

W-1-24

WCR VOL 2

ROUNDHEAD-1

(W984)

ESSO EXPLORATION AND PRODUCTION  
AUSTRALIA INC.

PETROLEUM DIVISION

*ASB*  
*Kent*  
WELL COMPLETION REPORT

ROUNDHEAD-1

VOLUME 2 15 FEB 1990

INTERPRETED DATA

GIPPSLAND BASIN

VICTORIA

ESSO AUSTRALIA LIMITED

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FEBRUARY 1990

0889RP1:6

ROUNDHEAD-1  
WELL COMPLETION REPORT

VOLUME 2  
(INTERPRETED DATA)

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## GEOLOGICAL DISCUSSION

### INTRODUCTION

Roundhead-1 was drilled by Esso Exploration and Production Australia Inc. in order to test a stratigraphically-defined closure which underlies the SE flank of the Kingfish Field. Closure was interpreted on the top of the 60 Ma lowstand wedge (previously labelled the 61 Ma lowstand wedge), with a secondary target at the top of the 58.5 Ma lowstand wedge. No significant hydrocarbon shows were encountered, and the well was plugged and abandoned after reaching a total depth of 3021mKB.

### STRATIGRAPHY

Predicted and drilled formation/horizon depths are given in the table below.

<u>Formation/Horizon Tops</u>	<u>Predicted Depth</u>		<u>Drilled Depth</u>	
	(mSS)	(mSS)	(mSS)	(mKB)
Seaspray Group (Seafloor)	81	81		102
Latrobe Group	2335	2355.5		2376.5
Top Upper Closure (secondary target) (58.5 Ma lowstand wedge)	2534	2546		2567
Top Lower Closure (primary target) (60 Ma lowstand wedge)	2658	2659		2680
Total Depth	3000	3000		3021

Roundhead-1 penetrated 2274m of limestone, calcareous siltstone and claystone of the Miocene to Oligocene Seaspray Group. The base of the Group contains the P. tuberculatus spore-pollen zone, confirming an Oligocene age.

The top of the Latrobe Group has been eroded in the east Kingfish-Roundhead area due to channeling and uplift. The contact with the overlying Seaspray Group is fairly sharp, although bioturbated, and the uppermost Latrobe section is very sandy. The youngest age obtained from the Latrobe Group is early Eocene (Lower M. diversus zone), obtained from a sidewall core 42m below the unconformity. Sandstones are predominantly medium to coarse grained, moderately to well rounded, quartzose units with good porosity.

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The Paleocene section of the Latrobe Group (L. balmei spore-pollen zone) is also very sandy and is dominated by medium to coarse grained, highstand units of upper shoreface and foreshore origin. However, several marine transgressive events are recorded by greensands and thin glauconitic mudstones. The most notable of these is a glauconitic mudstone which spans the Cretaceous-Paleocene boundary, from 2792-2813mKB. This unit includes the T. evettii dinoflagellate assemblage, and represents the transgressive systems tract and downlap surface of the 67Ma sequence. Glauconite has also been recorded in sidewall cores at 2378-2380, 2407m, 2442-2446m and 2540m.

Below the T. evettii glauconitic mudstone is a 32m thick, fine to coarse grained sandstone with a sharp base and good porosity. This Late Cretaceous unit (Upper T. longus zone; 2813-2845mKB) is correlated with the T-1 reservoir package in the Flounder Field. Based on its lithological characteristics and by analogy, it is interpreted as a tidal-estuarine complex of lowstand origin, resting on the 68Ma sequence boundary.

The underlying T. longus section can be divided into 2 units. The upper unit (2845-2959mKB) is a mixed sequence of siltstone and sandstone, with some shale and minor coal. The sandstones are dominantly fine to coarse grained and moderately sorted with fair to good porosity. The siltstones are very carbonaceous and micaceous and the unit overall is interpreted as a coastal plain facies.

From 2959mKB to T.D., the section is dominantly sandy, and contains at least one coarsening upwards shoreface to foreshore progradational package. The sandstones in this package are predominantly medium to coarse grained, with fair porosity.

#### Structure

Roundhead-1 was drilled in order to test fault-independent closures mapped at two levels:

- (i) the top of the 58.5 Ma lowstand wedge;
- (ii) the top of the 60.0 Ma lowstand wedge. (Previously labelled 61.0 Ma)

Closure was not mapped at any other horizon. Thus, Roundhead-1 was drilled in order to test two, vertically stacked, stratigraphic traps.

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Regional structural dip at the levels of interest is down to the west. Dip reversal, providing critical dip closure at the eastern end of the prospect, is due to downlap of sedimentary units as they pinch out eastwards. North-south closure is provided by the E-W trending Kingfish anticlinal roll.

Thus, the Roundhead Prospect represents a stratigraphic play associated with a palaeo-shelf edge. Regional westerly tilting of the shelf-edge downlap surfaces, combined with folding about an E-W axis, provides the necessary trap geometry.

Part of the Roundhead structure underlies the Kingfish Field, however the Roundhead-1 well was drilled outside the field's original oil-water contact.

#### Hydrocarbons

No significant hydrocarbon shows were encountered while drilling Roundhead-1. No evidence of fluorescence was recorded, either in cuttings or sidewall cores, and only traces of gas were encountered while drilling. The lack of hydrocarbon shows is attributed to the absence of a trap (due to lack of seal at the critical horizons) combined with the very sandy and porous nature of the sequence overall.

#### Seal

The trapping mechanism envisaged for Roundhead involved the sealing of sandy, lowstand wedge-deposits by transgressive marine shales. For the 58.5Ma sequence, it was interpreted that marine shale had been encountered both basinwards (at Hermes-1) and landwards (at Kingfish-1). For the primary target, marine shales had been encountered at Hermes-1, and was interpreted to extend landwards as far as Gurnard-1. None of the Kingfish wells were drilled deep enough to intersect this lower shale seal.

The absence of hydrocarbons in Roundhead-1 is attributed to a lack of seal at the mapped levels of closure. For the 58.5Ma sequence, no seal exists for the lowstand wedge as the section above (transgressive systems tract) is sand prone. The thick shale encountered at the base of Kingfish-1 is thus most probably a local, shale-infilled channel.

For the principal target, the seal was essentially absent (3m siltstone at 2677-2680mKB), and the entire section was sandy. The marine shale that was intersected in Hermes-1 and correlated with the 60Ma sequence is now thought to comprise mainly marine shales of the 67Ma sequence. This unit dips regionally to the west and has no closure associated with it.

#### DISCUSSION

Roundhead-1 was drilled in an area of severe velocity variation. The time structure in this area is highly distorted by lateral velocity variations due to a mid-Miocene channel filled with micritic limestone. For example, velocity variations cause a two-way-time pull up of 140msecs over east Kingfish. Despite these problems, however, the depth prediction for Roundhead-1 was quite accurate. Correlation of key seismic events also appears to have been sound. Thus, the principal difference between the pre- and post-drill interpretations relates to the arrangement of facies, systems tracts and sequences within the seismic stratigraphic framework.

In the pre-drill interpretation, the critical Paleocene section was subdivided into several sequences, each containing a lowstand wedge sealed by marine shales of the transgressive systems tract. This interpretation was based on the interpreted position of sequence boundaries, the shape of sedimentary packages, and the presence of onlap as well as downlap onto sequence boundaries, as observed on seismic data.

The Paleocene section encountered by Roundhead-1 is dominated by sandstones of marginal marine to nearshore marine origin. This interpretation is based on the size, composition, rounding and sorting of grains, as well as the electric-log character of the section. In addition, there are some obvious coarsening upward packages, with the dipmeter log revealing prograding surfaces dipping to the SE at about 10 degrees. Hence the lowstand wedges interpreted pre-drill were intersected, however the sealing transgressive marine shales were not. As mentioned previously, the marine shale that was intersected in Hermes-1 and correlated with the 60 Ma sequence is now correlated to the 67.0 Ma sequence hence the seal for the 60 Ma sequence lowstand wedge is absent.

Roundhead-1 was the first well in the Gippsland Basin with the primary target determined using sequence stratigraphy. Though no hydrocarbons were intersected it is still possible for other wells, looking at similar plays, to succeed.

#### GEOPHYSICAL ANALYSIS

The Kingfish area is characterised by severe velocity gradients. Large lateral velocity variations are due to a Mid-Miocene channel filled with micritic limestone which trends NW-SE across the Kingfish field. The velocity variations cause a TWT pull-up of up to 140msec.

Roundhead-1 was drilled beneath the southern edge of the channel and its time structure was highly distorted. There was no mapped time closure at the level of either targets. Time-depth conversion was the main issue of the geophysical analysis.

The initial depth conversion which defined the prospect was completed using an interval velocity approach. The method adopted assumes that velocity,  $V(z)$  for each unit is related by a linear relationship of the form  $V(z) = a.z + b$ . This relationship is defined by determining lines of "best fit" through sonic logs and calculating the slope "a" and zero depth intercept "b". Given these parameters and the travel time through any given unit its thickness can be calculated.

Final depth maps were produced using Exxon proprietary software; the Interactive Velocity System. This was used to define interval velocities from VNMO data in a very closely spaced grid over the prospect.

This analysis confirmed the initial depth conversion. The final depth prediction error to the Top of Latrobe Group was +0.8%.



FIGURES

# LOCALITY MAP

## ROUNDHEAD - 1

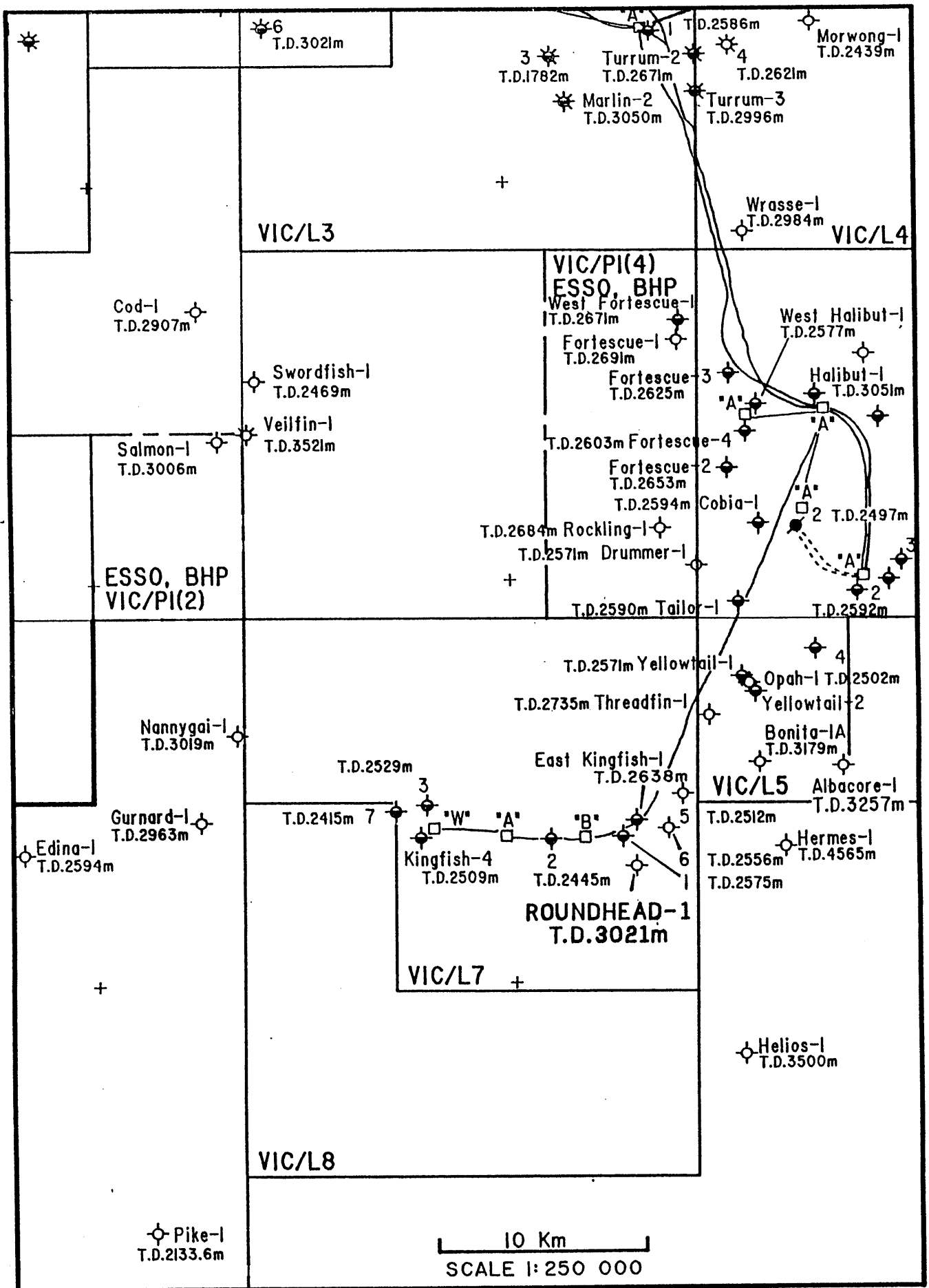


FIGURE 1

APPENDIX I

APPENDIX-1

PALYNOLOGICAL ANALYSIS OF ROUNDHEAD-1  
GIPPSLAND BASIN.

by

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**INTERPRETED DATA**

INTRODUCTION

SUMMARY OF RESULTS

GEOLOGICAL COMMENTS

BIOSTRATIGRAPHY

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TABLE-1: INTERPRETED DATA

PALYNOLOGY DATA SHEET

## INTRODUCTION

Fourty-one sidewall core samples were processed and examined for spores, pollen and microplankton. As part of this analysis thirty-two of the samples which gave sufficient yields of palynomorphs were also counted to determine the variation in percentages and ratios of the principal spore-pollen and microplankton species. Both oxidised organic yield and palynomorph concentration were mainly high in the non-marine coastal plain facies in the Late Cretaceous part of the Latrobe Group, but were quite variable in the overlying sandy marine section which is mostly Paleocene in age. Recorded spore-pollen diversity is moderate to high in 80% of the samples and is clearly inversely proportional to residue yield and palynomorph concentration. Dinoflagellates were recorded from 60% of the samples and their diversity ranged from low to high reflecting variation in marine influence. This is interpreted to relate directly to the influence of the sea-level cycles.

Lithological units and palynological zones, from base of Lakes Entrance Formation to T.D., are given in the following summary. Interpreted data with zone indentifications and confidence ratings are recorded in Table-1 and basic data on residue yields, preservation and diversity are recorded in Table-2. Palynomorph counts and percentages are recorded in Tables-3 and 4, while all species that can be identified with binomial names are tabulated on the accompanying range chart.

## GEOLOGICAL COMMENTS

1. The Latrobe Group penetrated in Roundhead-1 is readily separated into two distinct lithological units. These are a mainly non-marine coastal plain facies between 2845.5m to 3021.0m (T.D.) comprised predominantly of the finer grained lithologies such as coals and shales, and a marine facies dominated by sands which extends to the top of the Group. This environmental interpretation of the lithological subdivision is based on microplankton, mostly dinoflagellate cysts, which are present, and often abundant, in the majority of productive samples above 2845.5m and virtually absent in samples below that depth.

2. Roundhead-1 is one of the few wells in the Gippsland Basin which shows clear lithological evidence of marine influence in the "coarse clastics" or undifferentiated Latrobe Group. Glauconite is recorded in sidewall cores from three separate levels and these samples also yielded the highest microplankton abundances.

