was worked in a very small way by shaft at Rosevale, as well as close to St. Leonards (Launceston) via an adit in the bank of the Esk River. Furthermore, brown coal crops out in a railway cutting near Launceston Airport (Breadalbane area).

Apart from their brown coal bearing potential, the Launceston Beds have also been recognised as prospective for redox interface uranium mineralisation (Getty) and oil shale development (AAR).

On the basis of previous surface and subsurface geological investigations, four areas within the relinquished part of EL20/80 have been identified for their brown coal or oil shale prospectivity. These are the Breadalbane, Epping Forest, Conara Junction, and Carrick-Longford areas.

Breadalbane Area: The Breadalbane area is bisected by the Glen Dhu Fault, downthrown to the east. Brown coal associated with quartzo-feldspathic sand, indicative of a dominantly fluviatile depositional environment (and by implication, suggestive of rapid facies variation), has been recorded at several localities:

- in an adit on the bank of the North Esk River near St. Leonards (3m thick seam);
- a railway cutting north of Launceston Airport, east of Breadalbane (1-1.5m seam);
- near a bridge over the North Esk at Relbia ("peat");

- 3km east of Launceston Airport in Mines Department water investigation borehole 51 (woody bands at 20m and 152m depth);

- in a contract water bore 1km east of Evandale (coal seam 2-6m thick reported).

Moreover, carbonaceous material has been noted at several other locations in the Breadalbane area, in outcrop on the property "Talisker", in Getty uranium prospecting hole W1, and in Mines water bores 46 and 50.

Three areas are identified as having modest brown coal bearing potential, albeit with fairly high overburden ratios. These are:

- west of the Glen Dhu Fault, adjacent to Launceston Airport;

- east of the Glen Dhu Fault, north-east of Relbia (with some overlying basalt);

- north-east of Evandale.

The Breadalbane lignite occurrences were not investigated further by CSR because of their low rating compared to other prospects, and their proximity to built-up areas.

Epping Forest Area: Getty and Department of Mines (water) borehole data have allowed recognition of three low rank lignite bearing areas around Epping Forest, two between the Midlands Highway and the South Esk River, and one west of Epping Forest on Barton Road.

Launceston Beds strata in this part of the basin are dominated by sand and gravel, with low energy depositional environments represented by carbonaceous silt and clay containing wood and peaty material. Carbonaceous zones are

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commonly highly interbanded, and laterally impersistent. Carbonaceous clay and sand, with up to 50% "peat" and wood, have been recorded in Getty holes F1, F4, F5, F6, F7, H5, H6 and J1, and Mines borehole 64.

No drilling was undertaken by CSR in the area.

Conara Junction Area: Four of Getty's drillholes east and north-east of Conara Junction intersected carbonaceous clay, silt, and sand, with peaty and woody bands, at depths ranging over 10m to 79m (refer to logs of boreholes B6, C1, C2 and C12). Other holes in the area failed to drill through the Tertiary basalt cap. The area has some potential for the discovery of thin brown coal seams at moderate depth; however, fairily thick basalt cover detracts from the region's economic value.

Carrick-Longford Area: A large number of carbonaceous intersections have been reported from drillholes around Carrick and Longford, both north-west and south-east of the Carrick basement high (see Figure 4.2). Gravity residuals in the area indicate plateau-like pre-Tertiary basement topography, with a southerly palaeoslope (Longman and Leaman, 1971).

Laterally impersistent brown coal seams up to 6.7m thick, but usually thinner than 2m, were drilled by Getty boreholes S12, S13, S14, S15, V3, V4, V8, V10 and V11, and Mines Department bore 19. Generally the coal occurs at depths greater than 60m, but shallower intersections do occur.

A number of holes were drilled by CSR in the Carrick and Longford areas, initially to assess the oil shale potential of the Launceston Beds, and later their prospectivity for economic brown coal. In both respects, the Carrick-Longford region was ranked fairly low.

4. EXPLORATION

4.1 Previous Exploration

The first recorded drilling in the area presently covered by EL 20/80 was in 1886, when attempts were made to determine the subsurface extent of the Fingal Coal Measures in the Longford Coalfield. Subsequent exploration activity was directed at the search for bauxite, clay, groundwater, oil, uranium, oil shale, and black and brown coal.

In 1944 the Australian Aluminium Commission mapped and extensively sampled bauxite occurrences in the Tamar region.

Although groundwater drilling commenced as early as 1929, it was not until 1965 that the Tasmania Department of Mines initiated an extensive systematic study of the groundwater resources of the Launceston Basin, during which over 200 holes were drilled (Matthews, 1974). Valuable stratigraphic information is contained within the drill logs of these holes.

Two oil exploration holes were drilled by C.G. Selzburger in the Bracknell area and at Hagley. Those holes penetrated 670m and 793m of Tertiary sediments, devoid of oil-bearing zones, before intersecting Jurassic dolerite.

Getty Oil Development Co. Ltd. carried out a 122 hole rotary chip drilling programme in the Launceston Basin in 1972-73 aimed at locating uranium mineralisation at redox interfaces in the sandy units of the Launceston Beds. Whereas only minor anomalies were detected, Getty's work nevertheless identified a number of brown coal prospects.

4.2 Exploration by CSR

CSR has undertaken five drilling programmes in EL20/80 over the periods March-April 1981, October - December 1981, March - April 1982, October - December 1983, and May 1984. Initial

investigations (by AAR Limited) centred on the search for oil shale in the Launceston Beds of the Carrick-Longford area. Whereas this phase of the study failed to provide encouragement for location of economic oil shales, a number of promising brown coal interesections were noted, particularly in the Rosevale sector of the EL. Subsequent exploratory drilling by CSR Coal Division further assessed the brown coal potential of the Tertiary sediments in the north-western part of the basin, and led to the discovery and demarcation of a significant coalfield in the Rosevale area (retained portion of EL20/80). Additionally, several holes were drilled by CSR in the Longford Coalfield and Hummocky Hills areas to evaluate black coal prospects in the Triassic Upper Parmeener Super-Group sequence.

Within the relinquished portions of EL20/80, 29 holes have been drilled by CSR, 14 by AAR Limited and 15 by CSR Coal Division. Total metreage drilled amounted to 1,646.1m, of which 28.6m was cored, and the remainder drilled rotary or percussion. Most holes were geophysically logged. Table 4.2 summarises drillhole data, whilst figure 4.2 locates all drillholes with respect to the limits of the Launceston Basin. Detailed borehole logs, together with graphics, are included as an Appendix to this report.

Results are summarised as follows:

Hummocky Hills Inlier: Four percussion holes (R130-133) were collared in outcropping Triassic sediments, believed to have been exhumed from beneath the thick Hummocky Hills dolerite sill, just south of the Hummocky Hills. The area was viewed as having reasonable prospects for the development of possible opencut black coal in an equivalent sequence to the Fingal Coal Measures.

However, no coal was intersected, each of the four holes passing through thin (2.3 - 34.7m) contact metamorphosed (baked) fine classic sediments into thick Jurassic dolerites.

TABLE 4.2

SUMMARY OF HOLES DRILLED BY CSR

Hole No.	T.D. (m)	AMG Location mE	mN	Comments
R017	33.0	492140	5406310	Surface basalt. Parmeener Basement 27.8m.
R027	32.0	535500	5396800	Mathinna(?) basement 29.5m.
R028	70.2	515500	5277016	Parmeener(?) basement 69.8m.
R029	47.8	512720	5390950	Bottomed in coarse gravel.
R030	83.0	500760	5409790	Fingal C.M. from 11.5m. Coal seams.
R031	72.2	500200	5409160	Parmeener(?) basement 71.5m.
C034	49.6	597500	5403500	Cored from 21.0m. Some inferior lignite.
R035	50.6	498460	5437900	Mostly sand.
R037	60.2	495350	5400730	Barren Launceston Beds.
R038	95.4	496900	5397100	Clay section.
R043	92.0	509800	5391400	Clay and gravel.
R044	74.0	510000	5390400	Mostly clay section.
R045	42.0	509800	5389400	Clay section.
R048	64.0	509800	5396500	Mostly silt and clay.
R049	39.0	508700	5396800	Dolerite basement 29.0m.
R050	60.0	507600	5396200	Clay and silt section.
R051	60.0	506600	5395300	Clay and silt.
R053	60.0	506800	5398000	Clay and silt.
R054	60.0	506200	5397100	Barren Launceston Beds.
R055	65.0	501400	5397600	Lignite logged over 40.0-54.0m.
R057	70.0	497600	5400300	Some carbonaceous material.
R058	62.0	504000	5394800	Mostly clay section.
R060	70.0	497650	5433500	Clay, minor ligneous material.
R061	22.0	499400	5403700	Dolerite basement 17.0m.
R066	12.0	485660	5411980	Parmeener basement 0.9m.
R130	75.6	519100	5374400	14.5m Triassic on dolerite.
R131	60.0	521030	5375580	3.0m Triassic on dolerite.
R132	19.5	522610	5376100	10.3m Triassic on dolerite.
R133	45.0	522300	5374380	35.8m Triassic on dolerite.

Clearly, the geological map of the area, depicting dolerite occupying topographic highs, and sediments the valleys, is basically correct. However, the accepted interpretation, on which the drilling programme was based, of "coal measures" having been stripped from beneath the 150m plus thick Hummocky Hills dolerite sill, is clearly wrong. Results suggest that thin, rafted, baked sediment remnants overlie a major sill, through which dolerite feeders have intruded (the topographic highs) to a former upper sill (paralleling the apparent relationship between the hornfelsed coal measures and dolerites on the crest of the Hummocky Hills). That the Ross Sandstone, which underlies the coal measures immediately to the south of the drilled area, seems also to have been invaded by dolerite suggests the main (lower) sill transgresses the Ross Sandstone - coal measures contact and is stratigraphically low in the Triassic pile. Thus prospects for locating coal bearing sediments beneath the dolerite elsewhere in the region appear poor.

Longford Coalfield: Two boreholes (R030-031) were completed down dip of the Longford Coalfield Fingal Coal Measures exposure, respectively about 100m and 600m from the outcrop edge.

Rotary chip hole R030 intersected probable Triassic strata beneath Tertiary silt and clay at 11.5m, then drilled 71.5m of mostly sandy coal measures containing three thin coal seams, namely 0.9m at 39.1-40.0m, 1.1m over 71.6-72.7m, and 0.4m over 74.3-74.7m. by contrast, R031 passed through a dominantly sand section of the Launceston Beds prior to intersection of hard quartzose sandstone (possibly a Ross Sandstone equivalent) at 71.5m.

Whereas the two drillholes are clearly insufficient to delineate the subsurface extent of the coal measures at Longford, they did confirm that the Longford Coalfield contains only very thin coal seams with no opencut potential. Reserves are negligible.

Westbury Area: As part of the Rosevale Coalfield evaluation exercise, two holes (R017, R066) were drilled outside the known limits of the prospective area to test basin geometry. Both

intersected presumed Parmeener Super-Group basement at shallow depth, R066 at 0.9m, and R017 at 27.8m. 13.0m of Tertiary basalt overlies the Launceston Beds in R017.

Carrick-Longford Area: 21 holes have been drilled in the environs of Carrick and Longford, 14 (R043-055, R057-058, R060-061) by AAR Limited primarily to explore for oil shale, and 7 (R027-029, C034, R037-38) by the Coal Division of CSR.

AAR's oil shale drilling programme was largely unsuccessful, although thin oil shales associated with lignite were detected in the Carrick area. Shale chip samples yielded up to 49l/tonne volatile oils (on a dry basis) over intervals of up to a few metres. The programme did, however, confirm the intermittently carbonaceous nature of the Launceston Beds around Carrick, and one hole, R055, intersected some lignite. Most drillholes, nevertheless, passed through only barren fine sediments.

Of the coal exploration holes completed in the Carrick-Longford area, the majority failed to locate significant beds of lignite. Partially cored hole C034 drilled 2.7m of interbedded inferior lignite and ligneous clay over the interval 21.5-24.2, as well as a number of very thin bands of dirty lignite at greater depth (down to 41.4m), and was the only hole to produce even marginally interesting results. Boreholes R027, R028 and R049 all cut basement, respectively Mathinna Beds (?) at 29.5m, Parmeener Super-Group sediments at 69.8m, and Jurassic dolerite at 29.0m, confirming the subsurface extensiveness of the Carrick and east Cressy mapped basement highs.

022

5. CONCLUSIONS

Background geological studies on EL20/80 enabled identification of seven discrete areas thought prospective for black or brown coal, or oil shale, development. Of these, four were investigated by drilling, and one, now referred to as the Rosevale Coalfield, has been retained for future development.

Triassic sediments referable to the Fingal Coal measures crop out in the relinquished portion of EL20/80 on the southern flank of the Hummocky Hills dolerite inlier, and over a very small area north of Longford, once worked in a minor way for black coal and known as the Longford Coalfield. Drilling by CSR in the former of these two areas demonstrated that the "coal measures" comprise only a thin veneer of contact metamorphosed sediments overlying dolerite and totally devoid of carbonaceous material. In the Longford Coalfield, one of two holes drilled to the dip of old workings cut three very thin seams of black coal at depth. Reserve potential of the coalfield is assessed as negligible.

Drilling for brown coal and oil shale in the Carrick-Longford area of the Tertiary Launceston Basin confirmed the presence of minor lignite and oil shale occurrences flanking the Carrick basement high. However, the general paucity and low quality of coal intersections, and poor development of oil bearing shale zones, suggest little economic potential in the area.

Other low ranked lignite - bearing areas at Breadalbane, Epping Forest and Conara Junction, delineated on the basis of brown coal outcrop and subsurface data from water investigation and uranium prospecting boreholes, were not examined in detail by CSR. Their prospectivity is viewed as low, although some potential exists for the discovery of small brown coal deposits in these areas.