PALYNOLOGICAL SUMMARY OF ROUNDHEAD-1

AGE	UNIT/FACIES	SPORE-POLLEN ZONES	DEPTH (mKB)	DINOFLAGELLATE ZONES	DEPTH (mKB)
Oligocene UNCONFORMITY	Lakes Entrance Fm. 2376.5m	<i>P. tuberculatus</i>	2373.0		
Eocene? UNCONFORMITY	L A T R O B E G R O U P Gurnard Fm.? 2380.1m	(Barren of fossils)			
Early Eocene UNCONFORMITY	Undifferentiated sands & shales 2437.5m	Lower <i>M. diversus</i>	2418.1		
Palaeocene	Undifferentiated marine sands and shales	Upper <i>L. balmei</i> Lower <i>L. balmei</i>	2442.5-2445.8 2484.0-2808.0	<i>A. homomorphum</i> <i>E. crassitabulata</i> <i>T. evittii</i>	2445.8 2509.1-2535.8 2801.5-2808.0
---K/T Boundary---	---2811.0m---				
Maastrichtian	Condensed sequence shale overlying shoreface sand	Upper <i>T. longus</i>	2812.0	<i>M. druggii</i>	2812.0
Sequence Boundary	2845.5m				
Maastrichtian	Coastal plain sands, shales and coals	Upper <i>T. longus</i>	2855.5-2952.0		
	T.D. 3021.0m				

These sidewall cores and their corresponding microplankton percentages are listed below:

SAMPLE	DEPTH	MICROPLANKTON %
SWC 54	2442.5m	28.2%
SWC 53	2445.8m	28.6%
SWC 46	2540.0m	8.5%
SWC 22	2789.0m	0.8%
SWC 21	2793.3m	3.7%
SWC 20	2801.5m	32.2%
SWC 19	2804.5m	16.1%
SWC 18	2808.0m	40.5%
SWC 17	2812.0m	63.7%

3. Glauconite is also present in the two highest sidewall cores in the Latrobe Group at 2378.5m and 2380.0m, which unfortunately were barren of palynomorphs. On lithology and stratigraphic position this section is correlated with the Gurnard Formation in the palynological summary even though an age for the interval could not be obtained from the palynological analysis.

4. Samples were counted in an attempt to use palynology to identify Condensed Sections as defined by Loutit *et al.* (1988). In addition it was hoped to identify High-stand, Low-stand and Transgressive System Tracts as well as the Condensed Sections by repetitive changes in the dinoflagellate and spore-pollen assemblage composition.

5. Based on high abundance and diversity of microplankton, mostly dinoflagellate cysts species three major condensed intervals and two minor or more diffuse condensed intervals are proposed at the following sample depths:

#### MAJOR CONDENSED INTERVALS

- A. 2442.5-2445.8m with 28-29% microplankton.
- B. 2535.8-2540.0m with 8-16% microplankton.
- C. 2801.5-2812.0m with 16-64% microplankton.



MINOR CONDENSED INTERVALS

- a. 2505.9-2515.2m with 3-5% microplankton.
- b. 2678.0-2679.1m with 10-13% microplankton.

The major three are also the intervals in the Latrobe Group containing glauconite in hand specimen. This mineral and its close relatives are typical of Condensed Sections (Loutit *et al.*, 1988).

Note that the intervals quoted above are the depth limits of the sidewall cores with high microplankton abundances. It may be more correct to interpret the entire shale packages containing these samples as the Condensed Sections.

6. The spore-pollen spectra from the counts was more difficult to analyse and only a few general observations can be made. Firstly, the three major interpreted Condensed Sections can be characterised by high abundances of *Araucariacites australis* and *Dilwynites ganulatus/tuberculatus*. Their combined abundances ranged from 17% to 23.5%. In contrast the abundances of these species in all other samples counted ranged from <1% to 10%. It is noteworthy that the two intervals interpreted as minor Condensed Sections lacked a similar increase in these species. The second observation is that the samples from the coastal plains facies below 2845.5m can be characterised by "one off" abundances of species, as would be expected of the variable vegetational mosaic growing on the shifting micro-environments of a coastal plain (e.g. see discussion in Anderson & Muller, 1975). Some of the most conspicuous isolated abundance peaks are *Phyllocladidites mawsonii* (26% at 2936.5m), *Podosporites microsaccatus* (14.9% at 2936.5m), *Proteacidites reticuloconcavus* (1.1% at 2936.5m and 4.4% at 2891.0m), *P. clinei* ms (3.4% at 2929.0m) and *Tricolpites waiparaensis* (15% at 2900.5m). The high but variable abundance of *Gambierina* spp. through this interval is also a reflection of fluctuating microenvironments.

7. The abrupt change at 2845.5m from coastal plain environment to a massive sand of probable shoreface environment, which is in turn overlain by a marine shale at 2813.5m, is interpreted to represent the "downward shift" associated with the 67 Ma Sequence Boundary. This Sequence Boundary can be confidently correlated with the sequence charts of Haq *et al.* (1987, 1988) because it is the first possible sequence boundary in Roundhead-1 below the Cretaceous/Tertiary (K/T) boundary which also lies within the Upper *T. longus* Zone.

8. The K/T Boundary is picked in Roundhead-1 at 2811.0m between the *M. druggii* and *T. evittii* dinoflagellate Zones. It lies in the lower part of a Condensed Section at a point where there is a slight change on the dip-meter log.

9. The *A. hyperacanthum* Zone was not found in Roundhead-1. In this, Roundhead-1 resembles the sequence intersected in East Kingfish-1, which like Roundhead-1 is relatively closely sampled (Marshall, 1985), and supports the interpretation for a local unconformity near the top of the Latrobe Group. The other nearby wells Kingfish-1, 5 and 6 neither support or contradict this interpretation as they contain too few productive samples over this interval. The *A. hyperacanthum* Zone is present however in Bonita-1A which is located along the palaeo-depositional strike about 8km to the north-east of Roundhead-1. It is suggested that the Lower *M. diversus* Zone sample at 2418.1m is from the youngest part of the zone and therefore lies above the 53 Ma sequence boundary (Haq et al., 1987, 1988). The unconformity at this sequence boundary is considered to have eroded down through the *A. hyperacanthum* Zone and the upper part of the Upper *L. balmei* Zone.

## BIOSTRATIGRAPHY

Zone and age-determinations have been made using criteria proposed by Stover & Partridge (1973), Helby et al. (1987) and unpublished observations made on Gippsland Basin wells drilled by Esso Australia Ltd.

Author citations for most spore-pollen species can be sourced from Stover & Partridge (1973), Helby et al. (1987) and Dettmann & Jarzen (1988) or other references cited herein. Species names followed by "ms" are unpublished manuscript names. Zone names have not been altered to conform with recent nomenclature changes like *Forcipites* (al. *Tricolpites*) *longus* (Stover & Evans) Dettman and Jarzen 1988. Author citations for dinoflagellates can be found in Letin and Williams (1985, 1989) and Wilson (1988).

Upper *Tricolpites longus* Zone: 2812.0-2952.0 metres Maastrichtian.

Samples are assigned to the Upper subdivision of the zone on the consistent and characteristic presence of common *Gambierina* spp. (which has an average abundance of 14%), and the sporadic presence of *Stereisporites* (*Tripunctisporis*) spp., a species complex not known to occur below the Upper

subdivision. Although individual samples have moderate diversity the zone overall has a high diversity with over 60 species of spores and pollen identified on the range chart. Fourteen species recorded from the assemblages are not known to extend above the *T. longus* Zone but most of these are only recorded from one or two samples. The indicator species occurring in most samples and therefore most characteristic of the zone are *Forcipites* (al. *Tricolpites*) *longus*, *Nothofagidites senectus*, *Proteacidites clinei* ms, *P. reticuloconcavus* ms, and *Quadrplanus brossus*. Of these *Proteacidites clinei* ms is the only indicator species for an age no younger than the *T. longus* Zone which occurs in the highest sample assigned to the zone. The age of this latter sample is based more confidently on its dinoflagellate content.

*Manumiella druggii* Zone: 2812.0 metres

Maastrichtian.

The sample is dominated by acritarchs mostly represented by small simple spheres <15 microns in size, and a small *Micrhystridium* sp. which is characterised by very fine but proportionally long and flexible spines. The larger dinoflagellates in the assemblage are mostly fragmented and therefore are under-represented in both the assemblage count and their overall diversity. Nevertheless, the sample is confidently assigned to the zone on the presence of both *Manumiella druggii* and *M. seelandica*.

Lower *Lygistepollenites balmei* Zone: 2484.0-2808.0 metres

Paleocene.

The counts of the assemblages on Tables 3 and 4 best display the characteristic change to the Lower *L. balmei* Zone from the underlying Upper *T. longus* Zone. This is an increase in overall abundance of gymnosperm pollen from an average of 26% in the Upper *T. longus* Zone to an average of 49% in the Lower *L. balmei* Zone. Most conspicuous of all the species increasing in abundance in this group is the eponymous species *Lygistepollenites balmei* which increases from not registering in the count to a maximum of 16.8% in the sample at 2515.2m. The other characteristic change in the counts is the increase in small triporate angiosperm pollen recorded under the category *Triporopollenites* spp. (small). Both the increase in gymnosperm pollen and the increase in small angiosperm pollen is a reflection of a change to wind pollinated plants (as reflected by the palynological record) in the vegetation of the Paleocene. This change is believed to be another manifestation of the extinction events which occur at the Cretaceous/Tertiary boundary.

As is often typical of the zone, key species whose first appearance datums (FADs) can be used to identify the base of the zone, are delayed in the stratigraphic record relative to the extinction horizon of those species which characterise the *T. longus* Zone. Key species which fall into this category in Roundhead-1 are *Proteacidites angulatus* (FAD at 2793.3m), *Tetracolporites multistrixus* ms (FAD at 22746.0m), *Haloragacidites harrisii* (FAD at 2535.8m), and *Polycolpites langstonii* (FAD at 2509.1m). In Roundhead-1 this situation of delayed appearances of pollen species is partially a facies problem related to the marine environment characteristic of the whole zone. It is the dinoflagellates associated with this marine facies which allows the high confidence pick for the base of the zone.

*Trithyrodinium evittii* Zone: 2801.5-2808.0 metres Basal Danian.

Three samples are assigned to this zone on the common to abundant occurrence (5.7% to 23%) of the eponymous species *Trithyrodinium evittii*. None of the other dinoflagellates identified can be considered diagnostic of the zone. The species *Senegalinim dilwynense* (*sensu lato*), *Deflandrea speciosus* and frequent to common *Spinidinium* spp. may however be considered as having 'local' FADs within this zone.

*Palaeoperidinium pyrophorum* Association: 2793.3 metres Danian?

The occurrence of or acme of *Palaeoperidinium pyrophorum* above the acme of *Trithyrodinium evittii* has been observed in several wells. It is recorded here as a potential correlation point.

*Alisocysta circumtabulata* Association: 2657.5-2678.0 metres.

*Alisocysta circumtabulata* is the only dinoflagellate in Roundhead-1 restricted to the dinoflagellate abundance peak, and possible Condensed Section recorded in the counts (Table-4) between 2657.5-2679.1m. Although *A. circumtabulata* is known to have an earlier FAD (Helby et al. 1987, fig.40) its acme may be within this later condensed interval. This interpretation needs to be verified and tested in additional wells.

*Eisenackia crassitabulata* Zone: 2509.1-2535.8 metres Mid Paleocene.

The original concept of this zone was the total range of the indicator species *Eisenackia crassitabulata*, and this is how it is recognised in

Roundhead-1 where *E. crassitabulata* occurs in the shallowest and deepest samples in a sequence of three consecutive samples. However, the absence of *E. crassitabulata* in the middle sample highlights the difficulty of consistently correlating this zone. In the absence of the indicator species the associated dinoflagellates in the assemblages are not found frequently enough for consistent correlation.

Upper *Lygistepollenites balmei* Zone:

2442.5-2445.8 metres      Late Paleocene.

The two samples are assigned to the Upper subdivision of the *L. balmei* Zone on the presence of the indicator species *Malvacipollis subtilis* and *Banksieaeidites elongatus* (at 2442.5m only). This interpretation is supported in the absence of other indicator species by a conspicuous increase in the abundance of *Myrtaceidites parvus/mesonesus* (3-4%) and *Haloragacidites harrisii* (6.7% at 2445.8m). The increase in abundance of *Dilwynites granulatus* and *D. tuberculatus* is not of age significance but instead parallels the increase in abundance of dinoflagellates and is also observed with the high dinoflagellate abundances in the *M. druggii* and *T. evittii* Zones.

*Apectodinium homomorphum* Zone: 2445.8 metres      Late Paleocene.

This zone can only be confidently identified in the deepest of the two samples referred to the Upper *L. balmei* Zone based on the presence of the eponymous species. The higher sample although it contains a relatively high dinoflagellate count does not contain any particularly diagnostic dinoflagellate species.

Lower *Malvacipollis diversus* Zone: 2418.1 metres      Early Eocene.

The single sample is assigned to the zone on the presence of *Proteacidites grandis*, *Malvacipollis diversus* and *M. subtilis* and absence of indicator species of the underlying *L. balmei* Zones. The assemblage from the sample is characterized by the very common occurrence of *Myrtaceidites* spp. (18.9%) and *Proteacidites* spp. (20.1%), the later mostly represented by small nondescript specimens. Only fragments of dinoflagellates were identified and it is the absence of distinctive dinoflagellates which suggests strongly that the sample is younger than the *A. hyperacanthum* dinoflagellate Zone which occurs consistently in other wells at the base of the Lower *M. diversus* Zone.

*Proteacidites tuberculatus* Zone: 2373.0 metres

Oligocene.

The presence of spores *Cyatheacidites annulatus* (4 specimens in count) and *Cyathidites subtilis* (1 specimen) in a marine sample from the base of the Lakes Entrance Formation allow confident assignment to this zone. The dinoflagellates are typical of the formation but none are stratigraphically restricted to this unit or particularly diagnostic.

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TABLE 1: INTERPRETATIVE PALYNOLOGICAL DATA ROUNDHEAD-1, GIPPSLAND BASIN

Sheet 1 of 2

SAMPLE TYPE	DEPTH (METRES)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE (OR ASSOCIATION)	CONFIDENCE RATING	COMMENT
SWC 60	2373.0	<i>P. tubercalatus</i>		0	<i>Nothofagidites</i> spp. dominant.
SWC 58	2378.5	Indeterminate			
SWC 57	2380.0	Indeterminate			
SWC 56	2407.1	Indeterminate			
SWC 55	2418.1	Lower <i>M. diversus</i>		1	<i>Myrtaceidites</i> spp. & <i>Proteacidites</i> spp. dominant
SWC 54	2442.5	Upper <i>L. balmei</i>		1	Characterised by <i>Parecaniella indentata</i>
SWC 53	2445.8	Upper <i>L. balmei</i>	<i>A. homomorphum</i>	0	A diverse marine sample
SWC 52	2484.0	Lower <i>L. balmei</i>		1	Coastal plain association
SWC 51	2487.1	Lower <i>L. balmei</i>		1	Coastal plain association
SWC 50	2505.9	Lower <i>L. balmei</i>		0	
SWC 49	2509.1	Lower <i>L. balmei</i>	<i>E. crassitabulata</i>	0	Early Cretaceous reworking present
SWC 48	2515.2	Lower <i>L. balmei</i>		0	
SWC 47	2535.8	Lower <i>L. balmei</i>	<i>E. crassitabulata</i>	0	A diverse marine assemblage
SWC 46	2540.0	Lower <i>L. balmei</i>		1	A marine assemblage
SWC 45	2546.8	Indeterminate			Low yield marine assemblage
SWC 43	2612.0	<i>L. balmei</i>		NA	Low yield marine assemblage
SWC 42	2614.0	Lower <i>L. balmei</i>		2	
SWC 41	2618.5	<i>L. balmei</i>		NA	Costal plain association
SWC 40	2639.0	Indeterminate			
SWC 38	2657.5	Lower <i>L. balmei</i>	( <i>A. circumtabulata</i> )	0	
SWC 37	2678.0	Lower <i>L. balmei</i>	( <i>A. circumtabulata</i> )	0	Low diversity marine assemblage
SWC 36	2679.1	Lower <i>L. balmei</i>		0	Low diversity marine assemblage
SWC 34	2693.5	<i>L. balmei</i>		NA	
SWC 33	2701.0	Indeterminate			
SWC 28	2731.3	Indeterminate			
SWC 26	2746.0	Lower <i>L. balmei</i>		1	
SWC 22	2789.0	Lower <i>L. balmei</i>		1	
SWC 21	2793.3	Lower <i>L. balmei</i>	( <i>P. pyrophorum</i> )	0	
SWC 20	2801.5	Lower <i>L. balmei</i>	<i>T. evittii</i>	0	A diverse marine assemblage
SWC 19	2804.5	Lower <i>L. balmei</i>	<i>T. evittii</i>	0	A diverse marine assemblage
SWC 18	2808.0	Lower <i>L. balmei</i>	<i>T. evittii</i>	0	A diverse marine assemblage



TABLE 1: INTERPRETATIVE PALYNOLOGICAL DATA ROUNDHEAD-1, GIPPSLAND BASIN (Cont.)