6. REFERENCES

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7. APPENDIX

1. Drillhole Logs

2. Drillhole Graphics
   (Figures A1 - A4)

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

025

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EL2080 LAUNCESTON R0017

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Easting: 492140.000
Northing: 5406310.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 155.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth: 33.00
Drilling Commenced: 03/11/81
Drilling Completed: 03/11/81
Inclination:
Azimuth:
Standing Water Level: 0.5

Logging Organisation: CSR Exploration and Evaluation Grou
Logged By: ELLIS
Drilling Contractor: H.J. Stacpoole
Geophysical Logging: Murdoch Geophysics

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 120
Core Diameter:
Cased Depths:
Core Barrel:

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Drill Bits: Blades
Rollers
Percussion

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0017

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					1.40	1.40		CLAY	Silty, medium to dark brown - grey, weathered, firm, high plasticity (clay);
									WITH A TRACE OF IRONSTONE GRAVEL
					1.60	0.20		CLAY	Mottled brown - yellow, weathered, firm, high plasticity (clay);
									WITH A TRACE OF IRONSTONE GRAVEL
					6.00	4.40		GRAVEL	Clayey, sandy, medium to dark brown - red, weathered, medium dense, non-plastic, fining upwards;
									FINE TO MEDIUM GRAVEL
					6.90	0.80		BASALT	Medium to dark grey - green, weathered, high strength, brittle;
									CHANGE TO DOWN HOLE HAMMER BIT AT 6.8M 120MM HOLE DIAMETER
					19.00	12.20		BASALT	Medium to dark grey - green, extremely high strength, tough; Bands include: CLAY, silty, sandy, light white - grey, firm, low plasticity (clay); Bands include: CLAY, indurated, light to medium green - grey, low strength, brittle;
									FROM 12M CHALCEDONNIC QUARTZ WAS COMMON, BASALT LOOKS LIKE DOLERITE DUE TO ALTERATION. CLAY BANDS COMMONLY CONTAIN SMALL, LESS THAN 1MM DIAMETER SPHEROIDS-MAYBE PISOLITES FROM AN ASH BAND (TUFF).

EL2080 LAUNCESTON R0017

026

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

027

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					19.20	0.20		CLAY and BASALT	Interbedded 50:50. CLAY: sandy, light grey - white, firm, low plasticity (clay). BASALT: medium to dark grey - green, high strength, brittle.
									BASALT BANDS LESS COMMON TOWARDS BASE OF UNIT. CLAY MAY BE DERIVED FROM A TUFF. HOLE MAKING WATER, LESS THAN 100 GAL/HR AT 19M.
TE					20.00	0.80		CLAY	Sandy, light grey - white, firm, low plasticity (clay), occasional ligneous fragments.
									CHANGED TO 120MM BLADE BIT AT 19.9M.
TE					22.90	2.90		CLAY and CLAY	Interbedded 40:40. CLAY: silty, light grey, firm, high plasticity (clay), occasional ligneous fragments. CLAY: silty, light to medium brown - grey, firm, low plasticity (clay).
					27.80	4.90		CLAY	Silty, indurated, light to medium grey, low strength, brittle.
					33.00	5.20		SHALE and CLAY	Interbedded 40:40. SHALE: silicified, medium to dark green, high strength, brittle, subfissile. CLAY: silty, light to medium grey, low strength, brittle.
									TRIASSIC OR PERMIAN STRATA INTERSECTED FROM 22.9M TO TD.

END OF BORE AT 33.00 m

EL2080 LAUNCESTON R0017

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2CBC
Launceston

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EL2080 LAUNCESTON R0027

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Easting: 535500.000
Northing: 5396800.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 170.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth: 32.00
Drilling Commenced: 15/11/81
Drilling Completed: 15/11/81
Inclination:
Azimuth:
Standing Water Level: 4.0

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: ELLIS
Drilling Contractor: H.J. Stacpoole
Geophysical Logging: Murdoch Geophysics
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 120
Core Diameter:
Cased Depths:
Core Barrel:

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Drill Bits: Blades
Rollers
Percussion

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0027

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

023

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					0.30	0.30		CLAY	Silty, sandy, light to medium orange - yellow, weathered, firm, low plasticity (clay)
TE					2.10	1.80		CLAY	Silty, gravelly, light to medium orange - yellow, weathered, firm, low plasticity (clay). Bands include: CLAY, silty, gravelly, mottled orange - yellow, weathered, firm, low plasticity (clay). Additional features include: grey.
									FERRUGINOUS GRAVEL, SOME QUARTZ, COME
									BANDS FERRICRETE OR FERRUGINOUS CEMENTED GRAVEL
TE					2.80	0.70		GRAVEL	Clayey, mottled orange - yellow, weathered, medium dense, non-plastic. Additional features include: grey.
TE					3.70	0.90		CLAY	Gravelly, silty, mottled grey - orange, weathered, firm, low plasticity (clay)
TE					4.60	0.90		CLAY	Silty, light to medium grey, weathered, firm, high plasticity (clay)
TE					7.00	2.40		CLAY	Silty, light to medium orange - yellow, weathered, low strength, brittle. Additional features include: interbedded 60:40: brown; CLAY: silty, light to medium yellow - orange, weathered, soft, low plasticity (silt). Bands include: CLAY, silty, light to medium grey, weathered, firm, high plasticity (clay)
TE					8.10	1.10		SILT	Clayey, sandy, light to medium yellow - brown, weathered soft, low plasticity (silt), very fine grained. Bands include: CLAY, light to medium grey, weathered, firm, high plasticity (clay).
									WITH SOME FINE GRAVEL
					9.70	1.60		CLAY	Silty, light to medium yellow - orange, weathered, firm, low plasticity (clay).
					14.30	4.60		CLAY	Silty, light to medium yellow - orange, weathered, firm, low plasticity (clay), fine to coarse grained

EL2080 LAUNCESTON R0027

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					23.00	8.70		CLAY	Interbedded 70:30; Additional features include: green; CLAY: silty, sandy, light to medium orange, weathered, firm, low plasticity (clay).
					24.50	1.50		CLAY	Silty, sandy, light to medium yellow - brown, weathered, low strength, brittle; Additional features include: green
					25.70	1.20		CLAY	Light to medium green - grey, low strength, brittle.
					26.30	0.60		CLAY	Medium to dark green - grey, low strength, brittle.
					29.50	3.20		SILCRETE	Medium to dark green - grey, low strength, brittle; Bands include: CLAY, light to medium orange, low strength brittle; Bands include: CLAY, light to medium green - grey, firm, low plasticity (clay); Additional features include: white.
					30.30	0.80		SILTSTONE	Silicified, medium to dark green - grey, high strength, brittle.
					32.00	1.70		SHALE	Silicified, medium to dark green - grey, extremely high strength, tough;

CHANGED TO ROLLER BIT AT 31.3M

CHANGED TO HAMMER BIT AT 31.6M
SHALE CONTAINS DARK GREY-BLACK CARBONACEOUS BANDS, PYRITE AND PYRRHOTITE ON CLEAVAGE PLAINS AND DISSEMINATED SULFIDES WERE PANNED FROM MUD FIT ON SHOVELS.
DRILLER REMARKED THAT LITHOLOGY WAS PROBABLY THE MATHINNA SLATES
PRE TERTIARY BASEMENT OF PERMIAN? TO SILURIAN AGE INTERSECTED FROM 2.1M.
BASE WEATHERING 24.5M

END OF BORE AT 32.00 m

EL2080 LAUNCESTON R0027

030

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

031

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EL2080 LAUNCESTON R0028
****

Easting: 515500.000
Northing: 5277016.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl:
Datum:
Sheet Reference:
Sheet Index:
Total Depth: 70.20
Drilling Commenced: 21/11/81
Drilling Completed: 21/11/81
Inclination:
Azimuth:
Standing Water Level: 2.6

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: HINRICHS
Drilling Contractor: H.J. Starpoole
Geophysical Logging: Murdoch Geophysics

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths:
Core Barrel:

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0028

354032

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

0322

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					1.60	1.60		CLAY	Sandy, gravelly, light to medium orange - brown, weathered firm, low plasticity (clay), fine and medium grained. Additional features include: quartzose.
									MEDIUM GRAVEL: WELL ROUNDED
TE					2.20	0.60		SAND	Clayey, quartzose, light to medium orange - grey, weathered, medium dense, non-plastic, fine and medium grained.
TE					4.40	2.20		CLAY	Sandy, quartzose, mottled pink - orange, firm, low plasticity (clay), abundant iron oxide, secondary, staining. Additional features include: white - grey. Bands include: IRONSTONE - UN- DIFFERENTIATED, sandy, light to medium orange - brown, low strength, brittle.
TE					16.00	11.60		CLAY	Mottled buff - pink, firm, low plasticity (clay). Additional features include: yellow.
									WITH A TRACE OF SAND
TE					18.00	2.00		CLAY	Light to medium brown - khaki, firm, low plasticity (clay).
TE					43.00	25.00		CLAY and CLAY	Interbedded 80:20 CLAY: medium to dark grey, firm, low plasticity (clay). CLAY: light to medium brown - grey, firm, low plasticity (clay).
TE					48.00	5.00		CLAY and SILT	Interbedded 80:20 CLAY: silty, medium to dark grey, firm, low plasticity (clay). SILT: clayey, medium to dark grey, loose, non-plastic.
TE					59.50	11.50		SILT	Clayey, medium to dark grey - yellow, loose, non-plastic, fine grained.
TE					69.80	10.30		SAND	Woody textured, light to medium grey - green, loose, non-plastic, medium and coarse grained.
					70.20	0.40		SHALE	Silicified, light to medium grey, high strength, tough.
									PRE-TERTIARY BASEMENT INTERSECTED

END OF BORE AT 70.20 m

EL2080 LAUNCESTON R0028

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

033

****
EL2080 LAUNCESTON R0029
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Easting: 512720.000
Northing: 5390950.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 140.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth:
Drilling Commenced: 22/11/81
Drilling Completed: 22/11/82
Inclination:
Azimuth:
Standing Water Level: 2.6
Available Data: Gamma Logs
Resistivity Logs

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: HINRICHS
Drilling Contractor: H.J. Stacpoole
Geophysical Logging: Murdoch Geophysics
County:
Parish:
Portion:
Plug Depths:
Hole Diameter:
Core Diameter: 150
Cased Depths:
Core Barrel:
Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0029

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

034

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					0.50	0.50		SAND	Silty, medium to dark brown, weathered, medium dense, non-plastic, fine and medium grained.
					0.80	0.30		GRAVEL	Medium to dark brown - red, medium dense, non-plastic, iron oxide, cement.
					5.00	4.20		CLAY	Interbedded 50:50: Additional features include: buff; CLAY: mottled off white - yellow, firm, low plasticity (clay); Additional features include: buff.
					5.50	0.50		CLAY	Silty, light to medium buff, firm, low plasticity (clay).
					9.00	3.50		CLAY	Mottled buff - brown, firm, low plasticity (clay); Additional features include: off white; Bands include: CLAY, mottled buff - brown, stiff, low plasticity (clay); Additional features include: off white - yellow; Additional features include: pink; WITH SOME GRAVEL BANDS, CEMENTED IRON- STONE BANDS.
					16.00	7.00		CLAY	Mottled buff - grey, firm, high plasticity (clay); Additional features include: off white; Bands include: CLAY, mottled buff - orange, firm, high plasticity (clay); CHANGED CIRCUTING FLUID AT 16M
					23.50	7.50		CLAY	Silty, light to medium grey - brown, firm, low plasticity (clay), rare lignous wisps; NON KERAGINOUS CLAY. Bands include: SIDERITE, 00.20 m thick, base at 0018.20m, light white - grey, low strength, brittle; Bands include: SIDERITE, 00.05 m thick, base at 0020.55m, light white - grey, low strength, brittle; Bands include: SIDERITE, 00.10 m thick, base at 0023.50m light to medium brown, extremely high strength, tough.
					26.50	3.00		CLAY	Medium to dark grey, firm, high plasticity (clay).

EL2080 LAUNCESTON R0029

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2280
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					27.70	1.20		SILCRETE	Light to medium grey, high strength, brittle
					29.00	1.30		CLAY	Medium to dark grey, firm, high plasticity (clay)
					33.00	4.00		SAND	Medium to dark grey, loose, non-plastic, common woody fragments
					43.00	10.00		SAND and SAND	Interbedded 60:40, SAND: medium to dark grey, loose, non-plastic, fine grained, common woody fragments; SAND: woody textured, clayey, medium to dark grey, loose, non-plastic, medium and coarse grained, common woody fragments
					45.00	2.00		SAND	Medium to dark grey, medium dense, non-plastic, medium and coarse grained
					46.80	1.80		SAND	Woody textured, light to medium green - grey, medium dense, non-plastic, medium and coarse grained, common woody fragments
					47.80	1.00		GRAVEL	Clayey, light to medium green - grey, medium dense, non-plastic, granular; Additional features include: pebbly; GRAVEL CONTAINS DOLERITE AND SANDSTONE CLASTS; HOLE ABANDONED DUE TO BLOCKING OF BIT THROUGH GRAVELS

END OF BORE AT 47.80 m

EL2080 LAUNCESTON R0029

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

036

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EL2080 LAUNCESTON R0030

****

Easting: 500760.000
Northing: 5409780.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 137.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth: 83.00
Drilling Commenced: 23/11/81
Drilling Completed: 23/11/81
Inclination:
Azimuth:
Standing Water Level: 13.4

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: ELLIS
Drilling Contractor: H.J. Stacpoole
Geophysical Logging: Murdoch Geophysics
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths:
Core Barrel:

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0030

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT ARE
Launceston

037

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					0.50	0.50		SAND	Silty, medium to dark brown, medium dense, non-plastic, fine and medium grained;
									COALLY FRAGMENTS COMMON-FROM SPOILS DUMP
TE					2.50	2.00		CLAY	Light to medium buff - yellow, firm, low plasticity (clay);
TE					3.20	0.70		CLAY	Mottled buff - yellow, firm, high plasticity (clay), gradational base; Additional features include: grey - pink;
									WITH A TRACE OF MEDIUM SAND, QUARTZ
TE					3.70	0.50		CLAY	Mottled off white - yellow, firm, low plasticity (clay);
									WITH A TRACE OF MEDIUM SAND, QUARTZ
TE					4.00	0.30		CLAY	Sandy, quartzose, mottled off white - yellow, firm, low plasticity (clay); Additional features include: orange;
									WITH SOME GRAVEL
TE					4.60	0.60		GRAVEL	Quartzose, clayey, mottled off white - orange, medium dense, non-plastic, abundant iron oxide, secondary, staining;
									WITH SOME MEDIUM GRAVEL
TE					5.40	0.80		SILT	Sandy, clayey, mottled orange - off white, medium dense, non-plastic, abundant iron oxide, secondary, staining
TE					6.50	1.10		CLAY	Sandy, mottled orange - pink, firm, low plasticity (clay); Additional features include: brown - off white
TE					9.40	2.90		SILT	Sandy, clayey, mottled orange - off white, medium dense, non-plastic, gradational base; Additional features include: gravelly
TE					11.30	1.90		CLAY	Silty, sandy, mottled orange - off white, soft, non-plastic

EL2080 LAUNCESTON R0030

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					11.50	0.20		SILCRETE	Translucent, medium to dark green, high strength, brittle.
					15.50	4.00		SILT	Sandy, clayey, light to medium buff - orange, medium dense, non-plastic.
									WITH SOME GRAVEL
					19.30	3.80		CLAY	Silty, sandy, mottled orange - yellow, firm, low plasticity (clay). Additional features include: pink - off white.
					25.60	6.30		SILT	Clayey, sandy, mottled orange - yellow, firm, low plasticity (silt). Additional features include: pink - off white.
									BASE OF WEATHERING
					39.10	13.50		SAND	Silty, clayey, light to medium grey, medium dense, non-plastic, fine grained, poorly sorted, angular, abundant coaly fragments. Additional features include: feldspathic, quartzose, rounded.
					40.00	0.90		COAL	Dark black, low strength, brittle.
					55.00	15.00		SAND	Silty, clayey, light to medium grey, soft, non-plastic, fine and medium grained, common coaly fragments. Additional features include: feldspathic, quartzose.
					59.50	4.50		SILT	Clayey, light to medium grey, soft, low plasticity (silt), common coaly fragments. Additional features include: feldspathic, quartzose.
					63.10	3.60		SAND	Silty, clayey, light to medium grey, soft, non-plastic. Additional features include: feldspathic, quartzose.
					67.40	4.30		CLAY	Sandy, silty, light to medium grey, soft, low plasticity (clay). Additional features include: kaulinitic.
					71.60	4.20		SAND	Silty, clayey, light to medium grey, soft, non-plastic.
					72.75	1.15		COAL	Dark black, low strength, brittle.

EL2080 LAUNCESTON R0030

0238

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					74.30	1.55		SAND	Clayey, light to medium grey, soft, non-plastic, very fine grained
					74.70	0.40		COAL	Dark black, low strength, brittle
					83.00	8.30		SILTSTONE	Sandy, light to medium grey, low strength, brittle, very f... grained

END OF BORE AT 83.00 m

EL2080 LAUNCESTON R0030

033

354040

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

040

****
EL2080 LAUNCESTON R0031
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Easting: 500200.000
Northing: 5409160.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 138.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth: 72.20
Drilling Commenced: 24/11/81
Drilling Completed: 25/11/81
Inclination:
Azimuth:
Standing Water Level: 16.1

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: ELLIS
Drilling Contractor: H.J. Stacpoole
Geophysical Logging: Murdoch Geophysics
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths: 16.0
Core Barrel:
Drill Bits: Blades

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0031

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]

Launceston

041

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					0.30	0.30		SAND	Silty, light to medium brown, weathered, medium dense, non-plastic, fine and medium grained.
					1.60	1.30		SAND	Clayey, light to medium yellow - buff, medium dense, non-plastic, fine and medium grained; Additional features include: orange.
					2.50	0.90		SAND	Clayey, light to medium yellow - buff, soft, non-plastic, fine and medium grained; Additional features include: orange.
					3.10	0.60		CLAY	Sandy, light to medium yellow - buff, soft, high plasticity (clay), fine and medium grained; Additional features include: orange.
					5.30	2.20		SAND	Quartzose, clayey, light to medium yellow - orange, medium dense, non-plastic, fine and medium grained; Additional features include: buff
					6.50	1.20		CLAY	Sandy, light to medium yellow - orange, soft, high plasticity (clay), fine and medium grained; Additional features include: buff
					11.00	4.50		SAND	Quartzose, clayey, light to medium yellow - orange, medium dense, non-plastic, fine and medium grained; Additional features include: buff.
					17.10	6.10		SAND and CLAY	Interbedded 90:10, SAND: quartzose, light to medium grey - yellow, medium dense, non-plastic, fine grained; CLAY: medium to dark grey, firm, low plasticity (clay); Bands include: INFERIOR LIGNITE, clayey, sandy, medium to dark black - brown, firm, low plasticity (organic).
					20.30	3.20		SAND	Quartzose, clayey, light to medium green - grey, medium dense, non-plastic, fine and medium grained; WITH SOME FINE GRAVEL
					26.00	5.70		SAND	Quartzose, clayey, light to medium green - grey, medium dense, non-plastic, fine to coarse grained, poorly sorted, subrounded, equant, gradational base; WITH SOME FINE GRAVEL. GRAVELS MORE ANGULAR THAN SAND

EL2080 LAUNCESTON R0031

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

042

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					37.20	11.20		SAND	Quartzose, clayey, light to medium grey, medium dense, non-plastic, fine grained; Additional features include silty;
									INCREASED CLAY CONTENT OVER PREVIOUS
									UNIT
					37.40	0.20		GRAVEL	Clayey, sandy, light to medium grey, medium dense, non-plastic;
									LOST CIRCULATION; LITHOLOGY UNSURE
									SANDS DERIVED FROM A MATURE SOURCE, CONTAINS TOURMALINE, RUTILE, HEAVY-MINERALS
					42.60	5.20		SILT	Woody textured, sandy, light to medium grey, medium dense, non-plastic, fine grained;
					44.50	1.90		SILT	Peaty, sandy, medium to dark brown, medium dense, non-plastic, fine grained; Bands include SAND, quartzose, clayey, light to medium grey, medium dense, non-plastic, fine grained;
					60.50	16.00		SAND	Silty, clayey, light to medium grey, medium dense, non-plastic, fine grained, rare woody fragments;
					71.30	10.80		SAND	Silty, light to medium grey, medium dense, non-plastic, fine grained, common woody fragments;
					71.50	0.20		SAND	Gravelly, quartzose, light to medium grey - yellow, medium dense, non-plastic, fine to coarse grained, common woody fragments;
					72.20	0.70		SANDSTONE	Quartzose, light to medium grey, high strength, brittle, medium grained;
									TRIASSIC STRATA, NOT LIKE COAL MEASURE SEQUENCE, LOW PENETRATION RATE, NO LITHIC OR WOODY FRAGMENTS

END OF BORE AT 72.20 m

EL2080 LAUNCESTON R0031

043

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EL2080 LAUNCESTON C0034

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Easting:	597500.000	Logging Organisation:	CSR Exploration and Evaluation Group
Northing:	5403500.000	Logged By:	ELLHINOS
Grid Type:	Australian Mapping Grid	Drilling Contractor:	
Accuracy:	Approximate	Geophysical Logging:	Murdoch Geophysics
Crl:	155.00		
Datum:	Approximate Level - Not Surveyed		
Sheet Reference:		County:	
Sheet Index:		Parish:	
Total Depth:	49.60	Portion:	
Drilling Commenced:	16/11/81		
Drilling Completed:	18/11/81		
Inclination:		Plug Depths:	
Azimuth:		Hole Diameter:	150
Standing Water Level:		Core Diameter:	
		Cased Depths:	
		Core Barrel:	Triefus Triple Barrel
Available Data:	Gamma Logs		
	Density Logs		
	Resistivity Logs	Drill Bits:	Blades
	Caliper Logs		Rollers

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

044

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				R	2.00	2.00		SILT	Clayey, humified, medium to dark red - brown.
				R	4.30	2.30		CLAY	Silty, mottled blue - grey, firm; Additional features include: brown - yellow.
				R	9.10	4.80		CLAY	Silty, mottled blue - grey, firm.
				R	9.60	0.50		LIGNEOUS CLAY	Medium to dark brown.
				R	10.40	0.80		LIGNITE	Medium to dark black - brown.
				R	16.00	5.60		CLAY	Mottled blue - grey.
				R	21.00	5.00		CLAY	Light to medium brown - grey.
				C	21.50	0.50		CLAY	Light to medium brown - grey.
				C2620	22.00	0.50		INFERIOR LIGNITE	Clayey, medium to dark brown - black.
				C2620	22.20	0.20		INFERIOR LIGNITE	Clayey, medium to dark brown - black; Bands include: LIGNEOUS CLAY, medium to dark brown.
				C2620	22.70	0.50		INFERIOR LIGNITE	Clayey, medium to dark brown - black.
				C2620	23.00	0.30		LIGNEOUS CLAY	Medium to dark brown; Bands include: INFERIOR LIGNITE, clayey, medium to dark brown - black.
				C2621	23.40	0.40		LIGNEOUS CLAY	Medium to dark brown; Bands include: INFERIOR LIGNITE, clayey, medium to dark brown - black.
				C2621	24.20	0.80		INFERIOR LIGNITE	Clayey, medium to dark brown - black; Bands include: LIGNEOUS CLAY, medium to dark brown.
				C2622	25.00	0.80		LIGNEOUS CLAY	Medium to dark brown.
				C2623	25.30	0.30		LIGNEOUS CLAY	Medium to dark brown.
				C2623	25.76	0.46		INFERIOR LIGNITE	Clayey, medium to dark brown - black.
				C2623	26.10	0.34		LIGNEOUS CLAY	Medium to dark brown.
				C2623	26.45	0.35		INFERIOR LIGNITE	Clayey, medium to dark brown - black.
				C	26.60	0.15		INFERIOR LIGNITE	Clayey, medium to dark brown - black.

EL2080 LAUNCESTON C0034

354045

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					27.60	1.00		CLAY	Light to medium grey.
				C	28.20	0.60		CLAY	Carbonaceous, light to medium grey - brown.
				C2624	28.26	0.06		CLAY	Carbonaceous, light to medium grey - brown, firm, low plasticity (clay), good core - unbroken, common ligneous wisps.
				C2624	28.50	0.24		CLAY	Carbonaceous, ligneous, medium to dark brown, firm, low plasticity (clay), good core - unbroken, gradational base, common ligneous wisps; Bands include: CLAY, carbonaceous, ligneous, medium to dark brown, stiff, low plasticity (clay), good core - unbroken, common ligneous wisps.
				C2624	28.80	0.30		CLAY	Carbonaceous, light to medium grey - brown, stiff, low plasticity (clay), good core - unbroken, gradational base, common ligneous wisps.
				C2624	28.95	0.15		INFERIOR LIGNITE	Clayey, dark brown - black, firm, friable, good core - unbroken.
				C2624	29.02	0.07		INFERIOR LIGNITE	Clayey, dark brown - black, firm, low plasticity (organic), good core - unbroken, fissile; SOME BRIGHT BANDS, HIGHER CLAY CONTENT THAN PREVIOUS UNIT
				C2624	29.49	0.47		CLAY	Ligneous, medium to dark brown, firm, low plasticity (clay), good core - unbroken, rare resin aggregates.
				C2624	29.54	0.05		INFERIOR LIGNITE	Clayey, medium to dark black - brown, stiff, low plasticity (organic), good core - unbroken.
					31.00	1.46		CORE LOSS	
				C2614	31.13	0.13		INFERIOR LIGNITE	Clayey, medium to dark black - brown, firm, friable, good core - unbroken, gradational base; INCREASED CLAY CONTENT TOWARDS BASE
				C2614	31.18	0.05		LIGNEOUS CLAY	Medium to dark brown - black, firm, low plasticity (organic), good core - unbroken, sharp irregular base.

EL2080 LAUNCESTON C0034

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LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

046

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2614	31.23	0.05		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, sharp planar base, beds dip at 10 degrees, occasional ligneous wisps.
				C2614	31.30	0.07		CLAY	Ligneous, medium to dark brown, firm, low plasticity (organic), good core - unbroken, gradational base, occasional ligneous wisps.
				C2614	31.36	0.06		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, sharp irregular base.
				C2614	31.44	0.08		LIGNEOUS CLAY	Medium to dark brown, firm, high plasticity (organic), good core - unbroken, gradational base, abundant ligneous wisps.
				C2614	31.64	0.20		INFERIOR LIGNITE and LIGNEOUS CLAY	Interbedded 60:40. INFERIOR LIGNITE: clayey, medium to dark black - brown, firm, friable, good core - unbroken, sharp planar base, beds dip at 05 degrees; LIGNEOUS CLAY: medium to dark brown, firm, high plasticity (organic), good core - unbroken.
				C2614	31.72	0.08		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, gradational base, rare resin aggregates; Additional features include: common ligneous wisps; INCREASED CARBON CONTENT TOWARDS BASE
				C2614	31.80	0.08		LIGNEOUS CLAY	Medium to dark brown, firm, high plasticity (organic), good core - unbroken, occasional resin aggregates; Additional features include: common ligneous wisps; LOW STRENGTH CLAY, CRUMBLES READILY; RELATIVELY HIGH LIGNEOUS CONTENT
				C2614	31.98	0.18		CLAY	Carbonaceous, medium to dark brown - grey, firm, high plasticity (clay), good core - unbroken, gradational base, occasional resin aggregates; Additional features include: common ligneous wisps.

EL2080 LAUNCESTON C0034

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

047

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2614	32.04	0.06		CLAY	Carbonaceous, light to medium brown - grey, firm, high plasticity (clay), good core - unbroken, gradational base, occasional ligneous wisps; INCREASED CARBON CONTENT TOWARDS BASE
				C2614	32.07	0.03		INFERIOR LIGNITE	Clayey, medium to dark black - brown, firm, friable, good core - unbroken, gradational base; HIGHER CLAY CONTENT THAN STRATIGRAPH-ICALLY LOWER UNIT
				C2614	32.15	0.08		INFERIOR LIGNITE	Clayey, dark black - brown, firm, friable, good core - unbroken, gradational base.
				C2614	32.26	0.11		INFERIOR LIGNITE	Clayey, medium to dark brown, firm, friable, good core - unbroken, gradational base; INCREASED CLAY CONTENT OVER PREVIOUS UNIT
				C2614	32.34	0.08		CLAY and INFERIOR LIGNITE	Intermixed 70:30. CLAY: carbonaceous, light to medium brown, firm, low plasticity (clay), good core - unbroken; INFERIOR LIGNITE: clayey, medium to dark brown, firm, friable.
				C2615	32.60	0.26		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, common ligneous wisps.
				C2615	32.63	0.03		LIGNEOUS CLAY	Medium to dark brown, firm, low plasticity (organic), good core - unbroken.
				C2615	32.67	0.04		INFERIOR LIGNITE	Clayey, medium to dark brown, firm, low plasticity (organic), good core - unbroken; Bands include: INFERIOR LIGNITE, clayey, medium to dark brown, firm, friable.
				C2615	32.70	0.03		LIGNEOUS CLAY	Light to medium brown, firm, low plasticity (organic), good core - unbroken.
				C2615	32.97	0.27		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken.