Sheet 2 of 2

SAMPLE TYPE	DEPTH (METRES)	SPORE-POLLEN ZONE	DINOFLAGELLATE ZONE (OR ASSOCIATION)	CONFIDENCE RATING	COMMENT
SWC 17	2812.0	Upper <i>T. longus</i>	<i>M. druggii</i>	0	Dominated by acritarchs
SWC 13	2855.5	Upper <i>T. longus</i>		1	<i>Gambierina</i> spp. 27%
SWC 12	2862.5	Upper <i>T. longus</i>		1	
SWC 11	2871.5	Indeterminate			
SWC 10	2879.5	Upper <i>T. longus</i>		1	
SWC 9	2891.0	Upper <i>T. longus</i>		1	<i>Gambierina</i> spp. 26%
SWC 8	2900.5	Upper <i>T. longus</i>		1	<i>Tricolpites waiparensis</i> 15%
SWC 5	2929.0	Upper <i>T. longus</i>		1	
SWC 4	2936.5	Upper <i>T. longus</i>		1	
SWC 3	2952.0	Upper <i>T. longus</i>		1	

PALYNOLOGY DATA SHEET

BASIN: GIPPSLAND

ELEVATION: KB: +21.0 m GL: -81.0 m

WELL NAME: ROUNDHEAD-1

TOTAL DEPTH: 2845.5 m

AGE	PALYNOLOGICAL ZONES	HIGHEST DATA					LOWEST DATA				
		Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
NEOGENE	<i>T. pleistocenicus</i>										
	<i>M. lipsis</i>										
	<i>C. bifurcatus</i>										
	<i>T. bellus</i>										
PALEOGENE	<i>P. tuberculatus</i>						2373	0			
	Upper <i>N. asperus</i>										
	Mid <i>N. asperus</i>										
	Lower <i>N. asperus</i>										
	<i>P. asperopolus</i>										
	Upper <i>M. diversus</i>										
	Mid <i>M. diversus</i>										
	Lower <i>M. diversus</i>	2418.1	1				2418.1	1			
	Upper <i>L. balmei</i>	2442.5	1				2445.8	0			
	Lower <i>L. balmei</i>	2484	1				2808	0			
	Upper <i>R. longus</i>	2812	0				2952	1			
LATE CRETACEOUS	Lower <i>R. longus</i>										
	<i>T. lilliei</i>										
	<i>N. senectus</i>										
	<i>T. apoxyexinus</i>										
	<i>P. mawsonii</i>										
	<i>A. distocarيناتus</i>										
EARLY CRET.	<i>P. pannosus</i>										
	<i>C. paradoxa</i>										
	<i>C. striatus</i>										
	<i>C. hughesi</i>										
	<i>F. wonthaggiensis</i>										
	<i>C. australiensis</i>										

COMMENTS: DINOFLLAGELLATE *A. homomorphum* 2445.8 m  
ZONES *E. crassitabulata* 2509.1 - 2535.8 m  
*T. evittii* 2801.5 - 2808.0 m  
*M. druggii* 2812.0 m

- CONFIDENCE RATING:
- 0: SWC or Core, Excellent Confidence, assemblage with zone species of spores, pollen and microplankton.
  - 1: SWC or Core, Good Confidence, assemblage with zone species of spores and pollen or microplankton.
  - 2: SWC or Core, Poor Confidence, assemblage with non-diagnostic spores, pollen and/or microplankton.
  - 3: Cuttings, Fair Confidence, assemblage with zone species of either spores and pollen or microplankton, or both.
  - 4: Cuttings, No Confidence, assemblage with non-diagnostic spores, pollen and/or microplankton.

NOTE: If an entry is given a 3 or 4 confidence rating, an alternative depth with a better confidence rating should be entered, if possible. If a sample cannot be assigned to one particular zone, then no entry should be made, unless a range of zones is given where the highest possible limit will appear in one zone and the lowest possible limit in another.

DATA RECORDED BY: A.D. PARTRIDGE DATE: SEPTEMBER 1989

DATA REVISED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**BASIC DATA**

TABLE-2: BASIC DATA

TABLE-3: PALYNOMORPH COUNTS

TABLE-4: PALYNOMORPH PERCENTAGES

RANGE CHART

TABLE 2: BASIC PALYNOLOGICAL DATA ROUNDHEAD-1, GIPPSLAND BASIN

Sheet 1 of 2

SAMPLE TYPE	DEPTH (M)	LAB NO.	LITHOLOGY	RESIDUE YIELD	PALYNOMORPH CONCENTRATION	PRESERVATION	NUMBER S-P SPECIES	DINOFLAGELLATE ABUNDANCE	NO. SPECIES
SWC 60	2373.0	78240 H	Calcareous claystone	Moderate	Moderate	Poor-fair	19+	High	6+
SWC 58	2378.5	78240 F	Glauconitic sandstone	Negligible	Barren				
SWC 57	2380.0	78240 E	Glauconitic sandstone	Negligible	Barren				
SWC 56	2407.1	78240 D	Qtz sst with tr. glauconite	Very low	Very low	Poor	3+		
SWC 55	2418.1	78240 C	Sandstone	High	Low	Fair-good	29+		1+
SWC 54	2442.5	78240 B	Glauconitic sandstone	Low	Moderate	Fair	24+	High	8+
SWC 53	2445.8	78240 A	Glauconitic sandstone	High	High	Good	31+	High	9+
SWC 52	2484.0	78203 Z	Siltstone	High	High	Poor-fair	32+		
SWC 51	2487.1	78203 Y	Siltstone	High	High	Fair	27+	Very low	1
SWC 50	2505.9	78203 X	Siltstone	High	Moderate	Poor-fair	29+	Moderate	6+
SWC 49	2509.1	78203 W	Siltstone	Moderate	Moderate	Fair-good	26+	Moderate	5+
SWC 48	2515.2	78203 V	Silty sandstone	Moderate	Moderate	Poor	22+	Moderate	4+
SWC 47	2535.8	78203 U	Sandstone	Moderate	High	Poor	33+	High	8+
SWC 46	2540.0	78203 T	Glauconitic sandstone	Moderate	Moderate	Poor-fair	11+	Moderate	4+
SWC 45	2546.8	78203 S	Calcareous siltstone	Very low	Low	Poor-fair	6+	Low	2+
SWC 43	2612.0	78203 Q	Slightly calc. siltstone	Very low	Low	Poor	18+	Low	2
SWC 42	2614.0	78203 P	Silty sandstone	Moderate	Low	Poor	14+	Low	3
SWC 41	2618.5	78203 O	Calcareous siltstone	Low	Low	Poor	11+	Low	2
SWC 40	2639.0	78203 N	Fine sandstone	Very low	Barren				
SWC 38	2657.5	78203 L	Medium grn. sandstone	High	High	Poor-fair	28+	Moderate	8+
SWC 37	2678.0	78203 K	Calcareous siltstone	High	Low	Fair	33+	High	3+
SWC 36	2679.1	78203 J	Sandy siltstone	Moderate	High	Fair	18+	High	4+
SWC 34	2693.5	78203 H	Medium grn. sandstone	Very low	Low	Fair	10+	Low	1
SWC 33	2701.0	78203 G	Fine grn. sandstone	Very low	Very low	Poor	4+		
SWC 28	2731.3	78203 B	Fing grn. sandstone	Negligible	Barren				
SWC 26	2746.0	78202 Z	Fine - v. coarse sandstone	Low	High	Fair-good	28+	Low	2+
SWC 22	2789.0	78202 V	Sandstone with tr. glauconite	High	Low	Fair	19+	Low	2+
SWC 21	2793.3	78202 U	Glauconitic sandstone	High	Low	Fair	29+	Low	5+
SWC 20	2801.5	78202 T	Glauconitic siltstone	High	High	Poor-fair	24+	High	7+
SWC 19	2804.5	78202 S	Glauconitic siltstone	Low	High	Fair	23+	High	8+
SWC 18	2808.0	78202 R	Glauconitic siltstone	High	High	Poor-fair	13+	High	10+

TABLE 2: BASIC PALYNOLOGICAL DATA ROUNDHEAD-1, GIPPSLAND BASIN (Cont.)

Sheet 2 of 2

SAMPLE TYPE	DEPTH (M)	LAB NO.	LITHOLOGY	RESIDUE YIELD	PALYNOMORPH CONCENTRATION	PRESERVATION	NUMBER S-P SPECIES	DINOFLAGELLATE ABUNDANCE	NO. SPECIES
SWC 17	2812.0	78202 Q	Glauconitic siltstone	Low	Low	Very poor	14+	High	8+
SWC 13	2855.5	78202 M	Calc. siltstone	High	Moderate	Poor	20		
SWC 12	2862.5	78202 L	Carbonaceous sandstone	High	High	Poor-fair	17		
SWC 11	2871.5	78202 K	Carbonaceous siltstone	Moderate	Very low	Poor-fair	2+		
SWC 10	2879.5	78202 J	Carbonaceous siltstone	High	Moderate	Poor-fair	17		
SWC 9	2891.0	78202 I	Claystone	High	High	Very poor	29	Very Low	1+
SWC 8	2900.5	78202 H	Carbonaceous siltstone	High	Very high	Poor	26		
SWC 5	2929.0	78202 E	Silty claystone	High	Moderate	Fair	17		
SWC 4	2936.5	78202 D	Coally siltstone	High	High	Poor	20		
SWC 3	2952.0	78202 C	Carbonaceous siltstone	High	High	Poor-fair	27		

TABLE-3: PALYNOMORPH COUNTS FROM ROUNDHEAD-1.

	2373.0m SWC 60	2418.1m SWC 55	2442.5m SWC 54	2445.8m SWC 53	2484.0m SWC 52	2487.1m SWC 51	2505.9m SWC 50	2509.1m SWC 49
TRILETE SPORES undiff.	8	10	5	5	5	2	4	3
Cyatheacidites annulatus	4							
Cyathidites spp.	19	11	1	6	4	7	2	4
Gleicheniidites spp.		14	10	4	8	9	5	5
Herkosporites elliotii								
Stereisporites spp.	2	11		1	2		1	
MONOLETE SPORES								
Laevigatosporites spp.	6	7	3	4	14	5	11	13
Peromonolites spp.					3	3	1	4
Verrucatosporites spp.	1					1		1
TOTAL SPORES	40	53	19	20	36	27	24	30
GYMNOSPERM POLLEN								
Araucariacites australis	1	4	5	1	1		4	5
Dilwynites spp.	12	25	32	61	15	13	16	12
Dacrycarpites australiensis								
Lygistepollenites balmei			11	8	21	28	18	18
Lygistepollenites florinii	7	3	5	6	2	2	5	2
Microcachrydites antarcticus		2	10	7	2	2	3	1
Parvisaccatus catastus				3				1
Phyllocladidites mawsonii	27	8	4	5	58	50	51	42
Phyllocladus paleogenicus		1						1
Podocarpidites spp.	17	21	18	30	45	45	51	51
Podosporites microsaccatus		4			5	3	3	6
TOTAL GYMNASPERM POLLEN	64	68	85	121	149	143	151	139
ANGIOSPERM POLLEN undiff.	2	8	3	6	1	1	5	2
Australopollis obscurus				4	2	1	3	1
Casuarina (H. harrisii)	6	7	1	18	2	1	1	
Dicotetradites clavatus		1	3	5	1	1	1	2
Gambierina rudata/edwardsii			1	3			3	
Liliacidites spp.								
Myrtaceidites spp.	14	60	7	9	1			
Nothofagidites 'brassii' type	39		12	17	23	14	15	24
Nothofagidites 'fusca' type	1	1	4	10	3	2	2	2
Penninsulapollis gillii					2		1	
Periporopollenites spp.		4		10	1	1	3	5
Proteacidites angulatus								
Proteacidites clinei								
Proteacidites grandis		2						
Proteacidites reticuloconcaus								
Proteacidites spp.	1	62	17	5	61	41	27	38
Tricolpites confessus								
Tricolpites waiparensis								
Tricolpites spp.		4	2		1	2	1	1
Tricolporites lilliei								
Tricolporites spp.	4	41	3	29	5	11	17	10
Triporopollenites spp. (small)		7	1	11	5	46	19	10
TOTAL ANGIOSPERM POLLEN	67	197	54	127	108	121	98	95
TOTAL SPORES & POLLEN	171	318	158	268	293	291	273	264
FUNGAL SPORES	47	31	5	19	29	5	4	18
ALGAE								
Amospollis cruciformis				3				
Dinoflagellates undiff.	20	3	17	24			9	5
Areoligera spp.								
Deflandrea spp.			12				3	1
Eisenackia/Alisocysta complex								2
Glaphrocysta spp.							1	
Manumiella druggii complex								
Operculodinium centrocarpum	13							
Parecaniella indentata			18	5				
Senegalinium dilwynensis			8	4			1	
Spinidinium spp.			4	1		1		
Spiniferites spp.	28			6			1	
Trithyrodinium evittii								
DINOFLLAGELLATES TOTAL	61	3	59	40	0	1	15	8
ACRITARCHS	9		5	76				1
MICROPLANKTON TOTAL	70	3	64	116	0	1	15	9
TOTAL COUNT	288	352	227	406	322	297	292	291

TABLE-3: PALYNOMORPH COUNTS FROM ROUNDHEAD-1.