EL2080 LAUNCESTON C0034

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

043

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2615	33.09	0.12		LIGNEOUS CLAY	Medium to dark brown, firm, low plasticity (organic), good core - unbroken, common ligneous wisps.
				C2615	33.26	0.17		LIGNEOUS CLAY	Carbonaceous, medium to dark brown - grey, firm, low plasticity (clay), good core - unbroken, gradational base, common woody fragments.
				C2615	33.40	0.14		LIGNEOUS CLAY	Light to medium brown, firm, low plasticity (organic), good core - unbroken, gradational base, common ligneous wisps.
				C2615	33.52	0.12		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, sharp irregular base, beds dip at 15 degrees.
				C2615	33.54	0.02		INFERIOR LIGNITE	Clayey, dark brown, firm, low plasticity (organic), good core - unbroken, gradational base.
									DECREASED CLAY CONTENT TOWARDS BASE.
				C2615	33.55	0.01		INFERIOR LIGNITE	Clayey, dark brown, firm, friable, good core - unbroken, fissile, gradational base.
				C2615	33.58	0.03		INFERIOR LIGNITE	Clayey, dark brown, firm, friable, good core - unbroken, sharp irregular base, beds dip at 15 degrees.
				C2615	33.64	0.06		CLAY	Carbonaceous, medium to dark brown - grey, firm, high plasticity (clay), good core - unbroken, gradational base, occasional ligneous wisps.
				C2616	33.97	0.33		CLAY	Light to medium grey - brown, firm, low plasticity (clay), good core - unbroken, gradational base.
				C2616	34.19	0.22		CLAY	Light to medium brown - grey, firm, low plasticity (clay), good core - unbroken.
				C2616	34.60	0.41		CORE LOSS	
				C2616	34.62	0.02		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, common ligneous fragments.
				C2616	34.65	0.03		LIGNEOUS CLAY	Medium to dark brown - grey, firm, low plasticity (organic), good core - unbroken, occasional ligneous fragments.

EL2080 LAUNCESTON C0034

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LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

049

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2616	34.71	0.06		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base, common ligneous wisps.
				C2616	35.43	0.72		CLAY	Light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base.
				C2616	35.86	0.43		CLAY	Light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base, common bioturbation.
				C2616	35.98	0.12		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, gradational base.
				C2616	36.15	0.17		CLAY and INFERIOR LIGNITE	Interbedded 60:40 CLAY: carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken; INFERIOR LIGNITE: clayey, medium to dark brown, firm, friable.
				C2616	36.30	0.15		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, gradational base, common woody fragments.
				C2616	36.98	0.68		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base.
				C2616	37.02	0.04		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base, common ligneous wisps.
				C2616	37.54	0.52		CLAY	Light to medium grey, firm, high plasticity (clay), good core - unbroken, occasional bioturbation; RARE CARBONACEOUS WISPS.
					37.60	0.06		CORE LOSS	
				C2617	38.01	0.41		CLAY	Light to medium grey, firm, expanding clay, good core - unbroken, gradational base, occasional bioturbation.
				C2617	38.35	0.34		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), good core - unbroken.

EL2080 LAUNCESTON C0034

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

050

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2617	38.54	0.19		CLAY	Interbedded 50:50: carbonaceous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, sharp irregular base, common ligneous fragments; Additional features include: occasional bioturbation; LIGNEOUS CLAY: medium to dark brown - black, firm, low plasticity (organic).
				C2617	38.72	0.18		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), gradational base, common ligneous wisps.
				C2617	38.84	0.12		CLAY	Ligneous, medium to dark brown - grey, firm, high plasticity (clay), gradational base.
				C2617	38.97	0.13		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), common ligneous wisps.
				C2617	39.39	0.42		INFERIOR LIGNITE and CLAY	Interbedded 90:10. INFERIOR LIGNITE: clayey, medium to dark black - brown, firm, friable, gradational base, common bioturbation; CLAY: carbonaceous, light to medium grey - brown, firm, high plasticity (clay).
				C2617	39.50	0.11		LIGNEOUS CLAY	Medium to dark brown - grey, firm, low plasticity (organic), rare resin aggregates.
				C2617	39.61	0.11		CLAY	Carbonaceous, light to medium brown - grey, firm, low plasticity (clay), gradational base.
				C2617	39.71	0.10		INFERIOR LIGNITE	Clayey, medium to dark brown, firm, friable, rare resin aggregates; RARE SANDY CLAYEY LENSES
				C2617	39.79	0.08		INFERIOR LIGNITE	Medium to dark black - brown, stiff, friable, common woody fragments.
				C2617	39.87	0.08		INFERIOR LIGNITE	Clayey, medium to dark black - brown, stiff, friable, gradational base, rare resin aggregates; Additional features include: common woody fragments.
				C2617	39.92	0.05		INFERIOR LIGNITE	Woody textured, clayey, medium to dark brown - grey, firm, low plasticity (organic), good core - unbroken, gradational base.

EL2080 LAUNCESTON C0034

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

051

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2617	40.09	0.17		CLAY	Ligneous, medium to dark brown - grey, firm, low plasticity (clay), good core - unbroken, rare resin aggregates.
				C2619	40.20	0.11		CLAY	Carbonaceous, woody textured, light to medium brown, firm, low plasticity (clay), good core - unbroken, gradational base.
				C2619	40.42	0.22		CLAY	Carbonaceous, light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base, common woody wisps.
				C2619	40.60	0.18		CLAY	Ligneous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, gradational base, common ligneous fragments.
				C2619	40.67	0.07		INFERIOR LIGNITE and INFERIOR LIGNITE	Interbedded 60:40 INFERIOR LIGNITE: clayey, medium to dark brown - black, firm, low plasticity (organic), good core - unbroken; INFERIOR LIGNITE: clayey, medium to dark brown, firm, low plasticity (organic).
				C2619	40.91	0.24		LIGNEOUS CLAY	Medium to dark black - brown, firm, high plasticity (organic), good core - unbroken, gradational base, abundant clay clasts; RARE ANGULAR PEBBLES
				C2619	40.95	0.04		INFERIOR LIGNITE	Clayey, medium to dark black - brown, firm, high plasticity (organic), good core - unbroken.
				C2619	41.05	0.10		CLAY	Ligneous, light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, gradational base.
				C2619	41.14	0.09		CLAY	Light to medium brown - grey, firm, low plasticity (clay), good core - unbroken, sharp irregular base, beds dip at 05 degrees.
				C2619	41.16	0.02		LIGNEOUS CLAY	Medium to dark brown - black, firm, low plasticity (organic).
				C2619	41.23	0.07		INFERIOR LIGNITE	Clayey, medium to dark brown - black, firm, low plasticity (organic).
				C2619	41.29	0.06		INFERIOR LIGNITE	Medium to dark brown - black, firm, friable; Bands include: LIGNEOUS CLAY, light to medium brown - grey, firm, low plasticity (organic).

354052

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

052

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C2619	41.32	0.03		INFERIOR LIGNITE	Clayey, medium to dark brown - black, firm, friable.
				C2619	41.35	0.03		LIGNEOUS CLAY	Medium to dark brown - black, firm, low plasticity (organic), common woody fragments.
				C2619	41.37	0.02		CLAY	Ligneous, light to medium brown, firm, low plasticity (clay), common woody fragments.
				C	42.99	1.62		CLAY	Light to medium grey, firm, low plasticity (clay), subfissile, rare resin aggregates; Additional features include: common bioturbation; RARE CARBONACEOUS WISPS
				C	43.60	0.61		CLAY	Light to medium grey - brown, firm, low plasticity (clay), good core - unbroken, abundant woody fragments.
				C	44.41	0.81		CLAY	Light to medium grey - brown, firm, high plasticity (clay), good core - unbroken, gradational base, rare resin aggregates; COMMON DISSEMINATED FINE GRAINED CARBONACEOUS MATERIAL, SOME BRANCHES AND LOGS
				C	45.14	0.73		CLAY	Light to medium grey - brown, firm, high plasticity (clay), good core - unbroken; LESS BROWN IN COLOR THAN OVERLYING UNIT
				C	46.58	1.44		CLAY	Light to medium grey, firm, high plasticity (clay), good core - unbroken; TRACE OF CARBONACEOUS MATERIAL
				C	46.60	0.02		CORE LOSS	

EL2080 LAUNCESTON C0034

354053

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

053

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				C	47.69	1.09		CLAY	Light to medium grey, firm, high plasticity (clay), good core - unbroken, occasional carbonaceous root traces;
									RARE SANDY CLASTS UP TO 2CM IN SIZE
				C	48.26	0.57		CLAY	Light to medium grey - brown, firm, high plasticity (clay).
				C	48.44	0.18		CLAY	Ligneous, light to medium brown - grey, firm, low plasticity (clay).
				C	49.60	1.16		CLAY	Light to medium grey, firm, high plasticity (clay);
									RARE SANDY PODS AND LENSES

END OF BORE AT 49.60 m

EL2080 LAUNCESTON C0034

354054

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

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EL2080 LAUNCESTON R0035

****

Easting: 498460.000
Northing: 5437900.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 141.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth: 50.60
Drilling Commenced: 18/11/81
Drilling Completed: 18/11/81
Inclination:
Azimuth:
Standing Water Level: 3.8

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: HINRICHS
Drilling Contractor: H.J. Starpoole
Geophysical Logging: Murdoch Geophysics
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths:
Core Barrel:
Drill Bits: Blades

054

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

354055

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT [illegible]

055

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					0.50	0.50		CLAY	Sandy, light to medium orange - grey, firm, low plasticity (organic)
					1.00	0.50		GRAVEL	Clayey, sandy, light to medium grey - yellow, medium dense, non-plastic, pebbly
					3.20	2.20		GRAVEL	Quartzose, clayey, light to medium grey - yellow, medium dense, non-plastic, pebbly
					9.00	5.80		SAND	Quartzose, light to medium yellow - grey, medium dense, non-plastic, medium and coarse grained
					11.00	2.00		SAND	Quartzose, clayey, light to medium grey - yellow, medium dense, non-plastic, medium grained
					12.40	1.40		SAND	Quartzose, light to medium grey - yellow, medium dense, non-plastic, medium and coarse grained
					16.80	4.40		SAND	Clayey, gravelly, light to medium grey - white, loose, non-plastic, medium and coarse grained
					23.00	6.20		IRONSTONE - CONCRETIONARY	Clayey, gravelly, light to medium yellow - grey, loose, non-plastic, fine to coarse grained, coarsening upwards
					24.60	1.60		SAND	Woody textured, gravelly, light to medium grey, loose, non-plastic
					27.20	2.60		SILT	Sandy, woody textured, light to medium grey - yellow, loose, non-plastic Additional features include: clayey
					31.00	3.80		SILT	Woody textured, clayey, light to medium grey, loose, non-plastic Additional features include: sandy
					39.50	8.50		SAND	Woody textured, light to medium grey, loose, non-plastic, fine grained COARSE GRAINED TO 50M
					41.00	1.50		SAND	Woody textured, light to medium grey, loose, non-plastic, fine grained
					43.00	2.00		SAND	Light to medium grey, loose, non-plastic, fine and medium grained, common woody fragments

EL2080 LAUNCESTON R0035

354056

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

056

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					50.60	7.60		SAND	Light to medium grey, loose, non-plastic, fine grained, common woody fragments

END OF BORE AT 50.60 m

EL2080 LAUNCESTON R0035

354057

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

057

****
EL2080 LAUNCESTON R0037
****

Easting: 495350.000
Northing: 5400730.000
Grid Type:
Accuracy:
Crl:
Datum:
Sheet Reference:
Sheet Index:
Total Depth: 60.20
Drilling Commenced: 19/11/81
Drilling Completed: 19/11/81
Inclination:
Azimuth:
Standing Water Level:

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: HINRICHS
Drilling Contractor:
Geophysical Logging: Murdoch Geophysics

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths:
Core Barrel:

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0037

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

038

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					1.00	1.00		SAND	Silty, light to medium grey - brown, firm, non-plastic.
					4.50	3.50		CLAY	Silty, sandy, light to medium yellow - grey, firm, non-plastic.
					11.70	7.20		SAND	Clayey, light to medium cream, loose, non-plastic, fine grained. Bands include: CLAY, silty, sandy, light to medium cream, loose, non-plastic, fine grained.
					15.10	3.40		SAND	Quartzose, clayey, light to medium cream - yellow, loose, non-plastic, medium and coarse grained, fining upwards.
									BECOMING INCREASINGLY CLAYEY TOWARDS
									TOP OF UNIT
					20.40	5.30		SAND	Quartzose, clayey, light to medium grey - yellow, loose, non-plastic, medium and coarse grained, coarsening upwards, abundant woody fragments.
									BECOMING INCREASINGLY CLAYEY TOWARDS
									BASE OF UNIT
					22.50	2.10		CLAY	Silty, medium to dark grey, firm, high plasticity (organic). Bands include: LIGNEOUS CLAY, medium to dark brown, firm, low plasticity (organic)
					25.20	2.70		CLAY	Silty, light to medium grey - brown, firm, high plasticity (clay), common woody fragments
					27.70	2.50		CLAY	Silty, medium to dark grey, firm, high plasticity (clay). Bands include: CLAY, light to medium brown - grey, firm, high plasticity (clay).
									SANDY CLAY BANDS TOWARDS BASE OF UNIT
									MORE CLAYEY AT TOP OF UNIT
					31.40	3.70		CLAY	Silty, light to medium brown - grey, firm, high plasticity (clay).
					35.20	3.80		SILT	Clayey, medium to dark grey, loose, non-plastic, very fine grained

EL2080 LAUNCESTON R0037

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

059

STRA NAME	SEQ NO.	SEAM NAME	WORK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					43.40	8.20		CLAY	Silty, medium to dark grey, firm, low plasticity (clay), very fine grained.
					48.60	5.20		SILT	Clayey, medium to dark grey, loose, non-plastic, fine grained, common woody fragments.
									BECOMING INCREASINGLY CLAYEY TOWARDS
									BASE OF UNIT
					50.20	1.60		SILT	Sandy, medium to dark grey, loose, non-plastic, fine grained, rare ligneous wisps. Additional features include: common woody fragments.
					52.00	1.80		SILT	Sandy, clayey, medium to dark grey, loose, non-plastic, fine grained, rare ligneous wisps. Additional features include: common woody fragments.
					54.00	2.00		SAND	Silty, medium to dark grey, loose, non-plastic, very fine grained, occasional woody fragments.
					56.20	2.20		SAND	Silty, ligneous, medium to dark grey - brown, loose, non-plastic, very fine grained, occasional woody fragments.
					60.20	4.00		SILT	Clayey, medium to dark brown - grey, loose, non-plastic, very fine grained, occasional woody fragments. Additional features include: occasional ligneous wisps.