	2515.2m SWC 48	2535.8m SWC 47	2540.0m SWC 46	2612.0m SWC 43	2614.0m SWC 42	2618.5m SWC 41	2657.5m SWC 38	2678.0m SWC 37
TRILETE SPORES undiff.	2		4	4	5		6	1
Cyatheacidites annulatus								
Cyathidites spp.	7	3	2	3	2	2	3	4
Gleicheniidites spp.	3	7	3		2	1	1	1
Herkosporites elliotii								3
Stereisporites spp.		1			1		1	2
MONOLETE SPORES								
Laevigatosporites spp.	4	13	1	2		2	12	4
Peromonolites spp.		1		1				1
Verrucatosporites spp.		1						
TOTAL SPORES	16	26	10	10	10	5	23	16
GYMNOSPERM POLLEN								
Araucariacites australis	1	6	1			1		
Dilwynites spp.	17	50	16	1	4	2	4	1
Dacrycarpites australiensis		2					1	
Lygistepollenites balmei	30	16	3	1	7	1	6	4
Lygistepollenites florinii	2	4	5	3	4	3		1
Microcachryidites antarcticus	2	6	3	3	2	4	3	1
Parvisaccatus catastus								
Phyllocladidites mawsonii	18	30	15	17	12	21	37	20
Phyllocladus paleogenicus		1		2				1
Podocarpidites spp.	31	26	12	11	16	25	40	31
Podosporites microsaccatus		6	2	1	1	2	1	1
TOTAL GYMNASPERM POLLEN	101	147	57	39	46	59	92	60
ANGIOSPERM POLLEN undiff.	3	3	2	2	1	3	3	1
Australopollis obscurus				7	1	3	7	
Casuarina (H. harrisii)	1							
Dicotetradites clavatus	1	1						
Gambierina rudata/edwardsii	1			1				
Liliacidites spp.								
Myrtaceidites spp.			1					
Nothofagidites 'brassii' type	7	19	6	1	1		2	3
Nothofagidites 'fusca' type	6	7	3		1		2	
Penninsulapollis gillii	1	1	3	1	1	5	9	1
Periporopollenites spp.		9	3	1	1	1	1	
Proteacidites angulatus								
Proteacidites clinei								
Proteacidites grandis								
Proteacidites reticuloconcaus								
Proteacidites spp.	26	39	9	28	18	37	50	33
Tricolpites confessus								
Tricolpites waiparensis								
Tricolpites spp.	5	12	1		3	2	3	4
Tricolporites lillieii								
Tricolporites spp.	2	15	3	10	12	13	34	7
Triporopollenites spp. (small)	9	15	2	6	20	17	20	
TOTAL ANGIOSPERM POLLEN	62	121	33	57	59	81	131	49
TOTAL SPORES & POLLEN	179	294	100	106	115	145	246	125
FUNGAL SPORES	1		8	6	9	3	32	10
ALGAE								
Amosopollis cruciformis	1						1	
Dinoflagellates undiff.	4	30	2	1	1		5	4
Areoligera spp.								
Deflandrea spp.							2	
Eisenackia/Alisocysta complex	2	1						1
Glaphrocysta spp.								
Manumiella druggii complex								
Operculodinium centrocarpum								
Parecianiella indentata	1							
Senegalinium dilwynensis		14	5					
Spinidinium spp.	1	25	1	1	1	1		11
Spiniferites spp.								
Trithyrodinium evittii								
DINOFLAGELLATES TOTAL	8	70	8	2	2	1	7	16
ACRITARCHS		15	2		5	1	5	
MICROPLANKTON TOTAL	8	85	10	2	7	2	12	16
TOTAL COUNT	189	379	118	114	131	150	291	151

TABLE-3: PALYNOMORPH COUNTS FROM ROUNDHEAD-1.

	2679.1m SWC 36	2746.0m SWC 26	2789.0m SWC 22	2793.3m SWC 21	2801.5m SWC 20	2804.5m SWC 19	2808.0m SWC 18	2812.0m SWC 17
TRILETE SPORES undiff.	5	11	13	9	6	2	1	3
Cyatheacidites annulatus								
Cyathidites spp.	6	2	1	2	1	5	1	10
Gleicheniidites spp.	3	3		1		1	2	1
Herkosporites elliotii								
Stereisporites spp.	1		6	3	2	6	4	2
MONOLETE SPORES			1	1				
Laevigatosporites spp.	4	8	19	17	2	8	3	
Peromonolites spp.		1		1				
Verrucatosporites spp.								
TOTAL SPORES	19	25	40	34	11	22	11	16
GYMNOSPERM POLLEN			1			1		
Araucariacites australis					2	1	1	1
Dilwynites spp.	1	4	9	7	43	40	34	9
Dacrycarpites australiensis								
Lygistepollenites balmei	8	10	1	2	1			
Lygistepollenites florinii	3	12	2	6	13	1	3	1
Microcachryidites antarcticus	10	6	5	3	5	4	4	1
Parvisaccatus catastus								
Phyllocladites mawsonii	38	53	32	21	8	4	4	2
Phyllocladus paleogenicus		1		1	1	1		
Podocarpidites spp.	72	62	51	63	61	13	53	7
Podosporites microsaccatus	4	7	10	6	1	1	1	
TOTAL GYMNASPERM POLLEN	136	155	111	109	135	66	100	21
ANGIOSPERM POLLEN undiff.	5	5	1	3	2	3	5	1
Australopollis obscurus	6	1					1	1
Casuarina (H. harrisii)								
Dicotetradites clavatus								
Gambierina rudata/edwardsii	1				1	1	1	
Liliacidites spp.								
Myrtaceidites spp.								
Nothofagidites 'brassii' type	3	2	2	2	1	5		
Nothofagidites 'fusca' type	1		2			1	1	
Penninsulapollis gillii	8	4	12	8	17	15	23	2
Periporopollenites spp.	3	4	2	2	5	1	3	
Proteacidites angulatus	6	4	2					
Proteacidites clinei								
Proteacidites grandis								
Proteacidites reticuloconcaus								
Proteacidites spp.	52	19	45	24	15	20	10	8
Tricolpites confusus								
Tricolpites waiparensis								
Tricolpites spp.	4	16	4	7	4	8	2	1
Tricolporites lilliei								
Tricolporites spp.	2	7	6	24	16	11	23	2
Tripoporopollenites spp. (small)		13	16	21	9	26	15	2
TOTAL ANGIOSPERM POLLEN	91	75	92	91	70	91	84	17
TOTAL SPORES & POLLEN	246	255	243	234	216	179	195	54
FUNGAL SPORES	2	2	12		1	3	9	16
ALGAE								
Amosopollis cruciformis				2	4			
Dinoflagellates undiff.	5	2	1	2	18	16	26	16
Areoligera spp.								15
Deflandrea spp.	8				4		4	1
Eisenackia/Alisocysta complex								
Glaphrocysta spp.						3		
Manumiella druggii complex								8
Operculodinium centrocarpum					3			
Parecaniella indentata		1		1	2		1	
Senegalinium dilwynensis						3	9	
Spinidinium spp.	23	1	1		68	3	12	
Spiniferites spp.						1	2	
Trithyrodinium evittii					6	5	32	
DINOFLAGELLATES TOTAL	36	4	2	3	101	31	86	40
ACRITARCHS	1			6	4	4	53	83
MICROPLANKTON TOTAL	37	4	2	9	105	35	139	123
TOTAL COUNT	285	261	257	245	326	217	343	193



TABLE-3: PALYNOMORPH COUNTS FROM ROUNDHEAD-1.

	2855.5m SWC 13	2862.5m SWC 12	2879.5m SWC 10	2891.0m SWC 9	2900.5m SWC 8	2929.0m SWC 5	2936.5m SWC 4	2952.0m SWC 3
TRILETE SPORES undiff.	7	9		10	3	1	2	8
Cyatheacidites annulatus								
Cyathidites spp.	5	6	5	10	3	5		13
Gleicheniidites spp.	1			2				4
Herkosporites elliotii		4						
Stereisporites spp.			2	11	8	3		6
MONOLETE SPORES								
Laevigatosporites spp.	7	3	3	5	9	10	7	10
Peromonolites spp.								
Verrucatosporites spp.								
TOTAL SPORES	20	22	10	38	23	19	9	41
GYMNOSPERM POLLEN								
Araucariacites australis		2	2	1		1		1
Dilwynites spp.				2	1		2	1
Dacrycarpites australiensis								
Lygistepollenites balmei				1				
Lygistepollenites florinii	1					1	10	5
Microcachryidites antarcticus	1		1	1	1	1	6	2
Parvisaccatus catastus								
Phyllocladidites mawsonii	11	20	31	20	47	46	70	32
Phyllocladus paleogenicus							1	
Podocarpidites spp.	4	3	9	18	10	12	30	17
Podosporites microsaccatus	2	2	4	2	11	6	40	6
TOTAL GYMNASPERM POLLEN	19	27	47	45	70	67	159	64
ANGIOSPERM POLLEN undiff.	5			5	1	2	11	7
Australopollis obscurus								
Casuarina (H. harrisii)								
Dicotetradites clavatus			1					
Gambierina rudata/edwardsii	40	22	29	70	27	24	12	16
Liliacidites spp.	2				11			
Myrtaceidites spp.								
Nothofagidites 'brassii' type					1	1		1
Nothofagidites 'fusca' type				1				1
Penninsulapollis gillii	5	8	4	18	5	10	3	7
Periporopollenites spp.		1	2					
Proteacidites angulatus								
Proteacidites clinei				2		8		
Proteacidites grandis								
Proteacidites reticuloconcaus		1		12			3	
Proteacidites spp.	56	84	105	75	69	91	44	100
Tricolpites confessus			5					
Tricolpites waiparensis				1	44			
Tricolpites spp.	1	1	11	3	28	5	1	9
Tricolporites lilliei					6			
Tricolporites spp.	1	4	1		9	6	27	4
Tripoporopollenites spp. (small)						1		
TOTAL ANGIOSPERM POLLEN	110	121	158	187	201	148	101	145
TOTAL SPORES & POLLEN	149	170	215	270	294	234	269	250
FUNGAL SPORES	2	16	17	10	11	2	2	4
ALGAE								
Amosopollis cruciformis					5			
Dinoflagellates undiff.				1				
Areoligera spp.								
Deflandrea spp.								
Eisenackia/Alisocysta complex								
Glaphrocysta spp.								
Manumiella druggii complex								
Operculodinium centrocarpum								
Parecianiella indentata								
Senegalinium dilwynensis								
Spinidinium spp.				1				
Spiniferites spp.								
Trithyrodinium evittii								
DINOFAGELLATES TOTAL				2				
ACRITARCHS					2			
MICROPLANKTON TOTAL	0	0	0	2	2	0	0	0
TOTAL COUNT	151	186	232	282	312	236	271	254

TABLE-4: PALYNOMORPH PERCENTAGES FROM ROUNDHEAD-1.

	2373.0m SWC 60	2418.1m SWC 55	2442.5m SWC 54	2445.8m SWC 53	2484.0m SWC 52	2487.1m SWC 51	2505.9m SWC 50	2509.1m SWC 49
TRILETE SPORES undiff.	4.7%	3.1%	3.2%	1.9%	1.7%	0.7%	1.5%	1.1%
Cyatheacidites annulatus	2.3%							
Cyathidites spp.	11.1%	3.5%	0.6%	2.2%	1.4%	2.4%	0.7%	1.5%
Gleicheniidites spp.		4.4%	6.3%	1.5%	2.7%	3.1%	1.8%	1.9%
Herkosporites elliotii								
Stereisporites spp.	1.2%	3.5%		0.4%	0.7%		0.4%	
MONOLETE SPORES								
Laevigatosporites spp.	3.5%	2.2%	1.9%	1.5%	4.8%	1.7%	4.0%	4.9%
Peromonolites spp.					1.0%	1.0%	0.4%	1.5%
Verrucatosporites spp.	0.6%					0.3%		0.4%
TOTAL SPORES	23.4%	16.7%	12.0%	7.5%	12.3%	9.3%	8.8%	11.4%
GYMNOSPERM POLLEN								
Araucariacites australis	0.6%	1.3%	3.2%	0.4%	0.3%	0.0%	1.5%	1.9%
Dilwynites spp.	7.0%	7.9%	20.3%	22.8%	5.1%	4.5%	5.9%	4.5%
Dacrycarpites australiensis								
Lygistepollenites balmei			7.0%	3.0%	7.2%	9.6%	6.6%	6.8%
Lygistepollenites florinii	4.1%	0.9%	3.2%	2.2%	0.7%	0.7%	1.8%	0.8%
Microcachrydites antarcticus		0.6%	6.3%	2.6%	0.7%	0.7%	1.1%	0.4%
Parvisaccatus catastus				1.1%				0.4%
Phyllocladidites mawsonii	15.8%	2.5%	2.5%	1.9%	19.8%	17.2%	18.7%	15.9%
Phyllocladus paleogenicus		0.3%						0.4%
Podocarpidites spp.	9.9%	6.6%	11.4%	11.2%	15.4%	15.5%	18.7%	19.3%
Podosporites microsaccatus		1.3%			1.7%	1.0%	1.1%	2.3%
TOTAL GYMNASPERM POLLEN	37.4%	21.4%	53.8%	45.1%	50.9%	49.1%	55.3%	52.7%
ANGIOSPERM POLLEN undiff.	1.2%	2.5%	1.9%	2.2%	0.3%	0.3%	1.8%	0.8%
Australopollis obscurus				1.5%	0.7%	0.3%	1.1%	0.4%
Casuarina (H. harrisii)	3.5%	2.2%	0.6%	6.7%	0.7%	0.3%	0.4%	
Dicotetradites clavatus		0.3%	1.9%	1.9%	0.3%	0.3%	0.4%	0.8%
Gambierina rudata/edwardsii			0.6%	1.1%			1.1%	
Liliacidites spp.								
Myrtacidites spp.	8.2%	18.9%	4.4%	3.4%	0.3%			
Nothofagidites 'brassii' type	22.8%		7.6%	6.3%	7.8%	4.8%	5.5%	9.1%
Nothofagidites 'fusca' type	0.6%	0.3%	2.5%	3.7%	1.0%	0.7%	0.7%	0.8%
Penninsulapollis gillii					0.7%		0.4%	
Periporopollenites spp.		1.3%		3.7%	0.3%	0.3%	1.1%	1.9%
Proteacidites angulatus								
Proteacidites clinei								
Proteacidites grandis		0.6%						
Proteacidites reticuloconcaus								
Proteacidites spp.	0.6%	19.5%	10.8%	1.9%	20.8%	14.1%	9.9%	14.4%
Tricolpites confessus								
Tricolpites waiparensis								
Tricolpites spp.		1.3%	1.3%		0.3%	0.7%	0.4%	0.4%
Tricolporites lilliei								
Tricolporites spp.	2.3%	12.9%	1.9%	10.8%	1.7%	3.8%	6.2%	3.8%
Tripoporopollenites spp. (small)		2.2%	0.6%	4.1%	1.7%	15.8%	7.0%	3.8%
TOTAL ANGIOSPERM POLLEN	39.2%	61.9%	34.2%	47.4%	36.9%	41.6%	35.9%	36.0%
TOTAL SPORES & POLLEN COUNT	171	318	158	268	293	291	273	264
DINOFLLAGELLATES undiff.	28.6%	100.0%	26.6%	20.7%			60.0%	55.6%
Areoligera spp.								
Deflandrea spp.			18.8%				20.0%	11.1%
Eisenackia/Alisocyst complex								22.2%
Glaphrocysta spp.							6.7%	
Manumiella druggii complex								
Operculodinium centrocarpum	18.6%							
Parecaniella indentata			28.1%	4.3%				
Senegalinium dilwynensis			12.5%	3.4%			6.7%	
Spinidinium spp.			6.3%	0.9%		100.0%		
Spiniferites spp.	40.0%			5.2%			6.7%	
Trithyrodinium evittii								
DINOFLLAGELLATES TOTAL	87.1%	100.0%	92.2%	34.5%		100.0%	100.0%	88.9%
ACRITARCHS	12.9%		7.8%	65.5%				11.1%
TOTAL MICROPLANKTON COUNT	70	3	64	116	0	1	15	9
PERCENTAGES FOR MAJOR CATEGORIES								
Spores %	13.9%	15.1%	8.4%	4.9%	11.2%	9.1%	8.2%	10.3%
Gymnosperm Pollen %	22.2%	19.3%	37.4%	29.8%	46.3%	48.1%	51.7%	47.8%
Angiosperm Pollen %	23.3%	56.0%	23.8%	31.3%	33.5%	40.7%	33.6%	32.6%
TOTAL Spore-Pollen %	59.4%	90.3%	69.6%	66.0%	91.0%	98.0%	93.5%	90.7%
Fungal Spores %	16.3%	8.8%	2.2%	4.7%	9.0%	1.7%	1.4%	6.2%
Algae %				0.7%				
Dinoflagellate %	21.2%	0.9%	26.0%	9.9%		0.3%	5.1%	2.7%
Acritarch %	3.1%		2.2%	18.7%				0.3%
TOTAL Microplankton %	24.3%	0.9%	28.2%	28.6%		0.3%	5.1%	3.1%
TOTAL COUNT	288	352	227	406	322	297	292	291

TABLE-4: PALYNOMORPH PERCENTAGES FROM ROUNDHEAD-1.

	2515.2m SWC 48	2535.8m SWC 47	2540.0m SWC 46	2612.0m SWC 43	2614.0m SWC 42	2618.5m SWC 41	2657.5m SWC 38	2678.0m SWC 37
TRILETE SPORES undiff.	1.1%		4.0%	3.8%	4.3%		2.4%	0.8%
Cyatheacidites annulatus								
Cyathidites spp.	3.9%	1.0%	2.0%	2.8%	1.7%	1.4%	1.2%	3.2%
Gleicheniidites spp.	1.7%	2.4%	3.0%		1.7%	0.7%	0.4%	0.8%
Herkosporites elliotii								2.4%
Stereisporites spp.		0.3%			0.9%		0.4%	1.6%
MONOLETE SPORES								
Laevigatosporites spp.	2.2%	4.4%	1.0%	1.9%		1.4%	4.9%	3.2%
Peromonolites spp.		0.3%		0.9%				0.8%
Verrucatosporites spp.		0.3%						
TOTAL SPORES	8.9%	8.8%	10.0%	9.4%	8.7%	3.4%	9.3%	12.8%
GYMNOSPERM POLLEN								
Araucariacites australis	0.6%	2.0%	1.0%			0.7%		
Dilwynites spp.	9.5%	17.0%	16.0%	0.9%	3.5%	1.4%	1.6%	0.8%
Dacrycarpites australiensis		0.7%					0.4%	
Lygistepollenites balmei	16.8%	5.4%	3.0%	0.9%	6.1%	0.7%	2.4%	3.2%
Lygistepollenites florinii	1.1%	1.4%	5.0%	2.8%	3.5%	2.1%		0.8%
Microcachrydites antarcticus	1.1%	2.0%	3.0%	2.8%	1.7%	2.8%	1.2%	0.8%
Parvisaccatus catastus								
Phyllocladites mawsonii	10.1%	10.2%	15.0%	16.0%	10.4%	14.5%	15.0%	16.0%
Phyllocladus paleogenicus		0.3%		1.9%				0.8%
Podocarpidites spp.	17.3%	8.8%	12.0%	10.4%	13.9%	17.2%	16.3%	24.8%
Podosporites microsaccatus		2.0%	2.0%	0.9%	0.9%	1.4%	0.4%	0.8%
TOTAL GYMNASPERM POLLEN	56.4%	50.0%	57.0%	36.8%	40.0%	40.7%	37.4%	48.0%
ANGIOSPERM POLLEN undiff.	1.7%	1.0%	2.0%	1.9%	0.9%	2.1%	1.2%	0.8%
Australopollis obscurus				6.6%	0.9%	2.1%	2.8%	
Casuarina (H. harrisii)	0.6%							
Dicotetradites clavatus	0.6%	0.3%						
Gambierina rudata/edwardsii	0.6%			0.9%				
Liliacidites spp.								
Myrtaceidites spp.			1.0%					
Nothofagidites 'brassii' type	3.9%	6.5%	6.0%	0.9%	0.9%		0.8%	2.4%
Nothofagidites 'fusca' type	3.4%	2.4%	3.0%		0.9%		0.8%	
Penninsulapollis gillii	0.6%	0.3%	3.0%	0.9%	0.9%	3.4%	3.7%	0.8%
Periporopollenites spp.		3.1%	3.0%	0.9%	0.9%	0.7%	0.4%	
Proteacidites angulatus								
Proteacidites clinei								
Proteacidites grandis								
Proteacidites reticuloconcaus								
Proteacidites spp.	14.5%	13.3%	9.0%	26.4%	15.7%	25.5%	20.3%	26.4%
Tricolpites confessus								
Tricolpites waiparensis								
Tricolpites spp.	2.8%	4.1%	1.0%		2.6%	1.4%	1.2%	3.2%
Tricolporites lilliei								
Tricolporites spp.	1.1%	5.1%	3.0%	9.4%	10.4%	9.0%	13.8%	5.6%
Tripoporopollenites spp. (small)	5.0%	5.1%	2.0%	5.7%	17.4%	11.7%	8.1%	
TOTAL ANGIOSPERM POLLEN	34.6%	41.2%	33.0%	53.8%	51.3%	55.9%	53.3%	39.2%
TOTAL SPORES & POLLEN COUNT	179	294	100	106	115	145	246	125
DINOFLAGELLATES undiff.	50.0%	35.3%	20.0%	50.0%	14.3%		41.7%	25.0%
Areoligera spp.								
Deflandrea spp.							16.7%	
Eisenackia/Alisocysta complex	25.0%	1.2%						6.3%
Glaphrocysta spp.								
Manumiella druggii complex								
Operculodinium centrocarpum								
Parecianiella indentata	12.5%							
Senegalinium dilwynensis		16.5%	50.0%					
Spinidinium spp.	12.5%	29.4%	10.0%	50.0%	14.3%	50.0%		68.8%
Spiniferites spp.								
Trithyrodinium evittii								
DINOFLAGELLATES TOTAL	100.0%	82.4%	80.0%	100.0%	28.6%	50.0%	58.3%	100.0%
ACRITARCHS		17.6%	20.0%		71.4%	50.0%	41.7%	
TOTAL MICROPLANKTON COUNT	8	85	10	2	7	2	12	16
PERCENTAGES FOR MAJOR CATEGORIES								
Spores %	8.5%	6.9%	8.5%	8.8%	7.6%	3.3%	7.9%	10.6%
Gymnosperm Pollen %	53.4%	38.8%	48.3%	34.2%	35.1%	39.3%	31.6%	39.7%
Angiosperm Pollen %	32.8%	31.9%	28.0%	50.0%	45.0%	54.0%	45.0%	32.5%
TOTAL Spore-Pollen %	94.7%	77.6%	84.7%	93.0%	87.8%	96.7%	84.5%	82.8%
Fungal Spores %	0.5%		6.8%	5.3%	6.9%	2.0%	11.0%	6.6%
Algae %	0.5%						0.3%	
Dinoflagellate %	4.2%	18.5%	6.8%	1.8%	1.5%	0.7%	2.4%	10.6%
Acritarch %		4.0%	1.7%		3.8%	0.7%	1.7%	
TOTAL Microplankton %	4.2%	22.4%	8.5%	1.8%	5.3%	1.3%	4.1%	10.6%
TOTAL COUNT	189	379	118	114	131	150	291	151

TABLE-4: PALYNOMORPH PERCENTAGES FROM ROUNDHEAD-1.

	2679.1m SWC 36	2746.0m SWC 26	2789.0m SWC 22	2793.3m SWC 21	2801.5m SWC 20	2804.5m SWC 19	2808.0m SWC 18	2812.0m SWC 17
TRILETE SPORES undiff.	2.0%	4.3%	5.3%	3.8%	2.8%	1.1%	0.5%	5.6%
Cyatheacidites annulatus								
Cyathidites spp.	2.4%	0.8%	0.4%	0.9%	0.5%	2.8%	0.5%	18.5%
Gleicheniidites spp.	1.2%	1.2%		0.4%		0.6%	1.0%	1.9%
Herkosporites elliotii								
Stereisporites spp.	0.4%		2.5%	1.3%	0.9%	3.4%	2.1%	3.7%
MONOLETE SPORES			0.4%	0.4%				
Laevigatosporites spp.	1.6%	3.1%	7.8%	7.3%	0.9%	4.5%	1.5%	
Peromonolites spp.		0.4%		0.4%				
Verrucatosporites spp.								
TOTAL SPORES	7.7%	9.8%	16.5%	14.5%	5.1%	12.3%	5.6%	29.6%
GYMNOSPERM POLLEN			0.4%			0.6%		
Araucariacites australis					0.9%	0.6%	0.5%	1.9%
Dilwynites spp.	0.4%	1.6%	3.7%	3.0%	19.9%	22.3%	17.4%	16.7%
Dacrycarpites australiensis								
Lygistepollenites balmei	3.3%	3.9%	0.4%	0.9%	0.5%			
Lygistepollenites florinii	1.2%	4.7%	0.8%	2.6%	6.0%	0.6%	1.5%	1.9%
Microcachryidites antarcticus	4.1%	2.4%	2.1%	1.3%	2.3%	2.2%	2.1%	1.9%
Parvisaccatus catastus								
Phyllocladidites mawsonii	15.4%	20.8%	13.2%	9.0%	3.7%	2.2%	2.1%	3.7%
Phyllocladus paleogenicus		0.4%		0.4%	0.5%	0.6%		
Podocarpidites spp.	29.3%	24.3%	21.0%	26.9%	28.2%	7.3%	27.2%	13.0%
Podosporites microsaccatus	1.6%	2.7%	4.1%	2.6%	0.5%	0.6%	0.5%	
TOTAL GYMNASPERM POLLEN	55.3%	60.8%	45.7%	46.6%	62.5%	36.9%	51.3%	38.9%
ANGIOSPERM POLLEN undiff.	2.0%	2.0%	0.4%	1.3%	0.9%	1.7%	2.6%	1.9%
Australopollis obscurus	2.4%	0.4%					0.5%	1.9%
Casuarina (H. harrisii)								
Dicotetradites clavatus								
Gambierina rudata/edwardsii	0.4%				0.5%	0.6%	0.5%	
Liliacidites spp.								
Myrtaceidites spp.								
Nothofagidites 'brassii' type	1.2%	0.8%	0.8%	0.9%	0.5%	2.8%		
Nothofagidites 'fusca' type	0.4%		0.8%			0.6%	0.5%	
Penninsulapollis gillii	3.3%	1.6%	4.9%	3.4%	7.9%	8.4%	11.8%	3.7%
Periporopollenites spp.	1.2%	1.6%	0.8%	0.9%	2.3%	0.6%	1.5%	
Proteacidites angulatus	2.4%	1.6%	0.8%					
Proteacidites clinei								
Proteacidites grandis								
Proteacidites reticuloconcaus								
Proteacidites spp.	21.1%	7.5%	18.5%	10.3%	6.9%	11.2%	5.1%	14.8%
Tricolpites confessus								
Tricolpites waiparensis								
Tricolpites spp.	1.6%	6.3%	1.6%	3.0%	1.9%	4.5%	1.0%	1.9%
Tricolporites lillieii								
Tricolporites spp.	0.8%	2.7%	2.5%	10.3%	7.4%	6.1%	11.8%	3.7%
Tripoporopollenites spp. (small)		5.1%	6.6%	9.0%	4.2%	14.5%	7.7%	3.7%
TOTAL ANGIOSPERM POLLEN	37.0%	29.4%	37.9%	38.9%	32.4%	50.8%	43.1%	31.5%
TOTAL SPORES & POLLEN COUNT	246	255	243	234	216	179	195	54
DINOFLAGELLATES undiff.	13.5%	50.0%	50.0%	22.2%	17.1%	45.7%	18.7%	13.0%
Areoligera spp.								12.2%
Deflandrea spp.	21.6%				3.8%		2.9%	0.8%
Eisenackia/Alisocysta complex								
Glaphrocysta spp.						8.6%		
Manumiella druggii complex								6.5%
Operculodinium centrocarpum					2.9%			
Parecaniella indentata		25.0%		11.1%	1.9%		0.7%	
Senegalinium dilwynensis						8.6%	6.5%	
Spinidinium spp.	62.2%	25.0%	50.0%		64.8%	8.6%	8.6%	
Spiniferites spp.						2.9%	1.4%	
Trithyrodinium evittii					5.7%	14.3%	23.0%	
DINOFLAGELLATES TOTAL	97.3%	100.0%	100.0%	33.3%	96.2%	88.6%	61.9%	32.5%
ACRITARCHS	2.7%			66.7%	3.8%	11.4%	38.1%	67.5%
TOTAL MICROPLANKTON COUNT	37	4	2	9	105	35	139	123
PERCENTAGES FOR MAJOR CATEGORIES								
Spores %	6.7%	9.6%	15.6%	13.9%	3.4%	10.1%	3.2%	8.3%
Gymnosperm Pollen %	47.7%	59.4%	43.2%	44.5%	41.4%	30.4%	29.2%	10.9%
Angiosperm Pollen %	31.9%	28.7%	35.8%	37.1%	21.5%	41.9%	24.5%	8.8%
TOTAL Spore-Pollen %	86.3%	97.7%	94.6%	95.5%	66.3%	82.5%	56.9%	28.0%
Fungal Spores %	0.7%	0.8%	4.7%		0.3%	1.4%	2.6%	8.3%
Algae %				0.8%	1.2%			
Dinoflagellate %	12.6%	1.5%	0.8%	1.2%	31.0%	14.3%	25.1%	20.7%
Acritarch %	0.4%			2.4%	1.2%	1.8%	15.5%	43.0%
TOTAL Microplankton %	13.0%	1.5%	0.8%	3.7%	32.2%	16.1%	40.5%	63.7%
TOTAL COUNT	285	261	257	245	326	217	343	193

TABLE-4: PALYNOMORPH PERCENTAGES FROM ROUNDHEAD-1.

	2855.5m SWC 13	2862.5m SWC 12	2879.5m SWC 10	2891.0m SWC 9	2900.5m SWC 8	2929.0m SWC 5	2936.5m SWC 4	2952.0m SWC 3
TRILETE SPORES undiff.	4.7%	5.3%		3.7%	1.0%	0.4%	0.7%	3.2%
Cyatheacidites annulatus								
Cyathidites spp.	3.4%	3.5%	2.3%	3.7%	1.0%	2.1%		5.2%
Gleicheniidites spp.	0.7%			0.7%				1.6%
Herkosporites elliotii		2.4%						
Stereisporites spp.			0.9%	4.1%	2.7%	1.3%		2.4%
MONOLETE SPORES								
Laevigatosporites spp.	4.7%	1.8%	1.4%	1.9%	3.1%	4.3%	2.6%	4.0%
Peromonolites spp.								
Verrucatosporites spp.								
TOTAL SPORES	13.4%	12.9%	4.7%	14.1%	7.8%	8.1%	3.3%	16.4%
GYMNOSPERM POLLEN								0.4%
Araucariacites australis		1.2%	0.9%	0.4%		0.4%		
Dilwynites spp.				0.7%	0.3%		0.7%	0.4%
Dacrycarpites australiensis								
Lygistepollenites balmei				0.4%				
Lygistepollenites florinii	0.7%					0.4%	3.7%	2.0%
Microcachrydites antarcticus	0.7%		0.5%	0.4%	0.3%	0.4%	2.2%	0.8%
Parvisaccatus catastus								
Phyllocladites mawsonii	7.4%	11.8%	14.4%	7.4%	16.0%	19.7%	26.0%	12.8%
Phyllocladus paleogenicus							0.4%	
Podocarpidites spp.	2.7%	1.8%	4.2%	6.7%	3.4%	5.1%	11.2%	6.8%
Podosporites microsaccatus	1.3%	1.2%	1.9%	0.7%	3.7%	2.6%	14.9%	2.4%
TOTAL GYMNOSPERM POLLEN	12.8%	15.9%	21.9%	16.7%	23.8%	28.6%	59.1%	25.6%
ANGIOSPERM POLLEN undiff.	3.4%			1.9%	0.3%	0.9%	4.1%	2.8%
Australopollis obscurus								
Casuarina (H. harrisii)								
Dicotetrades clavatus			0.5%					
Gambierina rudata/edwardsii	26.8%	12.9%	13.5%	25.9%	9.2%	10.3%	4.5%	6.4%
Liliacidites spp.	1.3%				3.7%			
Myrtacidites spp.								
Nothofagidites 'brassii' type					0.3%	0.4%		0.4%
Nothofagidites 'fusca' type				0.4%				0.4%
Penninsulapollis gillii	3.4%	4.7%	1.9%	6.7%	1.7%	4.3%	1.1%	2.8%
Periporopollenites spp.		0.6%	0.9%					
Proteacidites angulatus								
Proteacidites clinei				0.7%		3.4%		
Proteacidites grandis								
Proteacidites reticulocavus		0.6%		4.4%			1.1%	
Proteacidites spp.	37.6%	49.4%	48.8%	27.8%	23.5%	38.9%	16.4%	40.0%
Tricolpites confessus			2.3%					
Tricolpites waiparensis				0.4%	15.0%			
Tricolpites spp.	0.7%	0.6%	5.1%	1.1%	9.5%	2.1%	0.4%	3.6%
Tricolporites lillieii					2.0%			
Tricolporites spp.	0.7%	2.4%	0.5%		3.1%	2.6%	10.0%	1.6%
Tripoporopollenites spp. (small)						0.4%		
ANGIOSPERM POLLEN TOTAL	73.8%	71.2%	73.5%	69.3%	68.4%	63.2%	37.5%	58.0%
TOTAL SPORES & POLLEN COUNT	149	170	215	270	294	234	269	250
DINOFLAGELLATES undiff.				50.0%				
Areoligera spp.								
Deflandrea spp.								
Eisenackia/Alisocysta complex								
Glaphrocysta spp.								
Manumiella druggii complex								
Operculodinium centrocarpum								
Parecaniella indentata								
Senegalinium dilwynensis								
Spinidinium spp.				50.0%				
Spiniferites spp.								
Trithyrodinium evittii								
DINOFLAGELLATES TOTAL				100.0%				
ACRITARCHS					100.0%			
TOTAL MICROPLANKTON COUNT	0	0	0	2	2	0	0	0
PERCENTAGES FOR MAJOR CATEGORIES								
Spores %	13.2%	11.8%	4.3%	13.5%	7.4%	8.1%	3.3%	16.1%
Gymnosperm Pollen %	12.6%	14.5%	20.3%	16.0%	22.4%	28.4%	58.7%	25.2%
Angiosperm Pollen %	72.8%	65.1%	68.1%	66.3%	64.4%	62.7%	37.3%	57.1%
TOTAL Spore-Pollen %	98.7%	91.4%	92.7%	95.7%	94.2%	99.2%	99.3%	98.4%
Fungal Spores %	1.3%	8.6%	7.3%	3.5%	3.5%	0.8%	0.7%	1.6%
Algae %					1.6%			
Dinoflagellate %				0.7%				
Acritarch %					0.6%			
TOTAL Microplankton %				0.7%	0.6%			
TOTAL COUNT	151	186	232	282	312	236	271	254