END OF BORE AT 60.20 m

EL2080 LAUNCESTON P0037

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

060

****
EL2080 LAUNCESTON R0038
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Easting: 496900.000
Northing: 5397100.000
Grid Type:
Accuracy:
Crl: 150.00
Datum:
Sheet Reference:
Sheet Index:
Total Depth: 95.40
Drilling Commenced: 20/11/81
Drilling Completed: 20/11/81
Inclination:
Azimuth:
Standing Water Level:

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: HINRICHS
Drilling Contractor:
Geophysical Logging: Murdoch Geophysics

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths:
Core Barrel:

Available Data: Gamma Logs
Density Logs
Resistivity Logs
Caliper Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0038

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

061

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					0.30	0.30		SOIL	Medium to dark brown, loose, non-plastic.
					0.90	0.60		CLAY	Sandy, light to medium brown, firm, low plasticity (organ
					3.40	2.50		CLAY	Light to medium brown, firm, low plasticity (clay).
					4.50	1.10		CLAY	Light to medium red - brown, firm, high plasticity (organ
					6.40	1.90		CLAY	Light to medium grey - red, firm, high plasticity (clay).
					13.30	6.90		CLAY	Sandy, light to medium grey - brown, firm, high plasticity (clay), fining upwards, occasional manganese nodules.
									SANDIER TOWARDS BASE
					19.00	5.70		CLAY	Sandy, medium to dark brown - grey, firm, low plasticity (clay), occasional manganese nodules.
									Additional features include, occasional iron oxide nodule
					23.10	4.10		CLAY	Silty, medium to dark grey - brown, firm, high plasticity (clay), occasional iron oxide nodules.
									Additional features include occasional manganese nodules.
									Additional features include rare woody fragments.
					57.30	34.20		CLAY	Dark grey, firm, high plasticity (clay).
									NUMEROUS HARD BRITTLE SILTY AND SIDER-
									ITIC BANDS
					69.00	11.70		CLAY	Medium to dark grey, firm, high plasticity (clay).
									CLAY IS HIGHER DENSITY THAN STRATIGR-
									APHICALLY LOWER AND HIGHER CLAYS
					72.00	3.00		SAND	Clayey, medium to dark grey, loose, non-plastic, fine grained.
					79.00	7.00		CLAY	Sandy, woody textured, medium to dark grey, firm, low plasticity (clay).

EL2080 LAUNCESTON R0038

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT SUBC
Launceston

062

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					88.40	9.40		CLAY	Sandy, medium to dark grey, firm, low plasticity (clay). Bands include: SAND, clayey, woody textured, medium to dark grey, loose, non-plastic, coarse grained.
									EXTREMELY WOODY BETWEEN 84 AND 86M
					95.40	7.00		CLAY	Medium to dark grey - brown, firm, high plasticity (clay).
									HOLE STOPPED AT 95.4M DUE TO NO SAMPLE RETURN

END OF BORE AT 95.40 m

EL2080 LAUNCESTON R0038

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT

Launceston

053

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EL2080 LAUNCESTON R0043

****

Easting: 509800.000
Northing: 5391400.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 130.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 92.00
Drilling Commenced: 16/03/81
Drilling Completed: 17/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OSBHOLZ
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 50.0
Core Barrel:

Available Data: Gamma Logs

Drill Bits:

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0043

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					7.00	7.00		CLAY	Siliceous, mottled red - grey, highly weathered, soft, iron oxide, secondary, staining
TE					47.00	40.00		CLAY and CLAY	Interbedded 50:50 CLAY blue - grey, soft, plasticity (un-differentiated), rare carbonaceous remains; CLAY siliceous, brown; THE SILTY CLAY IS WEARLY INDURATED. DISPLAYS SLIGHT FISSILITY AND CONCHOIDAL FRACTURE
TE					57.00	10.00		GRAVEL	Pebbly, sandy, grey, loose, nonplastic, poorly sorted
TE					68.00	11.00		CLAY	Siliceous, dark brown, soft, common carbonaceous remains. THIN LIGNITE INTERBEDS
TE				R0202	71.00	3.00		CLAY	Siliceous
TE					91.00	20.00		CLAY	Siliceous, dark grey - brown, soft, common carbonaceous remains; FEW THIN LIGNITE BANDS
									HOLE HIGHLY CONTAMINATED BY GRAVEL, POOR SAMPLE
									RETURN
									AAR BH2 HAS BEEN RENAMED R0043

END OF BORE AT 91.00 m

EL2080 LAUNCESTON R0043

065

****
EL2080 LAUNCESTON R0044
****

Easting: 510000.000
Northing: 5390400.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 160.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 74.00
Drilling Commenced: 17/03/81
Drilling Completed: 18/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Logging Organisation: AAR Limited
Logged By: HOLZOSB
Drilling Contractor: Exploration Drilling, WA Pty. Ltd
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 6.0
Core Barrel:

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

354066

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					2.00	2.00		SOIL	Clayey, siliceous, red - brown
TE					18.00	16.00		CLAY	Siliceous, brown - grey, highly weathered, soft, plasticity (un- differentiated). INTERBEDDED BROWN SILTY CLAY AND BLUE GREY PLASTIC CLAY LIMONITIC ZONES REF
TE					28.00	10.00		CLAY	Dark grey - brown, soft, plasticity (un- differentiated., abundant carbonaceous remains.
TE				R0301	30.00	2.00		CLAY	
TE					40.00	10.00		CLAY	
TE					61.00	21.00		CLAY and CLAY	Interbedded 50 50 CLAY, siliceous, light brown; CLAY: dark grey - brown, soft, plasticity (un- differentiated). THIN SIDERITE BANDS NEAR BASE
TE					66.00	5.00		SAND	Quartzose, grey, loose, non-plastic, fine and medium grained, fining upwards
TE					74.00	8.00		GRAVEL	Pebbly, grey, loose, non-plastic, poorly sorted, rounded. PEBBLES OF QUARTZ, QUARTZITE, SILTSTONE. AAR RH3 HAS BEEN RENAMED R0044

END OF BORE AT 74.00 m

EL2080 LAUNCESTON R0044

066

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

0671

EL2080 LAUNCESTON R0045

Easting: 509800.000 Logging Organisation: AAR Limited
Northing: 5389400.000 Logged By: HOLJOSR
Grid Type: Australian Mapping Grid Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Accuracy: Approximate Geophysical Logging: AAR Limited
Grd: 150.00
Datum: Australian Height Datum
Sheet Reference: County:
Sheet Index: Parish:
Total Depth: 42.00 Portion:
Drilling Commenced: 18/03/81
Drilling Completed: 19/03/81
Inclination: 90 Plug Depths:
Azimuth: Hole Diameter: 125
Standing Water Level: Core Diameter:
Cased Depths: 12.0
Core Barrel:
Available Data: Gamma Logs
Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0045

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

063

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					9.00	9.00		CLAY	Siliceous, gravelly, mottled brown - grey, highly weathered, very soft; INTERBEDDED RED BROWN GREY PLASTIC CLAY BROWN SILTS, ROUND LIMONITIC PISOLITHS TO 2CM
TE					16.00	7.00		CLAY	Siliceous, mottled red - brown, highly weathered, very soft; LIGHT BROWN AND BLUE GREY PLASTIC CLAY BANDS
TE					30.00	14.00		CLAY	Dark grey - brown, very soft, plasticity (un-differentiated), abundant carbonaceous remains
TE					42.00	12.00		CLAY and CLAY	Interbedded 50:50, CLAY: dark brown - grey, plasticity (un-differentiated); CLAY: siliceous, dark brown, THIN SIDERITE BANDS PRESENT
									HOLE ABANDONED DUE TO CASING COLLAPSE; MUCH HOLE
									CONTAMINATION THROUGHTOUT; SLIGHT ARTESIAN FLOW
									ON COMPLETION OF HOLE
									AAR BOREHOLE 4 HAS BEEN RENAMED R0045
					END OF BORE AT	42.00 m			

EL2080 LAUNCESTON R0045

354069

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

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EL2080 LAUNCESTON R0048

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069

Easting: 509800.000
Northing: 5396500.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 135.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 64.00
Drilling Commenced: 20/03/81
Drilling Completed: 23/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: HOLZOSE
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging: AAR Limited
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 12.0
Core Barrel
Drill Bits: Blades

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0048

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
QA					4.00	4.00		SILT	Clayey, humified, light to medium brown, soft, occasional carbonaceous remains.
QA					8.00	4.00		SILT	Sandy, pebbly, light to medium yellow - brown, loose, non-plastic, poorly sorted, iron oxide, secondary, staining
QA					13.00	5.00		GRAVEL	Pebbly, sandy, light to medium yellow - brown, loose, non-plastic, poorly sorted, iron oxide, secondary, staining
TE					18.00	5.00		SILT	Clayey, light to medium grey, soft, occasional carbonaceous remains
TE				R0701	19.00	1.00		SILT	
TE				R0701	20.00	1.00		SILT and SAND	Interbedded 50:50 SILT: light to medium grey, soft, occasional carbonaceous remains; SAND: light to medium grey, loose, non-plastic, fine grained
TE					30.00	10.00		SILT	
TE					64.00	34.00		SILT and CLAY	Interbedded 50:50 SILT: clayey, light to medium grey - brown, medium bedding, occasional carbonaceous remains. CLAY: siltreous, light to medium grey - brown, occasional carbonaceous remains; WOODY FRAGMENTS ABUNDANT TOWARDS BASE

AAR BOREHOLE 7 IS NOEW NUMBERED R0048

END OF BORE AT 64.00 m

EL2080 LAUNCESTON R0048

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT DESC
Launceston

0171

****
EL2080 LAUNCESTON R0049
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Easting: 508700.000
Northing: 5396800.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 140.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 39.00
Drilling Commenced: 23/03/81
Drilling Completed: 23/03/81
Inclination: 90
Azimuth:
Standing Water Level:
Available Data:

Logging Organisation: AAR Limited
Logged By: HOLZOSS
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging:
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 2.0
Core Barrel:
Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0049

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
QA					4.00	4.00		SILT	Clayey, humified, mottled brown, highly weathered, soft
QA					6.00	2.00		CLAY	Siliceous, light blue - grey, soft, plasticity (un-differentiated), occasional carbonaceous remains.
QA				R0801	7.00	1.00		SAND	Gravelly, pebbly, brown, moderately weathered, loose, non-plastic, very coarse grained, poorly sorted, iron oxide secondary, staining. PEBBLES OF QUARTZ, QUARTZITE, SILTSTONE, DOLERITE.
QA				R0801	8.00	1.00		SAND	
QA					17.00	9.00		SAND	
QA					26.00	9.00		SAND	Gravelly, grey - brown, moderately weathered, loose, non-plastic, medium and coarse grained, poorly sorted, iron oxide, secondary, staining
QA					29.00	3.00		GRAVEL	Pebbly, grey - brown, moderately weathered, loose, non-plastic, very coarse grained, iron oxide, secondary, staining
JU					38.00	9.00		BASIC VOLCANIC	Kaolinitic, green, extremely weathered, soft
JU					39.00	1.00		BASIC VOLCANIC	Slightly weathered, extremely high strength.
									BASEMENT OF JURASSIC DOLERITE
									AAR BOREHOLE 8 IS NOW NUMBERED R0049

END OF BORE AT 39.00 m

EL2080 LAUNCESTON R0049

012

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT CODE
Launceston

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EL2080 LAUNCESTON R0050

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023

Easting: 507600.000
Northing: 5396200.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 145.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 60.00
Drilling Commenced: 24/03/81
Drilling Completed: 24/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Logging Organisation: AAR Limited
Logged By: HOLZOSS
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 6.0
Core Barrel:

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0050

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO	SEAM NAME	WDK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
QA					5.00	5.00		SILT	Clayey, humified, light to medium brown, weathered, soft, iron oxide, secondary, staining.
QA					11.00	6.00		GRAVEL	Pebbly, siliceous, brown, weathered, loose, non-plastic, poorly sorted, iron oxide, secondary, staining. PEBBLES OF QUARTZ, QUARTZITE, SILTSTONE; ROUNDED.
QA					13.00	2.00		CLAY	Mottled brown, weathered, soft, plasticity (un-differentiated)
TE					22.00	9.00		CLAY	Dark grey - brown, soft, plasticity (un- differentiated), abundant carbonaceous remains. FEW THIN SIDERITE BANDS.
TE					28.00	6.00		SILT	Clayey, sandy, light grey, abundant carbonaceous remains.
TE					38.00	10.00		SAND	Quartzose, grey, loose, non-plastic, fine and medium grained, well sorted, common carbonaceous remains.
TE					44.00	6.00		SAND	Quartzose, grey, loose, non-plastic, fine to coarse grained, poorly sorted.
TE					56.00	12.00		SAND	Quartzose, grey, loose, non-plastic, fine and medium grained, well sorted.
TE					60.00	4.00		SILT	Sandy, light grey, plasticity (un- differentiated), occasional carbonaceous remains.

AAR BOREHOLE 9 IS NEW NUMBERED R0050

END OF BORE AT 60.00 m

EL2080 LAUNCESTON R0050

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

075

****
EL2080 LAUNCESTON R0051
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Easting: 506600.000
Northing: 5395300.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 160.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 60.00
Drilling Commenced: 24/03/81
Drilling Completed: 25/03/81
Inclination: 90
Azimuth:
Standing Water Level:
Available Data:

Logging Organisation: AAR Limited
Logged By: HOLZOSB
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging:
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths:
Core Barrel:
Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0051

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TE					2.00	2.00		CLAY	Humified, silty, mottled red - grey, weathered, iron oxide secondary, staining.
TE					10.00	8.00		CLAY	Mottled red - grey, weathered, soft, plasticity (un-differentiated), iron oxide, secondary, staining.
TE					17.00	7.00		CLAY	Light brown, soft, plasticity (un-differentiated), abundant carbonaceous remains.
TE					20.00	3.00		CLAY	Dark grey - brown, soft, plasticity (un-differentiated), abundant carbonaceous remains.
TE				R1001	22.00	2.00		CLAY	
TE					43.00	21.00		CLAY and CLAY	Interbedded 50:50, CLAY, dark grey - brown, soft, plasticity (un-differentiated), abundant carbonaceous remains; CLAY, yellow - brown; OXIDATION RED BROWN 40 TO 43M.
TE					50.00	7.00		SILT	Clayey, sandy, grey, abundant carbonaceous remains; COALFIELD WOOD FRAGMENTS ABUNDANT.
TE					52.00	2.00		SILT	
TE				R1002	54.00	2.00		SAND	Silty, gravelly, grey, plasticity (un-differentiated); THIN LIGNITE BANDS.
TE				R1003	56.00	2.00		SAND	
TE					60.00	4.00		SAND	Silty, gravelly, grey, plasticity (un-differentiated); AAR BOREHOLE 10 IS NOW NUMBERED RC051

END OF BORE AT 60.00 m

EL2080 LAUNCESTON RC051

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

021

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EL2080 LAUNCESTON R0053

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Easting: 506800.000
Northing: 5398000.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 150.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 60.00
Drilling Commenced: 25/03/81
Drilling Completed: 25/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OSBHOLZ
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 3.0
Core Barrel:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0053

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					3.00	3.00		SILT	Clayey, sandy, red - brown, highly weathered, friable, HUMIC
					10.00	7.00		CLAY	MOTTLED AND BANDED BLUE-GREY (PLASTIC) CLAY AND RED-BROWN AND YELLOW SILTY CLAY; RARE LIMONITIC INCLUSIONS
				R1201	12.00	2.00		CLAY	Dark grey - brown, very soft, plasticity (un-differentiated), abundant carbonaceous remains
					14.00	2.00		CLAY	
				R1202	16.00	2.00		CLAY	
					17.00	1.00		CLAY	
					32.00	15.00		SAND	Quartzose, light grey, fine and medium grained; WOOD FRAGMENTS MEDIUM-COARSE GRAVELLY BAND IN INTERVAL 24-26M
					38.00	6.00		SILT	Light grey; WOODY FRAGMENTS ABUNDANT
					60.00	22.00		SILT and CLAY	Interbedded 70:30 SILT light grey, very soft; CLAY dark brown, very soft, plasticity (un-differentiated); WOODY FRAGMENTS POOR SAMPLE RETURN 42-60M AAR BORE 12 IS NOW NUMBERED R0053

END OF BORE AT 60.00 m

EL2080 LAUNCESTON R0053

078

354079

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

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EL2080 LAUNCESTON R0054

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079

Easting: 506200.000
Northing: 5397100.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Grl: 155.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 60.00
Drilling Commenced: 26/03/81
Drilling Completed: 26/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OSBORN ?
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 2.0
Core Barrel:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED.