PE900459

This is an enclosure indicator page.  
The enclosure PE900459 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE900459 has the following characteristics:

ITEM\_BARCODE = PE900459  
CONTAINER\_BARCODE = PE902172  
    NAME = Palynological Range Chart  
    BASIN = GIPPSLAND  
    PERMIT = VIC/L7  
    TYPE = WELL  
    SUBTYPE = DIAGRAM  
DESCRIPTION = Palynological Range Chart for  
              Rounhead-1  
REMARKS =  
DATE\_CREATED =  
DATE\_RECEIVED =  
    W\_NO = W984  
    WELL\_NAME = ROUNDHEAD-1  
CONTRACTOR =  
CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 2

ROUNDHEAD 1.

QUANTITATIVE LOG ANALYSIS

Interval: 2377.5 - 3000 mMDKB

Analyst : T. M. Frankham.

Date : July, 1989.



## ROUNDHEAD 1: QUANTITATIVE LOG ANALYSIS

Wireline log data from the Roundhead 1 exploration well has been quantitatively analysed over the interval 2377.5 - 3000 mMDKB for effective porosity and effective water saturation. Results are presented in the form of the accompanying depth plots and listing, and are summarised and discussed below. Roundhead 1 has been interpreted from both wireline log data and mudlog data to be a dry hole.

### DATA QUALITY:

#### Logs Used:

GR (gamma ray)  
LLD (deep laterolog)  
LLS (shallow laterolog)  
RHOB (bulk density)  
NPHI (neutron porosity)  
CALI (caliper)  
DT (sonic transit time)

The density and neutron logs as recorded exhibit a consistent 2 to 4 porosity unit crossover in clean water bearing sands when plotted on sandstone compatible scales. This is inconsistent with the fact that no indications of hydrocarbons were been encountered, and suggested a problem with at least one of the two curves. Comparison with a porosity curve derived from the sonic transit time data suggests that the density curve is the more likely to be in error. A very consistent negative density correction curve is also apparent (mean DRHO = -0.025gm/cc; standard deviation = +/- 0.011gm/cc). An uncompensated, long spaced detector density (LSRH) was therefore derived and compared with the other porosity data (see Figure 1.). This LSRH curve is much more consistent with the other porosity data, and, for the purposes of quantitative log analysis, has been assumed to be the best measurement of formation bulk density.

The recorded LLD curve exhibits an anomolous response over the interval 2900 to 2909 mMDKB due to a temporary loss of grounding of the LLD fish. The LLS data from this interval was therefore spliced in to create a deep resistivity log for analysis purposes.

### ANALYSIS METHODOLOGY

In view of the fact that no hdrocarbon bearing intervals were intersected by the well, no hydrocarbon corrections needed to be made to the density and neutron log data. A shale volume curve was therefore generated on the basis of density and neutron log separation, assuming a quartz matrix. Total porosity was calculated using density-neutron crossplot algorithms, and total water saturation from the dual water relationship. Effective porosity and water saturation values were derived from the apparent total porosity and water saturation, calculated shale volume, and apparent shale porosity. Algorithms used are shown in appendix 1 .

**ANALYSIS PARAMETERS.**

Tortuosity; 'a'..... : 1.00  
Cementation factor; 'm'..... : 2.00  
Saturation exponent; 'n'..... : 2.00  
Fluid density..... : 1.00 g/cc  
Apparent bulk density of shale..... : 2.525 g/cc  
Apparent neutron porosity of shale..... : 0.30 v/v  
Apparent shale porosity of shale..... : 0.21 v/v  
Apparent shale resistivity..... : 4.00 ohmm  
Formation water expressed in salinity  
Formation water salinity input as a log from the database  
Downhole temperature from AMS log data  
Irreducible water saturation..... : 0.025 v/v  
Vsh upper limit for effective porosity..... : 0.65 v/v  
Minimum effective porosity for hydrocarbons..... : 0.03 v/v

Apparent formation water salinity was derived clean water bearing sands using Archie's equation, assuming an "a" of 1 and an "m" of 2. This indicates an apparent formation water salinity of 45000 ppm NaCl eq. from the top of the Latrobe Group down to approximately 2800, with the exception of the sand from 2445 to 2483m, which appears to have a slightly higher apparent salinity (in the order 55000 ppm NaCl eq.). Below 2800m, the sand from 2813 to 2446m has an apparent formation water salinity of 60000 ppm NaCl eq., with deeper sands, from 2856 to TD, being in the order of 30000 ppm NaCl eq. The salinity profile used in the analysis is shown in figure 2.

Shale parameters were derived from log responses through the shale at 2800m, the only well developed, reasonably thick shale in the intersected Latrobe section.

ANALYSIS SUMMARY.

ROUNDHEAD 1

Net porosity cut-off.....: 0.120 volume per volume  
 Net water saturation cut-off...: 0.500 volume per volume

Net sand based on porosity cut-off only.

INTERVAL (mRKB) (top) - (base)	NET SAND							HYDRO- CARBON METRES
	Gross (mtrs)	Net (mtrs)	Net to Gross	Average Porosity	(Std.) (Dev.)	Average Sw	(Std.) (Dev.)	
2377.8-2406.8	29.0	26.0	90 %	0.196	(0.037)	1.000	(0.367)	0.000
2407.2-2417.8	10.6	9.8	92 %	0.207	(0.038)	0.993	(0.047)	0.000
2420.4-2441.2	20.8	19.8	95 %	0.182	(0.029)	1.000	(0.310)	0.000
2446.4-2483.0	36.6	36.0	98 %	0.206	(0.024)	1.000	(0.248)	0.000
2488.8-2508.2	19.4	15.0	77 %	0.193	(0.042)	0.993	(0.057)	0.000
2510.4-2545.6	35.2	23.4	66 %	0.165	(0.022)	1.000	(0.269)	0.000
2547.8-2611.2	63.4	61.4	97 %	0.189	(0.025)	1.000	(0.313)	0.000
2620.6-2677.4	56.8	56.2	99 %	0.207	(0.034)	1.000	(0.104)	0.000
2679.8-2745.6	65.8	64.4	98 %	0.174	(0.018)	1.000	(0.300)	0.000
2747.8-2791.4	43.6	40.0	92 %	0.176	(0.023)	0.997	(0.074)	0.000
2813.2-2847.8	34.6	31.0	90 %	0.159	(0.024)	1.000	(0.186)	0.000
2856.2-2860.8	4.6	3.6	78 %	0.176	(0.022)	0.986	(0.043)	0.000
2866.2-2869.6	3.4	2.0	59 %	0.157	(0.015)	0.989	(0.111)	0.000
2893.2-2896.0	2.8	2.6	93 %	0.159	(0.013)	1.000	(0.428)	0.000
2908.6-2918.8	10.2	8.6	84 %	0.156	(0.017)	1.000	(0.324)	0.000
2947.0-2951.2	4.2	3.2	76 %	0.189	(0.033)	1.000	(0.274)	0.000
2958.6-2999.8	41.2	38.6	94 %	0.162	(0.025)	1.000	(0.302)	0.000

Top of Coarse Clastics.....: 2377.50m  
 Base of logged section.....: 3000.00m  
 Gross thickness.....: 622.50m  
 Net sand thickness.....: 450.40m  
 Net to gross (sand).....: 72.35%  
 Average net sand porosity.: 0.182  
 Average net sand Sw.....: 0.983



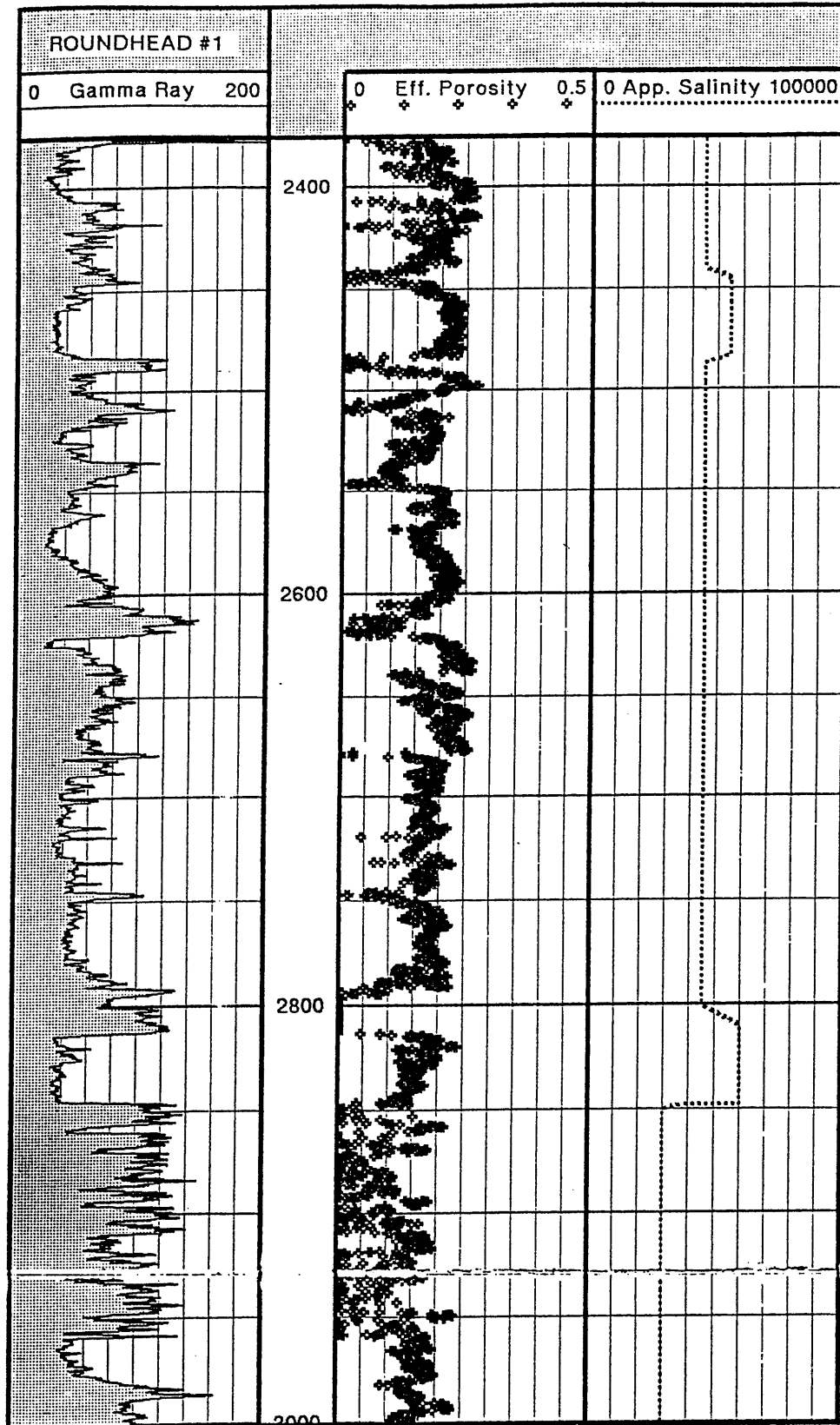


Figure #2: Effective Porosity & Apparent Salinity Profiles.

APPENDIX 1

ALGORITHMS AND LOGIC USED IN THE QUANTITATIVE ANALYSIS.

Shale volume calculated from Density and Neutron log responses as follows:

```
vshdn = ((nphi+0.04) - ((rhogav-rhob)/(rhogav-rhof)))/ \
          ((phinsh+0.04) - ((rhogav-rhobsh)/(rhogav-rhof))
vshdn = max(0, (min(1, vshdn)))
```

Apparent shale porosity calculated from density-neutron crossplot algorithm using apparent bulk density of shale and apparent neutron porosity (limestone matrix) of shale.

```
h = 2.71 - rhobsh + phinsh*(rhof-2.71)
if (h < 0)then
  rhoma = 2.71 - 0.64*h
else
  rhoma = 2.71 - 0.5*h
endif
phish = (rhoma-rhobsh)/(rhoma-rhof)
```

Bound water resistivity (rwb) calculated via Archie, using apparent shale porosity and apparent shale resistivity.

```
rwb = (rsh*(phish**m))/a
```

Total porosity calculated from density-neutron crossplot algorithms, using bulk density and neutron porosity (limestone matrix, decimal p.u.) log values.

```
h = 2.71 - rhob + nphi*(rhof-2.71)
if (h < 0)then
  rhoma = 2.71 - 0.64*h
else
  rhoma = 2.71 - 0.5*h
endif
phit = (rhoma-rhob)/(rhoma-rhof)
```

Water saturation (total) calculated using dual water relationship:

$$1/rt=(swt**n)*(phit**m)/(a*rw)+swt**(n-1)*(swb*(phit**m)/a)*((1/rwb)-(1/rw))$$

This is solved for Sw by Newtons solution

```
exsw=0
sw =0.9
aa =((phit**m)/(a*rw))
bb =((phit**m)*swb/a)*((1/rwb)-(1/rw))
dowhile(exsw.le.5)
  fx1=(aa*(sw**n)+(bb*(sw**(n-1)))-(1/rt)
  fx2=(n*aa*(sw**(n-1))+(n-1)*bb*(sw**(n-2)))
  if((abs(fx2)).lt.0.0001)then
    fx2=0.0001
  endif
  swp=sw
  sw =swp-(fx1/fx2)
  if((abs(sw-swp)).le.0.01)then
    exitdo
  endif
  exsw=exsw+1
enddo
swt=sw
```

```
[ where:swb = bound water saturation ]
[           = max(0, (min(1, (vsh*phish/phit)))) ]
```

Effective porosity and water saturation derived from calculated total porosity and water saturation as follows:

```
phie= max(0.001, (phit-(vsh*phish)))
swe = max(swirr, ( 1 - ((phit/phie)*(1-swt))))
  if (vsh > vshco) {
    swt = 1
    swe = 1
    phie = 0
  }
  if (vsh > (vshco-0.2)) {
    phie= phie*((vshco-vsh)/0.2)
    swe = 1-((1-swe)*((vshco-vsh)/0.2))
  }
}
```

Sonic porosity, if used, is calculated as follows:

```
phis = 1-((dtma/dt)**(1/x))
where, in clastics,
dtma = 182.1
  x = 1.6
(Raiga-Clemenceau et al. (paper G, 1986 SPWLA trans.))
```

## ROUNDHEAD\_1

## Well Data Listing

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2377.4	75	6.0	2.765	0.084	198	0.733	0.000	1.000
2377.6	88	4.3	2.752	0.098	207	0.758	0.000	1.000
2377.8	149	3.2	2.635	0.123	225	0.580	0.000	1.000
2378.0	212	3.0	2.526	0.134	236	0.374	0.044	1.000
2378.2	217	3.4	2.499	0.111	243	0.223	0.071	1.000
2378.4	144	4.1	2.519	0.080	237	0.155	0.065	1.000
2378.6	87	4.0	2.479	0.088	230	0.093	0.095	1.000
2378.8	74	2.5	2.410	0.123	234	0.067	0.139	1.000
2379.0	68	2.0	2.366	0.145	251	0.049	0.168	1.000
2379.2	61	2.0	2.356	0.156	267	0.067	0.172	1.000
2379.4	66	2.1	2.363	0.164	269	0.113	0.163	1.000
2379.6	67	2.1	2.363	0.155	266	0.079	0.167	1.000
2379.8	62	2.1	2.356	0.146	266	0.029	0.176	1.000
2380.0	55	2.0	2.353	0.148	265	0.031	0.178	1.000
2380.2	51	2.0	2.367	0.157	267	0.096	0.163	1.000
2380.4	47	2.0	2.378	0.158	265	0.125	0.153	1.000
2380.6	49	2.0	2.381	0.170	264	0.176	0.146	1.000
2380.8	50	2.0	2.384	0.176	264	0.209	0.141	1.000
2381.0	50	1.9	2.398	0.178	266	0.247	0.129	1.000
2381.2	50	2.0	2.413	0.184	266	0.302	0.115	1.000
2381.4	48	2.1	2.439	0.181	263	0.350	0.097	1.000
2381.6	46	2.2	2.462	0.183	252	0.415	0.078	1.000
2381.8	44	2.1	2.459	0.183	247	0.407	0.081	1.000
2382.0	43	1.9	2.437	0.186	247	0.368	0.097	1.000
2382.2	39	1.6	2.406	0.181	254	0.279	0.121	1.000
2382.4	34	1.2	2.333	0.202	266	0.190	0.174	1.000
2382.6	30	1.1	2.282	0.223	275	0.150	0.208	1.000
2382.8	31	1.2	2.287	0.206	276	0.100	0.211	1.000
2383.0	35	1.3	2.313	0.196	271	0.121	0.193	1.000
2383.2	36	1.4	2.315	0.209	259	0.173	0.186	1.000
2383.4	32	1.2	2.293	0.220	265	0.166	0.200	1.000
2383.6	32	1.3	2.286	0.212	270	0.120	0.209	1.000
2383.8	36	1.5	2.321	0.185	274	0.099	0.190	1.000
2384.0	41	1.9	2.381	0.173	264	0.187	0.145	1.000
2384.2	39	2.1	2.405	0.182	252	0.279	0.122	1.000
2384.4	39	1.7	2.365	0.193	252	0.230	0.150	1.000
2384.6	38	1.5	2.334	0.196	258	0.169	0.175	1.000
2384.8	36	1.3	2.324	0.197	265	0.150	0.183	1.000
2385.0	35	1.3	2.314	0.213	267	0.188	0.185	1.000
2385.2	35	1.2	2.301	0.222	269	0.191	0.192	1.000
2385.4	33	1.0	2.288	0.234	273	0.206	0.199	1.000
2385.6	33	1.0	2.277	0.260	279	0.280	0.198	1.000
2385.8	36	1.1	2.265	0.273	283	0.303	0.203	1.000
2386.0	39	1.4	2.289	0.250	279	0.268	0.192	0.930
2386.2	47	1.7	2.353	0.218	268	0.296	0.151	1.000
2386.4	50	1.8	2.363	0.210	258	0.286	0.146	1.000
2386.6	48	1.4	2.310	0.218	257	0.195	0.187	1.000
2386.8	47	1.2	2.280	0.233	266	0.183	0.206	1.000
2387.0	42	1.1	2.293	0.235	274	0.222	0.194	1.000
2387.2	37	1.2	2.304	0.230	274	0.230	0.186	1.000
2387.4	36	1.2	2.307	0.217	270	0.187	0.189	1.000



## ROUNDHEAD\_1 (page 2 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2387.6	36	1.1	2.305	0.211	272	0.159	0.194	1.000
2387.8	38	1.0	2.292	0.227	275	0.186	0.199	1.000
2388.0	35	0.9	2.275	0.235	284	0.179	0.209	1.000
2388.2	33	0.9	2.264	0.230	286	0.139	0.220	1.000
2388.4	33	1.0	2.273	0.223	285	0.132	0.216	1.000
2388.6	35	1.0	2.308	0.216	283	0.185	0.189	1.000
2388.8	34	1.2	2.334	0.191	279	0.151	0.177	1.000
2389.0	31	1.2	2.343	0.178	274	0.120	0.175	1.000
2389.2	28	1.2	2.345	0.188	270	0.163	0.169	1.000
2389.4	28	1.2	2.339	0.200	271	0.195	0.169	1.000
2389.6	34	1.5	2.366	0.200	270	0.259	0.146	1.000
2389.8	45	2.3	2.412	0.188	263	0.318	0.115	1.000
2390.0	50	3.7	2.447	0.171	248	0.331	0.093	0.961
2390.2	53	4.2	2.460	0.164	240	0.333	0.086	0.931
2390.4	52	3.7	2.468	0.152	239	0.311	0.082	1.000
2390.6	51	3.0	2.440	0.142	240	0.207	0.108	1.000
2390.8	44	2.4	2.388	0.152	247	0.125	0.147	1.000
2391.0	34	1.6	2.337	0.163	255	0.052	0.185	1.000
2391.2	30	1.4	2.324	0.185	268	0.103	0.188	1.000
2391.4	31	1.3	2.343	0.196	276	0.187	0.168	1.000
2391.6	34	1.4	2.358	0.193	282	0.213	0.156	1.000
2391.8	41	1.6	2.351	0.196	274	0.207	0.161	1.000
2392.0	43	1.7	2.360	0.182	265	0.174	0.159	1.000
2392.2	42	2.0	2.385	0.170	263	0.188	0.143	1.000
2392.4	39	2.0	2.404	0.152	260	0.161	0.134	1.000
2392.6	41	2.0	2.412	0.134	257	0.114	0.133	1.000
2392.8	43	2.1	2.399	0.134	256	0.080	0.145	1.000
2393.0	40	2.2	2.386	0.135	252	0.058	0.155	1.000
2393.2	37	2.1	2.402	0.132	251	0.084	0.142	1.000
2393.4	33	1.5	2.422	0.144	247	0.173	0.122	1.000
2393.6	27	1.1	2.432	0.168	251	0.289	0.105	1.000
2393.8	23	0.9	2.394	0.181	260	0.247	0.131	1.000
2394.0	25	1.0	2.341	0.187	265	0.149	0.173	1.000
2394.2	27	1.1	2.320	0.187	272	0.103	0.190	1.000
2394.4	29	1.1	2.323	0.176	269	0.067	0.192	1.000
2394.6	26	1.1	2.319	0.169	263	0.031	0.198	1.000
2394.8	24	1.0	2.302	0.184	265	0.047	0.207	1.000
2395.0	22	0.9	2.291	0.188	270	0.037	0.215	1.000
2395.2	22	1.0	2.315	0.170	274	0.025	0.202	1.000
2395.4	25	1.1	2.366	0.168	266	0.134	0.160	1.000
2395.6	28	1.1	2.395	0.177	262	0.234	0.132	1.000
2395.8	28	1.0	2.376	0.180	264	0.207	0.146	1.000
2396.0	28	1.0	2.341	0.177	267	0.112	0.177	1.000
2396.2	29	1.0	2.320	0.188	269	0.105	0.190	1.000
2396.4	27	1.0	2.309	0.213	267	0.177	0.189	1.000
2396.6	25	1.0	2.289	0.200	268	0.082	0.211	1.000
2396.8	26	1.0	2.286	0.177	268	0.000	0.220	1.000
2397.0	28	1.0	2.291	0.180	268	0.007	0.218	1.000
2397.2	32	1.0	2.292	0.185	265	0.031	0.215	1.000
2397.4	34	1.0	2.273	0.193	266	0.016	0.228	1.000
2397.6	33	0.9	2.252	0.196	271	0.000	0.240	1.000
2397.8	31	0.8	2.246	0.201	276	0.000	0.245	1.000
2398.0	29	0.8	2.238	0.212	280	0.010	0.250	1.000
2398.2	28	0.9	2.229	0.210	282	0.000	0.255	1.000
2398.4	31	1.1	2.263	0.189	273	0.000	0.234	1.000

## ROUNDHEAD\_1 (page 3 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2398.6	32	1.4	2.320	0.162	261	0.007	0.200	1.000
2398.8	30	1.5	2.355	0.143	248	0.016	0.178	1.000
2399.0	31	1.4	2.348	0.142	248	0.000	0.183	1.000
2399.2	32	1.3	2.339	0.160	251	0.044	0.185	1.000
2399.4	32	1.2	2.331	0.179	257	0.099	0.184	1.000
2399.6	27	1.1	2.317	0.187	261	0.096	0.193	1.000
2399.8	25	1.1	2.303	0.183	262	0.048	0.207	1.000
2400.0	29	1.1	2.284	0.174	262	0.000	0.220	1.000
2400.2	33	1.1	2.256	0.175	263	0.000	0.231	1.000
2400.4	33	1.1	2.243	0.182	264	0.000	0.238	1.000
2400.6	33	1.2	2.243	0.182	265	0.000	0.239	1.000
2400.8	34	1.2	2.251	0.188	261	0.000	0.238	0.987
2401.0	34	1.3	2.254	0.176	259	0.000	0.232	0.992
2401.2	32	1.3	2.251	0.169	254	0.000	0.230	1.000
2401.4	30	1.2	2.250	0.185	258	0.000	0.237	1.000
2401.6	33	1.1	2.242	0.206	260	0.000	0.248	1.000
2401.8	34	1.1	2.227	0.204	263	0.000	0.253	0.989
2402.0	31	1.0	2.213	0.204	268	0.000	0.258	0.983
2402.2	31	1.1	2.226	0.202	266	0.000	0.253	0.998
2402.4	32	1.2	2.247	0.181	265	0.000	0.236	1.000
2402.6	34	1.3	2.254	0.169	262	0.000	0.229	1.000
2402.8	34	1.3	2.252	0.178	259	0.000	0.233	0.990
2403.0	36	1.2	2.261	0.188	259	0.000	0.234	1.000
2403.2	37	1.2	2.264	0.182	259	0.000	0.231	1.000
2403.4	37	1.2	2.249	0.186	258	0.000	0.238	0.992
2403.6	42	1.2	2.242	0.201	258	0.000	0.246	0.968
2403.8	44	1.2	2.231	0.206	261	0.000	0.252	0.959
2404.0	39	1.1	2.226	0.207	263	0.000	0.255	0.966
2404.2	38	1.1	2.240	0.213	261	0.020	0.248	0.980
2404.4	40	1.2	2.260	0.209	259	0.048	0.233	0.987
2404.6	39	1.2	2.265	0.202	257	0.032	0.231	0.992
2404.8	43	1.2	2.257	0.211	256	0.049	0.235	0.988
2405.0	43	1.1	2.243	0.222	259	0.059	0.242	1.000
2405.2	42	1.0	2.222	0.227	261	0.029	0.258	0.971
2405.4	40	1.0	2.215	0.218	264	0.000	0.263	0.967
2405.6	42	1.0	2.232	0.221	266	0.030	0.252	0.991
2405.8	45	1.0	2.256	0.221	267	0.084	0.231	1.000
2406.0	46	1.0	2.255	0.224	271	0.092	0.231	1.000
2406.2	45	1.0	2.248	0.228	273	0.092	0.235	1.000
2406.4	45	0.9	2.249	0.214	273	0.041	0.240	1.000
2406.6	48	1.1	2.277	0.202	277	0.062	0.221	1.000
2406.8	58	1.6	2.360	0.187	271	0.196	0.156	1.000
2407.0	71	2.8	2.468	0.176	256	0.399	0.076	1.000
2407.2	78	4.9	2.523	0.172	241	0.512	0.025	1.000
2407.4	82	4.4	2.499	0.164	242	0.424	0.056	1.000
2407.6	78	2.4	2.432	0.180	250	0.332	0.102	1.000
2407.8	72	1.6	2.352	0.206	262	0.246	0.156	1.000
2408.0	67	1.3	2.313	0.216	274	0.194	0.185	1.000
2408.2	69	1.3	2.311	0.222	282	0.213	0.184	1.000
2408.4	74	1.3	2.309	0.225	285	0.222	0.184	1.000
2408.6	75	1.3	2.295	0.238	287	0.238	0.191	1.000
2408.8	79	1.2	2.280	0.257	287	0.274	0.196	1.000
2409.0	79	1.3	2.282	0.258	286	0.282	0.195	0.974
2409.2	79	1.4	2.292	0.248	285	0.268	0.190	0.966
2409.4	80	1.4	2.305	0.245	284	0.288	0.181	0.995