EL2080 LAUNCESTON R0054

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 , TENEMENT 2080
Launceston

080

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					3.00	3.00		SILT	Clayey, sandy, red - brown, highly weathered, friable; HUMIC
					9.00	6.00		CLAY	MOTTLED AND BANDED BLUE-GREY (PLASTIC) CLAY AND RED-BROWN AND YELLOW SILTY CLAYS
					16.00	7.00		CLAY	Soft, plasticity (un- differentiated), abundant carbonaceous remains; INTERBEDDED DARK GREY-BROWN AND LIGHT BROWN 50-50
					18.00	2.00		CLAY	Dark grey - brown, soft, plasticity (un- differentiated), abundant carbonaceous remains; OCCASIONAL THIN HARD SILTY LAMELLAE
				R1301	20.00	2.00		CLAY	
					24.00	4.00		CLAY	
				R1302	26.00	2.00		CLAY	
					28.00	2.00		CLAY	
					38.00	10.00		SILT and CLAY	Interbedded 50:50, SILT: light grey; CLAY: dark grey - brown, soft, plasticity (un- differentiated), abundant carbonaceous remains; MINOR FINE SAND INTERBEDS WOODY MATERIAL
					40.00	2.00		SAND	Quartzose, grey, loose, non-plastic, poorly sorted; FINE-MEDIUM-COARSE GRAINS WOOD FRAGMENTS
				R1303	42.00	2.00		SAND	
				R1303	47.00	5.00		SAND	
				R1303	50.00	3.00		GRAVEL	Sandy, quartzose, grey
				R1303	60.00	10.00		SILT and SAND	Interbedded 70:30, SILT: light grey - brown; SAND: silty, quartzose, fine grained;
									MUCH HOLE CONTAMINATION FROM ABOVE GRAVELS AND
									POOR SAMPLE RETURN IN INTERVAL 50-60M
									AAR BOREHOLE 13 IS NOW NUMBERED R0054

EL2080 LAUNCESTON R0054

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT

081

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					END OF BORE AT	60.00 m			

EL2080 LAUNCESTON R0054

354082

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

082

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EL2080 LAUNCESTON R0055

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Easting: 501400.000
Northing: 5397600.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 165.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 2603.81
Drilling Commenced: 27/03/81
Drilling Completed: 00/00/90
Inclination:
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OSBHOLZ
Drilling Contractor: Exploration Drilling WA Pty Ltd
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 2.0
Core Barrel:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0055

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					4.00	4.00		SOIL	Silty, clayey, red - brown, highly weathered, friable, HUMIC
					14.00	10.00		CLAY	Highly weathered, very soft; MOTTLED AND BANDED RED-BROWN, YELLOW-BROWN, LIGHT BROWN AND BLUE-GREY CLAYS AND SILTY CLAYS
					24.00	10.00		CLAY and SILT	Interbedded 90:10 CLAY: dark grey - brown, plasticity (un-differentiated), abundant carbonaceous remains; SILT: light grey; LIGHT GREY SILT INTERBEDS AT 20-24M
				R1401	26.00	2.00		SILT	
					30.00	4.00		SILT	
					40.00	10.00		SILT	Light grey, very soft; OCCASIONAL THIN HARD SILTY LAMINAE SIDERITE (?) AT 24-26 WOODY FRAGMENTS
				R1402	42.00	2.00		LIGNITE	Dark brown - black, very soft; SILTY INCLUSIONS
				R1402	44.00	4.00		SILT and LIGNITE	Interbedded 50:50 SILT: light grey; LIGNITE: dark brown - black, very soft; MINOR DARK BROWN PLASTIC CLAY OCCASIONAL THIN HARD SILTY LAMINAE THIN BLACK HARD FISSILE LAMINAE IN INTERVAL 50-54M
				R1403	48.00	2.00		LIGNITE	
				R1404	50.00	2.00		LIGNITE	
				R1405	52.00	2.00		LIGNITE	
				R1406	54.00	2.00		LIGNITE	
					56.00	2.00		SILT and CLAY	Interbedded 80:20 SILT: light grey, very soft; CLAY: dark brown, very soft, plasticity (un-differentiated); MINOR THIN HARD SILTY LAMINAE WOODY FRAGMENTS

EL2080 LAUNCESTON R0055

083

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT

Launceston

084

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
				R1407	58.00	2.00		CLAY	
					65.00	7.00		CLAY	

AAR BOREHOLE 14 IS NOW NUMBERED R0055

END OF BORE AT 65.00 m

EL2080 LAUNCESTON R0055

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

085

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EL2080 LAUNCESTON R0057

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Easting: 497600.000
Northing: 5400300.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 160.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 70.00
Drilling Commenced: 27/03/81
Drilling Completed: 28/03/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OXBHOLZ
Drilling Contractor: Exploration Drilling, WA Pty Ltd
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 4.0
Core Barrel:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0057

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					4.00	4.00		SAND	Silty, clayey, iron oxide, secondary, staining; MAINLY FINE SAND WITH MINOR SILTY FRACTION AND MINOR MOTTLED CLAY, MINOR GRAVEL
					6.00	2.00		CLAY	Light blue - grey, soft, plasticity (un-differentiated)
					8.00	2.00		CLAY and SAND	Interbedded 60:40, CLAY: light blue - grey, soft, plasticity (un-differentiated); SAND: light brown, fine grained
					12.00	4.00		CLAY	MOTTLED BLUE-GREY, LIGHT BROWN, RED-BROWN AND YELLOW-BROWN CLAYS
					24.00	12.00		SAND and SILT	Interbedded 50:50, SAND: quartzose, loose, non-plastic, fine grained; SILT: light grey; MINOR WOODY FRAGMENTS
					26.00	2.00		SAND	Quartzose, grey, loose, non-plastic, fine grained.
					48.00	22.00		SAND and SILT	Interbedded 50:50, SAND: grey, fine grained; SILT: grey; LIGNITE BANDS PLUS WOODY FRAGMENTS THIN LIGNITIC ZONES AT 34-36M AND 44-48M MEDIUM-GRAINTED GREY SAND AT 42-44M
					52.00	4.00		SAND	Quartzose, grey, loose, non-plastic, fine grained; SOME WOOD FRAGMENTS
					54.00	2.00		SAND and SILT	Interbedded 50:50, SAND: grey, loose, non-plastic, fine grained; SILT: light grey, soft; LIGNITIC BANDS PLUS WOODY FRAGMENTS FEW CLAYEY SILT BANDS
				R1601	56.00	2.00		SAND	
					58.00	2.00		SILT	
				R1602	60.00	2.00		SILT	

EL2080 LAUNCESTON R0057

086

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

087

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC.	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					70.00	10.00		SAND	
									VERY POOR SAMPLE RETURN 24-70M ONE MUCH SAND CONTAMINATION.
									AAR BOREHOLE 16 IS NOW NUMBERED RQ057
					END OF BORE AT	70.00 m			

EL2080 LAUNCESTON RQ057

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080

Launceston

088

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EL2080 LAUNCESTON R0058

****

Easting: 504000.000
Northing: 5394800.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 160.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 62.00
Drilling Commenced: 08/04/81
Drilling Completed: 09/04/81
Inclination: 90
Azimuth:
Standing Water Level:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Logging Organisation: AAR Limited
Logged By: OSBHOLZ
Drilling Contractor: Exploration Drilling, WA Pty. Ltd.
Geophysical Logging: AAR Limited

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 2.0
Core Barrel:

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0058

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
launceston

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					2.00	2.00		CLAY	Silty, humified, red - brown, highly weathered, friable. SOME PEBBLES
					4.00	4.00		CLAY	MOTTLED AND BANDED BLUE-GREY PLASTIC CLAY AND BROWN SILTY CLAY
					14.00	8.00		CLAY	Blue - grey, very soft, plasticity (un- differentiated) iron oxide, secondary, staining
					24.00	10.00		CLAY	Dark grey - brown. SLIGHTLY SILTY, FEW WOODY INCLUSIONS, VERY UNIFORM. YELLOW-GREEN SIDERITE (?) BANDS AT 30-31, 38-39M
				R1701	26.00	2.00		CLAY	
					38.00	12.00		CLAY	
				R1702	40.00	2.00		CLAY	
					41.00	1.00		CLAY	
					43.00	2.00		SAND	Grey, medium dense, non-plastic, poorly sorted. FINE-MEDIUM-COARSE GRAINSIZE WOOD FRAGMENTS ABUNDANT
					55.00	12.00		SILT	Clayey, blue - grey, very soft. WOOD FRAGMENTS IN THIN ZONES OCCASIONAL THIN DARK BROWN HUMIC CLAY BANDS
					61.00	6.00		SAND	Quartzose, fine and medium grained. WOODY FRAGMENTS, THIN SILTY LENSES BAND OF WELL-ROUNDED PEBBLES AT 60-61M AAR BOREHOLE 17 IS NOW NUMBERED RC058

END OF BORE AT 61.00 m

EL2080 LAUNCESTON RC058

089

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT

Launceston

090

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EL2080 LAUNCESTON R0060

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Easting: 497650.000
Northing: 5433300.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 155.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 70.00
Drilling Commenced: 05/04/81
Drilling Completed: 06/04/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OSBHOLZ
Drilling Contractor: Exploration Drilling, WA Pty Ltd
Geophysical Logging: AAR Limited
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 2.0
Core Barrel:

Available Data: Gamma Logs
Self Potential Logs
Resistivity Logs

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0060

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT CSR Launceston

031

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					2.00	2.00		SILT	Clayey, humified, red - brown, highly weathered, friable
					21.00	19.00		CLAY	Silty; MOTTLED AND BANDED BLUE-GREY, RED-BROWN AND YELLOW-BROWN SLIGHTY PLASTIC SILTY CLAYS FEDW FE-OXIDE COATED PEBBLES AT 10-21M IN INTERVAL 16-21M HAVE MAINLY RED-GREY CLAYS WITH LESSER YELLOW-BROWN COLOUR BANDS
					30.00	9.00		CLAY	Silty, grey - brown, abundant carbonaceous remains; MINOR WOOD FRAGMENTS
				R1901	31.00	1.00		CLAY	
				R1901	32.00	1.00		CLAY and CLAY	Interbedded 50:50 CLAY: medium to dark brown, abundant carbonaceous remains; CLAY: silty, grey - brown; BANDS OF SOFT BROWN-BLACK LIGNITE/OIL SHALE; WOODY FRAGMENTS
				R1902	34.00	2.00		CLAY	
				R1903	36.00	2.00		CLAY	
				R1904	38.00	2.00		CLAY	
				R1905	40.00	2.00		CLAY	
					50.00	10.00		CLAY	
					59.00	9.00		CLAY	MAINLY BROWN SOFT CLAY WITH MINOR BLUE-GREY SOFT PLASTIC CLAY MINOR WOODY MATERIAL
					59.50	0.50		SIDERITE	YELLOW-BROWN HARD SIDERITE(?)
					70.00	10.50		CLAY	MAINLY BLUE-GREY SOFT PLASTIC CLAY WITH MINOR SOFT BROWN CLAY. BLUE-GREY CLAY CONTAINS ABUNDANT DISSEMINATED SOFT BLACK WOODY SPECKS. BROWN CLAY CONTAINS MINOR WOODY MATERIAL AAR BOREHOLE 19 IS NOW NUMBERED R0060

EL2080 LAUNCESTON R0060

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT
Launceston

032

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
									END OF BORE AT 70.00 m

EL2080 LAUNCESTON R0060

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT [illegible]
Launceston

093

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EL2080 LAUNCESTON R0041

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Easting: 499400.000
Northing: 5403700.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 150.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 22.00
Drilling Commenced: 06/04/81
Drilling Completed: 06/04/81
Inclination: 90
Azimuth:
Standing Water Level:

Logging Organisation: AAR Limited
Logged By: OSBHOLZ
Drilling Contractor: Exploration Drilling. WA Pty. Ltd.
Geophysical Logging:

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 125
Core Diameter:
Cased Depths: 2.0
Core Barrel:

Available Data:

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0061

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT

Launceston

094

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					8.00	8.00		CLAY	Silty; MOTTLERD BLUE-GREY AND YELLOW-BROWN SOFT SILTY CLAYS WITH MINOR SANDY FRACTION. OXIDISED.
					17.00	9.00		CLAY	Silty, pebbly; MOTTLED GREY-GREEN AND YELLOW-BROWN SILTY CLAYS NUMEROUS COMPLETELY WEATHERED DOLERITE PEBBLES PLUS FRESH DOLERITE COBBLES MINOR SAND FRACTION (OXIDISED)
					22.00	5.00		DOLERITE	HIGHLY WEATHERED DOLERITE, GREEN AND FRACTURED INFILLING OF SILTY CLAYS BASEMENT AAR BOREHOLE 20 IS NOW NUMBERED RC061

END OF BORE AT 22.00 m

EL2080 LAUNCESTON RC061

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

093

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EL2080 LAUNCESTON R0066 1
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Easting: 485660.000
Northing: 5411980.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 165.00
Datum: Approximate Level - Not Surveyed
Sheet Reference:
Sheet Index:
Total Depth: 12.00
Drilling Commenced: 25/03/81
Drilling Completed: 25/03/81
Inclination:
Azimuth:
Standing Water Level:

Available Data: Gamma Logs
Neutron Logs
Density Logs
Self Potential Logs
Resistivity Logs
Caliper Logs

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: ELLIS
Drilling Contractor: Deadline Drilling
Geophysical Logging: Century Geophysical Corp

County:
Parish:
Portion:

Plug Depths:
Hole Diameter: 120
Core Diameter:
Cased Depths:
Core Barrel:

Drill Bits: Blades

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

096

STRA NAME	SEQ NO	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
					0.90	0.90		SAND	Clayey, light to medium brown - grey, decomposed, soft, non-plastic.
					2.50	1.60		SAND	Clayey, light to medium yellow - khaki, highly weathered, soft, non-plastic. WEATHERED TRIASSIC
					7.00	4.50		SILTSTONE	Light to medium brown - khaki, highly weathered, low strength, brittle. Additional features include: grey. NO WATER INJECTION AT 6M HOLE MAKING OWN WATER
					12.00	5.00		SILTSTONE	Light to medium grey, low strength, brittle. HOLE DRILLED ON AIR

END OF BORE AT 12.00 m

EL2080 LAUNCESTON R0066

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

097

****
EL2080 LAUNCESTON R0130
****

Eastings: 519100.000
Northings: 5374400.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 170.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 75.60
Drillings Commenced: 14/05/84
Drillings Completed: 15/05/84
Inclination: 90
Azimuth:
Standing Water Level:
Available Data:

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: M.CARR
Drilling Contractor: H.J. Stacpoole
Geophysical Logging:
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 114
Core Diameter:
Cased Depths: 12.0
Core Barrel:
Drill Bits: Percussion

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0130

354098

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

038

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
TR			R		6.50	6.50		MUDSTONE	Metamorphosed, silicified, dark grey, slightly weathered, high strength, sub- conchoidal fracture, very dense, carbonate, secondary, on joints;
									CUT WATER 5.5M.
TR			R		14.50	8.00		MUDSTONE	Metamorphosed, silicified, light to medium grey, fresh, high strength, sub- conchoidal fracture, very dense, carbonate, secondary, on joints.
JU			R		23.00	8.50		BASIC INTRUSION	Medium to dark grey, high strength, uneven fracture, very dense, fine and medium grained.
JU			R		39.00	16.00		BASIC INTRUSION	Black, extremely high strength, uneven fracture, very dense, medium grained.
JU			R		75.60	36.60		BASIC INTRUSION	Dark green - grey, extremely high strength, uneven fracture, very dense, medium and coarse grained;
									FINAL WATER FLOW 9000 L/HR AIR LIFTED AT 350 PSI.

END OF BORE AT 75.60 m

EL2080 LAUNCESTON R0130

099

****
EL2080 LAUNCESTON R0131
****

Eastings: 521030.000
Northings: 5375580.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 200.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 60.00
Drillings Commenced: 16/05/84
Drillings Completed: 17/05/84
Inclination: 90
Azimuth:
Standing Water Level:
Available Data:

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: M.CARR
Drilling Contractor: H.J. Stacpoole
Geophysical Logging:
County:
Parish:
Portion:
Plug Depths:
Hole Diameter: 114
Core Diameter:
Cased Depths: 6.0
Core Barrel:
Drill Bits: Percussion

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0131

354100

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

100

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
QA				R	0.70	0.70		CLAY	Medium to dark brown, very high strength, medium plasticity.
TR				R	3.00	2.30		MUDSTONE	Metamorphosed, silicified, medium to dark grey, slightly weathered, high strength, sub- conchoidal fracture, very dense.
JU				R	7.00	4.00		BASIC INTRUSION	Medium to dark grey, fresh, high strength, uneven fracture, very dense, fine grained.
JU				R	60.00	53.00		BASIC INTRUSION	Dark green - grey, extremely high strength, uneven fracture, very dense, medium and coarse grained;
									CUT WATER 56.2M.
									FINAL WATER FLOW 7500 L/HR AIRLIFTED AT 350 PSI.

END OF BORE AT 60.00 m

EL2080 LAUNCESTON R0131

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 Launceston TENEMENT 2080

101

****
EL2080 LAUNCESTON R0132
****

Eastins: 522610.000
Northins: 5376100.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 190.00
Datum: Australian Heisht Datum
Sheet Reference:
Sheet Index:
Total Depth: 19.50
Drillins Commenced: 17/05/84
Drillins Completed: 17/05/84
Inclination: 90
Azimuth:
Standins Water Level:

Lossins Organisation: CSR Exploration and Evaluation Group
Lossed By: M.CARR
Drillins Contractor: H.J. Stacpoole
Geophysical Lossins:

County:
Parish:
Portion:

Plus Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths: 6.0
Core Barrel:

Available Data:

Drill Bits: Percussion

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0132

354102

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080

Launceston

102

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
QA				R	1.00	1.00		SOIL	Clayey, medium to dark brown, very high strength, medium plasticity.
QA				R	2.10	1.10		SAND	Matrix 90:10: clayey, light buff, weathered, very high strength, friable, very fine grained, bimodal sorting, medium permeability.
QA				R	3.50	1.40		CLAY	Intermixed 70:30: sandy, light to medium khaki, weathered, very soft, medium plasticity.
TR				R	6.30	2.80		MUDSTONE	Light to medium khaki, weathered, stiff, non-plastic, banded.
TR				R	9.50	3.20		SILTSTONE	Light to medium buff, weathered, stiff, uneven fracture, tough.
TR				R	10.30	0.80		SILTSTONE	Light grey, slightly weathered, very soft, medium density.
JU				R	11.60	1.30		BASIC INTRUSION	Medium to dark brown - grey, moderately weathered, moderate strength, uneven fracture, dense, fine grained, iron oxide, secondary, disseminated.
JU				R	19.50	7.90		BASIC INTRUSION	Dark grey, fresh, extremely high strength, uneven fracture, very dense, fine and medium grained;
									CUT WATER 13.3M.

END OF BORE AT 19.50 m

EL2080 LAUNCESTON R0132

103

****
EL2080 LAUNCESTON R0133
****

Eastins: 522300.000
Northins: 5374380.000
Grid Type: Australian Mapping Grid
Accuracy: Approximate
Crl: 170.00
Datum: Australian Height Datum
Sheet Reference:
Sheet Index:
Total Depth: 45.00
Drilling Commenced: 18/05/84
Drilling Completed: 18/05/84
Inclination: 90
Azimuth:
Standing Water Level:

Available Data:

Logging Organisation: CSR Exploration and Evaluation Group
Logged By: M.CARR
Drilling Contractor: H.J. Stacpoole
Geophysical Logging:

County:
Parish:
Portion:

Plus Depths:
Hole Diameter: 150
Core Diameter:
Cased Depths: 6.0
Core Barrel:

Drill Bits: Percussion

ALL ROCKS ARE FRESH UNLESS OTHERWISE INDICATED

EL2080 LAUNCESTON R0133

LAUNCESTON GEOLOGICAL LOG REPORT ATP EL2080 TENEMENT 2080
Launceston

104

STRA NAME	SEQ NO.	SEAM NAME	WOK SEC	SAMPL NUMBR	DEPTH (m)	THICK (m)	% REC	ROCK TYPE	GEOLOGICAL DESCRIPTION OF STRATA
QA				R	1.10	1.10		CLAY	Medium to dark brown, very high strength, pussy.
TR				R	1.90	0.80		MUDSTONE	Off white, highly weathered, very high strength, medium plasticity.
TR				R	6.40	4.50		MUDSTONE	Light to medium khaki, weathered, moderate strength, sub-conchoidal fracture, firm.
TR				R	8.00	1.60		SANDSTONE	Intermixed 80:20: silty, quartzose, light buff, weathered, moderate strength, uneven fracture, friable, very fine grained, well sorted, low permeability, iron oxide, secondary, stainins.
TR				R	11.20	3.20		SILTSTONE	Metamorphosed, silicified, light to medium khaki, weathered, high strength, uneven fracture, dense;
									CUT WATER 8.3M.
TR				R	21.90	10.70		SILTSTONE	Metamorphosed, silicified, light to medium grey, fresh, extremely high strength, uneven fracture, very dense.
TR				R	22.90	1.00		SILTSTONE	Metamorphosed, silicified, light to medium brown, weathered, high strength, uneven fracture, dense; PROBABLE OXIDATION ON FRACTURE ZONE.
TR				R	26.50	3.60		SILTSTONE	Metamorphosed, silicified, light grey, fresh, extremely high strength, uneven fracture, very dense.
TR				R	35.80	9.30		MUDSTONE	Metamorphosed, silicified, light to dark grey, extremely high strength, uneven fracture, very dense.
JU				R	42.00	6.20		BASIC INTRUSION	Dark green - grey, extremely high strength, uneven fracture, very dense, fine grained.
JU				R	45.00	3.00		BASIC INTRUSION	Dark green - grey, extremely high strength, uneven fracture, very dense, medium and coarse grained;
									FINAL WATER FLOW 12000 L/HR AIRLIFTED AT 250 PSI.

END OF BORE AT 45.00 m

EL2080 LAUNCESTON R0133

AREA TO BE RETAINED

AREA TO BE RELINQUISHED

LAUNCESTON

Westbury

Deloraine

Hadspen

Carrick

Perth

Longford

Evandale

Western Junction

Launceston Airport

Bracknell

Cressy

Powranna

HUMMOCKY HILLS

GREAT WESTERN TIERS

GREAT LAKE

ARTHURS LAKE

LAKE AUGUSTA

LAKE FERGUS

DOUBLE LAGOON

LAKE TREVALLY

BLACK SUGARLOAF

MT. BARROW

MILLERS BLUFF

Campbell Town

DIPPOSE LAGOON

Rivulet

Westons

MEANDER RIVER

MERSEY RIVER

SOUTH ESK RIVER

ESK RIVER

ST PATRICKS RIVER

ISIS RIVER

BASS HIGHWAY

LAKE HIGHWAY

TASMAN HIGHWAY

MIDLANDS HIGHWAY

SOUTHERN RAILWAY

MACQUARIE RIVER

Western Tiers Railway

460 40' 480 50' 500 10' 520 20' 540

5420 41°30' 5400 40' 5380 50' 5360000mN 42°00'

146°30' 460000mE 40' 480 50' 500 147°00' .0' 520 20' 540 147°30' 42°00'

Compiled from Tasmania 1:100 000 Topographic Survey Series 8215 Tamar, 8315 St Patricks, 8314 South Esk, 8214 Meander Edition 3 1979

SCALE 1:100,000

5 cm

TRUE NORTH, GRID NORTH AND MAGNETIC NORTH ARE SHOWN DIAGRAMMATICALLY FOR THE CENTRE OF THE MAP. MAGNETIC NORTH IS CORRECT FOR 1979 AND INCREASES 0.1° EASTERLY IN ABOUT THREE YEARS.

GN T.N. MN

GRID CONVERGENCE 0.2°

GRID/MAGNETIC ANGLE 13.1°

LEGEND

HIGHWAY SEALED, UNSEALED

ROAD SEALED, UNSEALED

RAILWAY

POWER TRANSMISSION LINE

354106

LOCALITY MAP

Devonport

Launceston

EL 20/80

Queenstown

TASMANIA

HOBART

SCALE 50 0 50 Kilometres

LEGEND

CD23 CSR drillhole, coal cored.

RO25 CSR drillhole, chip sampled.

Tertiary - Quaterary — Launceston Beds & younger cover.

Juassic — Dolerite & related rock types.

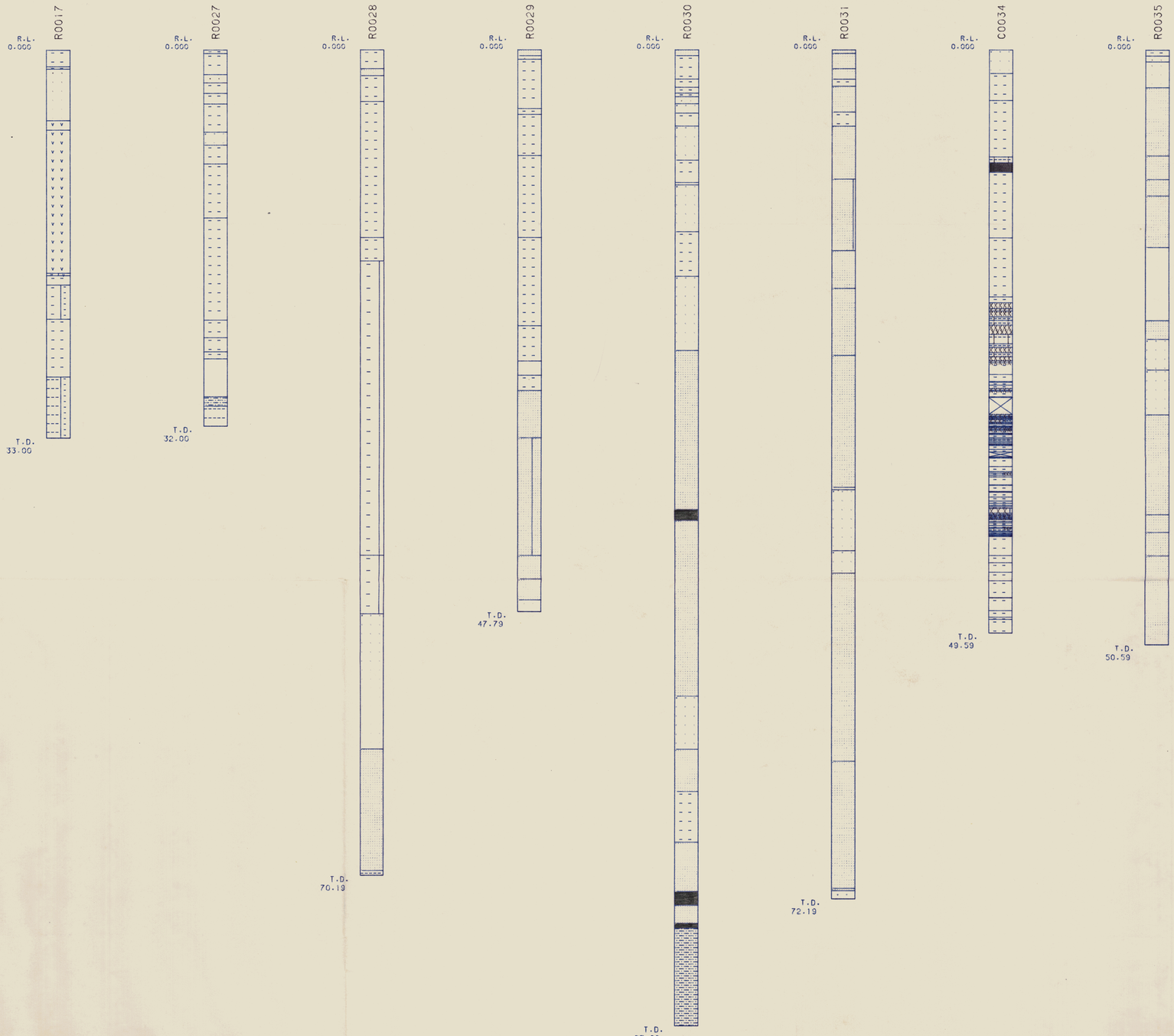
Triassic — Upper Parmeener Super Group sediments.

CSR Limited Coal Division	EXPLORATION AND EVALUATION GROUP		
DRAWING	DATE	EL 20/80 LAUNCESTON LOCATION OF EXPLORATION IN RELINQUISHED AREA 6362	SCALE 1:100 000
DRAWN M.R.N.	JULY '83		FIGURE 4.2
CHECKED			DRAWING No. 70020-259
REVISED C.J.	Aug '84		

6362

L

R



LEGEND

LITHOLOGY REFERENCE

- SOIL
- CLAY
- SILT
- SAND
- GRAVEL
- ALLUVIUM
- CLAYSTONE
- MUDSTONE
- SHALE
- SILTSTONE
- SANDSTONE
- CONGLOMERATE
- INTERBEDDED SEDIMENTS (SANDST/MUDST 50:50)
- LIMESTONE
- SIDERITE
- LIGNITE
- LIGNITE (UNDIFF.)
- LIGNITE WEATHERED
- LIGNITE INFERIOR
- LIGNEOUS CLAY
- DOLERITE
- BASALT
- BASEMENT (UNDIFF.)
- CORE LOSS

5 cm

HORIZONTAL SCALE
1: 2500
50 25 0 25 50 75 100 125 150 175 200 225 250

VERTICAL SCALE
1:200
4.0 2.0 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

354107

CSR Limited
Coal Division

EXPLORATION AND EVALUATION GROUP

DRAWING	DATE
DRAWN BROADLEY	17-AUG-84
CHECKED	
REVISED	

EL20/80
GRAPHIC LOGS
6363

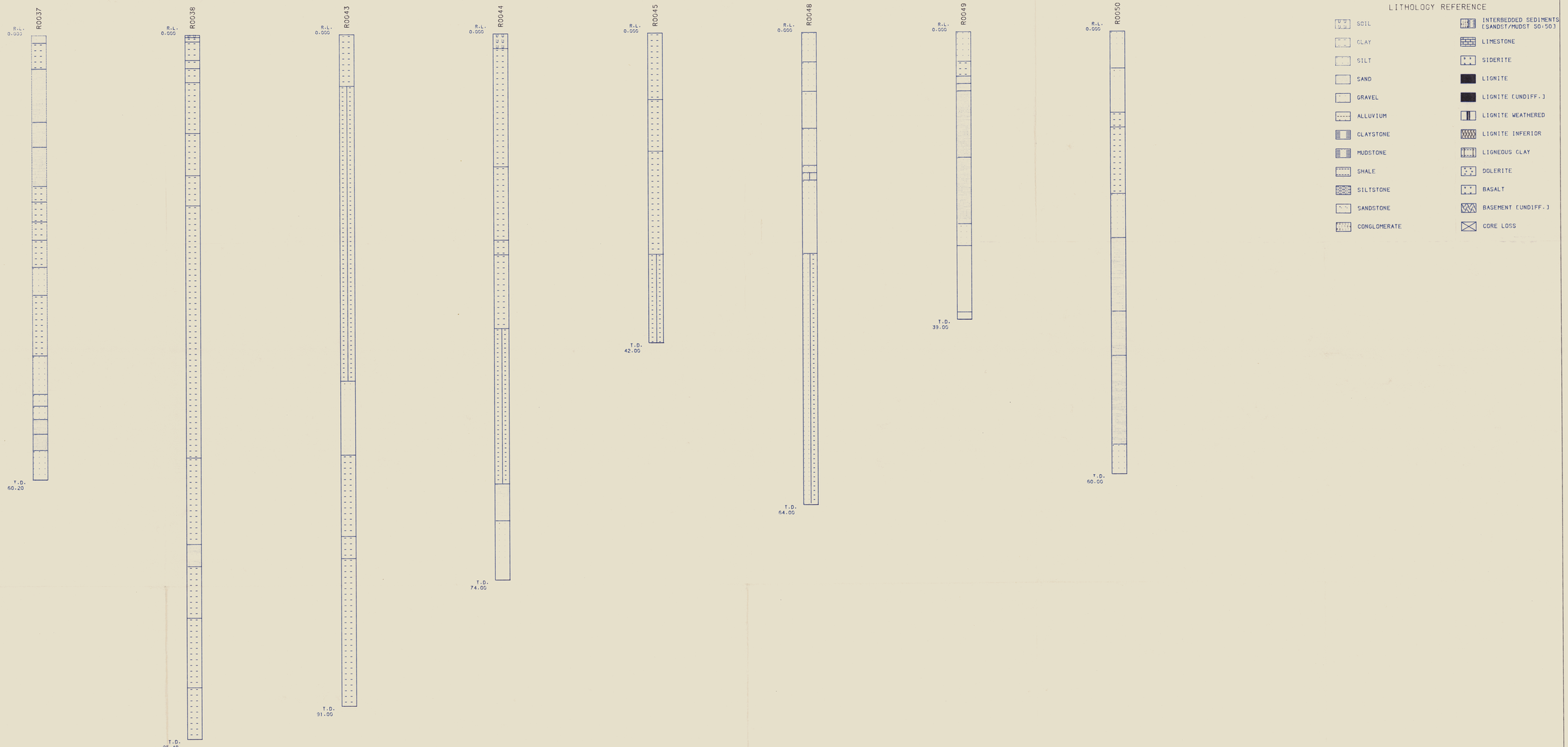
SCALE V 1:200 H 1: 2500

FIGURE A1

DRAWING NO.

L

R



LEGEND

LITHOLOGY REFERENCE

- SOIL
- CLAY
- SILT
- SAND
- GRAVEL
- ALLUVIUM
- CLAYSTONE
- MUDSTONE
- SHALE
- SILTSTONE
- SANDSTONE
- CONGLOMERATE
- INTERBEDDED SEDIMENTS (SANDST/MUDST 50:50)
- LIMESTONE
- SIDERITE
- LIGNITE
- LIGNITE (UNDIFF.)
- LIGNITE WEATHERED
- LIGNITE INFERIOR
- LIGNEOUS CLAY
- DOLERITE
- BASALT
- BASEMENT (UNDIFF.)
- CORE LOSS

5cm

HORIZONTAL SCALE
1: 2500
50 25 0 25 50 75 100 125 150 175 200 225 250

VERTICAL SCALE
1:200
4.0 2.0 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

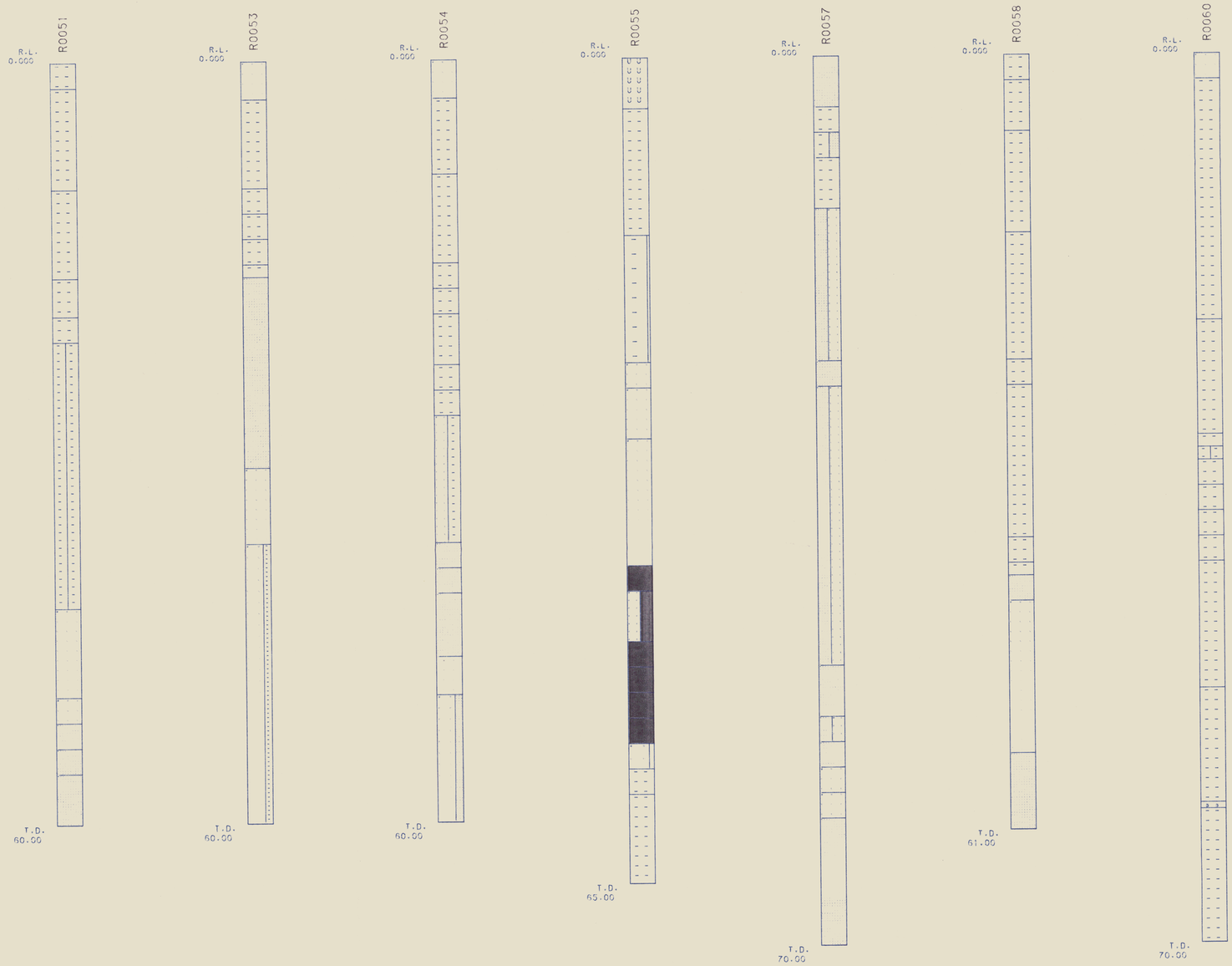
CSR Limited Coal Division	EXPLORATION AND EVALUATION GROUP	CSR
DRAWING	DATE	
DRAWN BROADLEY	17-AUG-84	EL20/80 GRAPHIC LOGS
CHECKED		SCALE V 1:200 H 1: 2500
REVISED		FIGURE A2
		DRAWING NO. 6364

6364

354108

L

R



LEGEND

LITHOLOGY REFERENCE

- SOIL
- CLAY
- SILT
- SAND
- GRAVEL
- ALLUVIUM
- CLAYSTONE
- MUDSTONE
- SHALE
- SILTSTONE
- SANDSTONE
- CONGLOMERATE
- INTERBEDDED SEDIMENTS (SANDST/MUDST 50:50)
- LIMESTONE
- SIDERITE
- LIGNITE
- LIGNITE (UNDIFF.)
- LIGNITE WEATHERED
- LIGNITE INFERIOR
- LIGNEOUS CLAY
- DOLERITE
- BASALT
- BASEMENT (UNDIFF.)
- CORE LOSS

5 cm

HORIZONTAL SCALE
1: 2500

50 25 0 25 50 75 100 125 150 175 200 225 250

VERTICAL SCALE
1:200

4.0 2.0 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

CSR Limited
Coal Division

EXPLORATION AND EVALUATION GROUP

DRAWING	DATE
DRAWN BROADLEY	17-AUG-84
CHECKED	
REVISED	

EL20/80
GRAPHIC LOGS

SCALE V 1:200
H 1: 2500

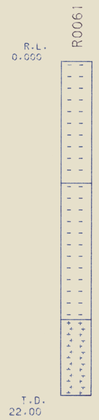
FIGURE A3

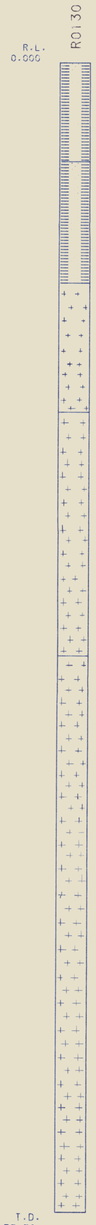
DRAWING NO. 6365

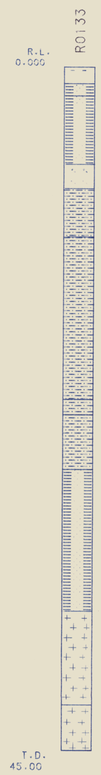
354109

L

R







LEGEND

LITHOLOGY REFERENCE

- SOIL
- CLAY
- SILT
- SAND
- GRAVEL
- ALLUVIUM
- CLAYSTONE
- MUDSTONE
- SHALE
- SILTSTONE
- SANDSTONE
- CONGLOMERATE
- INTERBEDDED SEDIMENTS (SANDST/MUDST 50:50)
- LIMESTONE
- SIDERITE
- LIGNITE
- LIGNITE (UNDIFF.)
- LIGNITE WEATHERED
- LIGNITE INFERIOR
- LIGNEOUS CLAY
- DOLERITE
- BASALT
- BASEMENT (UNDIFF.)
- CORE LOSS

5 cm

HORIZONTAL SCALE
1 : 2500
50 25 0 25 50 75 100 125 150 175 200 225 250

VERTICAL SCALE
1:200
4.0 2.0 0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

CSR Limited
Coal Division

EXPLORATION AND EVALUATION GROUP

DRAWING	DATE
DRAWN BROADLEY	17-AUG-84
CHECKED	
REVISED	

EL20/80
GRAPHIC LOGS

SCALE V 1:200
H 1: 2500

FIGURE A4

DRAWING NO. 6366

354110