ROUNDHEAD\_1 (page 4 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2409.6	77	1.3	2.295	0.242	282	0.253	0.189	1.000
2409.8	72	1.2	2.274	0.245	284	0.215	0.206	0.995
2410.0	77	1.5	2.304	0.225	281	0.208	0.189	0.979
2410.2	85	2.2	2.394	0.189	267	0.279	0.128	1.000
2410.4	79	2.7	2.443	0.185	254	0.378	0.092	1.000
2410.6	71	2.2	2.404	0.200	257	0.343	0.118	1.000
2410.8	64	2.0	2.367	0.196	264	0.243	0.148	1.000
2411.0	62	2.0	2.353	0.180	265	0.152	0.165	0.985
2411.2	64	1.7	2.334	0.179	264	0.106	0.182	1.000
2411.4	64	1.5	2.310	0.194	268	0.104	0.197	1.000
2411.6	60	1.3	2.280	0.216	273	0.119	0.213	0.980
2411.8	60	1.3	2.279	0.215	279	0.116	0.213	0.993
2412.0	56	1.5	2.316	0.196	272	0.127	0.191	1.000
2412.2	51	1.6	2.338	0.183	262	0.128	0.177	1.000
2412.4	54	1.4	2.321	0.189	260	0.110	0.189	1.000
2412.6	55	1.2	2.280	0.211	271	0.101	0.215	1.000
2412.8	56	1.1	2.241	0.228	277	0.075	0.242	0.966
2413.0	60	1.1	2.232	0.231	283	0.064	0.248	0.962
2413.2	62	1.1	2.239	0.222	283	0.048	0.245	0.977
2413.4	63	1.1	2.234	0.227	284	0.057	0.248	0.977
2413.6	61	1.0	2.222	0.250	285	0.116	0.248	0.954
2413.8	62	1.0	2.216	0.243	287	0.073	0.257	0.946
2414.0	63	1.1	2.221	0.231	286	0.043	0.257	0.948
2414.2	60	1.0	2.226	0.237	286	0.074	0.251	0.966
2414.4	56	1.0	2.216	0.243	287	0.075	0.256	0.987
2414.6	57	0.9	2.196	0.266	290	0.118	0.264	0.967
2414.8	55	0.9	2.189	0.275	292	0.136	0.265	0.945
2415.0	57	1.0	2.205	0.261	291	0.119	0.258	0.953
2415.2	62	1.1	2.226	0.237	287	0.074	0.251	0.964
2415.4	66	1.1	2.239	0.204	288	0.000	0.249	0.989
2415.6	65	1.2	2.252	0.196	283	0.000	0.240	0.973
2415.8	62	1.4	2.261	0.191	280	0.000	0.235	0.943
2416.0	57	1.4	2.273	0.183	276	0.000	0.228	0.953
2416.2	52	1.4	2.287	0.175	271	0.000	0.219	0.986
2416.4	54	1.4	2.281	0.178	273	0.000	0.223	0.967
2416.6	58	1.5	2.275	0.182	275	0.000	0.226	0.924
2416.8	61	1.6	2.297	0.217	275	0.163	0.198	0.929
2417.0	61	1.6	2.302	0.226	275	0.209	0.190	0.923
2417.2	65	1.7	2.327	0.231	274	0.284	0.167	0.930
2417.4	74	2.0	2.366	0.225	275	0.351	0.139	0.943
2417.6	83	2.7	2.369	0.218	273	0.331	0.139	1.000
2417.8	92	3.0	2.389	0.216	270	0.369	0.125	1.000
2418.0	106	3.2	2.435	0.231	268	0.532	0.050	0.901
2418.2	115	3.0	2.464	0.263	271	0.721	0.000	1.000
2418.4	99	2.5	2.454	0.260	270	0.686	0.000	1.000
2418.6	71	2.2	2.417	0.226	272	0.471	0.090	1.000
2418.8	63	2.1	2.382	0.206	272	0.316	0.133	1.000
2419.0	75	2.4	2.300	0.201	267	0.109	0.202	1.000
2419.2	83	3.3	2.312	0.223	263	0.219	0.183	1.000
2419.4	78	3.6	2.340	0.262	254	0.433	0.148	1.000
2419.6	75	2.9	2.332	0.298	256	0.551	0.071	1.000
2419.8	76	2.4	2.327	0.313	258	0.597	0.037	0.964
2420.0	75	2.4	2.317	0.323	261	0.609	0.029	1.000
2420.2	73	2.6	2.322	0.345	260	0.706	0.000	1.000
2420.4	69	3.4	2.333	0.354	256	0.765	0.000	1.000

## ROUNDHEAD\_1 (page 5 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2420.6	62	3.6	2.365	0.277	247	0.547	0.063	1.000
2420.8	52	2.2	2.350	0.194	251	0.199	0.162	0.890
2421.0	43	1.6	2.276	0.176	259	0.000	0.223	0.926
2421.2	37	1.3	2.245	0.214	265	0.031	0.244	0.928
2421.4	39	1.2	2.261	0.215	270	0.075	0.229	0.974
2421.6	41	1.2	2.295	0.203	266	0.104	0.205	1.000
2421.8	43	1.2	2.303	0.205	266	0.131	0.198	1.000
2422.0	44	1.2	2.294	0.199	267	0.089	0.207	1.000
2422.2	44	1.1	2.283	0.194	270	0.044	0.219	1.000
2422.4	47	1.1	2.263	0.212	279	0.066	0.229	1.000
2422.6	53	1.3	2.265	0.215	279	0.082	0.226	0.963
2422.8	60	1.9	2.316	0.200	270	0.142	0.189	0.891
2423.0	69	2.8	2.392	0.165	257	0.184	0.139	0.919
2423.2	75	3.8	2.439	0.148	246	0.228	0.107	0.936
2423.4	77	3.9	2.431	0.152	246	0.226	0.111	0.896
2423.6	73	3.2	2.404	0.163	249	0.205	0.129	0.892
2423.8	66	2.8	2.379	0.162	251	0.145	0.150	0.888
2424.0	63	2.6	2.384	0.154	252	0.125	0.149	0.955
2424.2	59	2.1	2.375	0.158	248	0.120	0.155	1.000
2424.4	55	1.7	2.325	0.179	256	0.083	0.189	0.969
2424.6	54	1.3	2.294	0.197	264	0.079	0.209	1.000
2424.8	54	1.2	2.295	0.205	274	0.116	0.204	1.000
2425.0	56	1.3	2.301	0.209	276	0.142	0.198	1.000
2425.2	60	1.4	2.310	0.213	278	0.180	0.188	1.000
2425.4	67	1.9	2.332	0.207	272	0.205	0.172	0.925
2425.6	71	2.5	2.373	0.187	260	0.224	0.146	0.894
2425.8	67	2.5	2.385	0.177	255	0.213	0.140	0.949
2426.0	60	1.9	2.344	0.190	256	0.169	0.169	0.959
2426.2	54	1.3	2.303	0.199	265	0.107	0.200	1.000
2426.4	51	1.2	2.293	0.199	276	0.086	0.209	1.000
2426.6	50	1.3	2.292	0.207	274	0.113	0.206	1.000
2426.8	47	1.3	2.291	0.220	271	0.162	0.202	1.000
2427.0	43	1.3	2.288	0.218	272	0.146	0.205	1.000
2427.2	42	1.3	2.294	0.194	271	0.071	0.209	1.000
2427.4	48	1.3	2.311	0.169	271	0.014	0.205	1.000
2427.6	56	1.5	2.332	0.167	270	0.054	0.188	1.000
2427.8	64	1.6	2.348	0.179	271	0.138	0.170	1.000
2428.0	70	1.7	2.349	0.197	270	0.206	0.162	1.000
2428.2	76	1.7	2.339	0.191	271	0.160	0.173	1.000
2428.4	70	1.6	2.336	0.182	273	0.121	0.179	1.000
2428.6	55	1.6	2.335	0.181	269	0.114	0.180	1.000
2428.8	42	1.5	2.342	0.183	263	0.139	0.173	1.000
2429.0	39	1.4	2.344	0.185	257	0.149	0.171	1.000
2429.2	40	1.3	2.341	0.176	255	0.108	0.177	1.000
2429.4	38	1.3	2.336	0.171	255	0.076	0.184	1.000
2429.6	39	1.3	2.321	0.178	257	0.070	0.193	1.000
2429.8	42	1.2	2.311	0.189	261	0.089	0.197	1.000
2430.0	43	1.2	2.307	0.199	266	0.116	0.197	1.000
2430.2	42	1.2	2.302	0.203	266	0.123	0.199	1.000
2430.4	43	1.2	2.287	0.206	267	0.097	0.211	1.000
2430.6	44	1.2	2.286	0.205	268	0.094	0.212	1.000
2430.8	44	1.2	2.300	0.192	268	0.074	0.205	1.000
2431.0	47	1.3	2.308	0.203	269	0.136	0.194	1.000
2431.2	53	1.4	2.325	0.202	266	0.170	0.180	1.000
2431.4	58	1.6	2.345	0.185	260	0.151	0.170	1.000

## ROUNDHEAD\_1 (page 6 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2431.6	63	1.7	2.350	0.179	258	0.143	0.168	1.000
2431.8	60	1.6	2.336	0.194	260	0.165	0.174	1.000
2432.0	55	1.6	2.331	0.213	262	0.225	0.171	1.000
2432.2	55	1.6	2.342	0.208	263	0.231	0.164	1.000
2432.4	58	1.7	2.353	0.184	261	0.167	0.164	1.000
2432.6	54	1.7	2.349	0.162	257	0.075	0.176	1.000
2432.8	50	1.5	2.333	0.160	261	0.028	0.190	1.000
2433.0	52	1.3	2.309	0.172	264	0.022	0.205	1.000
2433.2	54	1.6	2.305	0.184	271	0.058	0.204	0.957
2433.4	56	1.8	2.332	0.183	265	0.116	0.181	0.973
2433.6	59	1.8	2.353	0.189	263	0.187	0.162	1.000
2433.8	57	1.5	2.339	0.190	265	0.155	0.174	1.000
2434.0	54	1.3	2.320	0.190	270	0.115	0.189	1.000
2434.2	52	1.3	2.342	0.182	270	0.134	0.174	1.000
2434.4	55	1.6	2.376	0.167	266	0.157	0.151	1.000
2434.6	55	1.9	2.397	0.164	254	0.192	0.135	1.000
2434.8	52	1.6	2.381	0.187	257	0.243	0.139	1.000
2435.0	48	1.1	2.340	0.199	263	0.192	0.169	1.000
2435.2	45	1.1	2.299	0.193	275	0.076	0.206	1.000
2435.4	45	1.1	2.286	0.202	277	0.080	0.213	1.000
2435.6	44	1.1	2.285	0.213	279	0.121	0.209	1.000
2435.8	45	1.1	2.276	0.228	280	0.157	0.211	1.000
2436.0	48	1.1	2.264	0.248	281	0.206	0.213	1.000
2436.2	50	1.1	2.264	0.241	281	0.177	0.216	1.000
2436.4	51	1.1	2.268	0.221	280	0.109	0.221	1.000
2436.6	51	1.2	2.268	0.210	280	0.067	0.226	1.000
2436.8	53	1.2	2.272	0.204	280	0.059	0.224	1.000
2437.0	55	1.2	2.281	0.188	280	0.016	0.223	1.000
2437.2	57	1.2	2.282	0.181	277	0.000	0.223	1.000
2437.4	56	1.4	2.297	0.181	273	0.029	0.212	1.000
2437.6	55	1.6	2.327	0.186	270	0.115	0.185	1.000
2437.8	56	1.8	2.356	0.182	266	0.168	0.162	1.000
2438.0	59	1.9	2.374	0.172	262	0.169	0.151	1.000
2438.2	63	1.8	2.384	0.191	262	0.265	0.135	1.000
2438.4	61	1.5	2.369	0.208	269	0.294	0.142	1.000
2438.6	59	1.3	2.349	0.225	279	0.313	0.152	1.000
2438.8	62	1.3	2.352	0.224	285	0.315	0.151	1.000
2439.0	66	1.4	2.376	0.229	286	0.387	0.131	1.000
2439.2	73	1.6	2.392	0.236	284	0.455	0.113	1.000
2439.4	73	1.6	2.384	0.229	281	0.407	0.125	1.000
2439.6	70	1.5	2.365	0.237	280	0.393	0.137	1.000
2439.8	69	1.3	2.352	0.240	282	0.374	0.146	1.000
2440.0	62	1.3	2.362	0.241	285	0.403	0.138	1.000
2440.2	56	1.4	2.364	0.224	285	0.344	0.141	1.000
2440.4	55	1.4	2.356	0.212	284	0.280	0.151	1.000
2440.6	54	1.4	2.346	0.206	283	0.233	0.161	1.000
2440.8	52	1.3	2.359	0.207	284	0.267	0.150	1.000
2441.0	55	1.5	2.388	0.210	282	0.345	0.127	1.000
2441.2	61	1.6	2.416	0.203	281	0.382	0.108	1.000
2441.4	71	1.7	2.436	0.208	278	0.447	0.091	1.000
2441.6	77	1.7	2.439	0.242	278	0.583	0.027	1.000
2441.8	74	1.6	2.429	0.268	282	0.659	0.000	1.000
2442.0	74	1.5	2.415	0.258	285	0.589	0.028	1.000
2442.2	75	1.5	2.405	0.234	285	0.476	0.093	1.000
2442.4	76	1.5	2.405	0.226	286	0.444	0.109	1.000

## ROUNDHEAD\_1 (page 7 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2442.6	77	1.5	2.408	0.250	286	0.543	0.053	1.000
2442.8	76	1.5	2.405	0.259	286	0.568	0.041	1.000
2443.0	76	1.5	2.392	0.257	286	0.533	0.064	1.000
2443.2	79	1.5	2.393	0.253	286	0.522	0.070	1.000
2443.4	80	1.5	2.426	0.259	289	0.618	0.013	1.000
2443.6	77	1.6	2.461	0.281	292	0.782	0.000	1.000
2443.8	76	1.6	2.458	0.285	292	0.789	0.000	1.000
2444.0	71	1.6	2.439	0.272	291	0.697	0.000	1.000
2444.2	74	1.6	2.436	0.270	291	0.682	0.000	1.000
2444.4	77	1.6	2.432	0.274	290	0.690	0.000	1.000
2444.6	78	1.5	2.409	0.255	291	0.562	0.043	1.000
2444.8	82	1.6	2.393	0.251	289	0.512	0.076	1.000
2445.0	86	1.7	2.398	0.252	288	0.528	0.065	1.000
2445.2	89	2.0	2.422	0.251	283	0.579	0.032	1.000
2445.4	94	2.0	2.453	0.252	277	0.655	0.000	1.000
2445.6	98	2.1	2.484	0.252	274	0.724	0.000	1.000
2445.8	94	2.2	2.489	0.236	270	0.676	0.000	1.000
2446.0	85	2.3	2.489	0.224	264	0.629	0.005	1.000
2446.2	74	2.4	2.477	0.218	257	0.579	0.021	1.000
2446.4	66	2.3	2.444	0.200	254	0.437	0.087	1.000
2446.6	58	2.4	2.428	0.185	251	0.345	0.103	1.000
2446.8	52	2.5	2.416	0.170	248	0.259	0.117	0.998
2447.0	49	2.5	2.413	0.160	247	0.215	0.123	0.987
2447.2	47	2.4	2.416	0.159	246	0.215	0.121	1.000
2447.4	45	1.9	2.410	0.173	247	0.257	0.121	1.000
2447.6	48	1.5	2.381	0.194	255	0.270	0.137	1.000
2447.8	48	1.3	2.355	0.207	262	0.258	0.153	1.000
2448.0	47	1.3	2.344	0.206	264	0.231	0.163	1.000
2448.2	47	1.3	2.340	0.191	264	0.162	0.172	1.000
2448.4	47	1.4	2.335	0.186	262	0.134	0.178	1.000
2448.6	45	1.4	2.338	0.167	259	0.070	0.183	1.000
2448.8	47	1.6	2.349	0.149	257	0.026	0.181	1.000
2449.0	46	1.9	2.368	0.144	252	0.050	0.167	1.000
2449.2	44	2.0	2.374	0.140	248	0.047	0.163	0.996
2449.4	48	2.0	2.365	0.142	249	0.034	0.170	0.955
2449.6	48	2.0	2.362	0.146	250	0.045	0.171	0.938
2449.8	50	2.2	2.363	0.142	245	0.033	0.171	0.912
2450.0	52	2.5	2.373	0.131	240	0.014	0.167	0.895
2450.2	52	2.6	2.382	0.135	238	0.049	0.158	0.887
2450.4	54	2.6	2.392	0.144	236	0.103	0.147	0.909
2450.6	55	2.3	2.378	0.152	237	0.103	0.155	0.921
2450.8	55	1.9	2.343	0.159	239	0.051	0.181	0.913
2451.0	53	1.6	2.335	0.169	243	0.068	0.185	0.971
2451.2	51	1.4	2.337	0.171	246	0.079	0.182	1.000
2451.4	47	1.3	2.338	0.184	246	0.132	0.177	1.000
2451.6	43	1.2	2.328	0.191	250	0.136	0.182	1.000
2451.8	38	1.2	2.318	0.189	255	0.105	0.192	1.000
2452.0	39	1.2	2.324	0.201	260	0.165	0.182	1.000
2452.2	37	1.3	2.352	0.184	258	0.164	0.165	1.000
2452.4	39	1.3	2.359	0.156	254	0.074	0.170	1.000
2452.6	46	1.3	2.330	0.163	255	0.033	0.192	1.000
2452.8	55	1.4	2.309	0.195	261	0.107	0.196	0.943
2453.0	61	1.6	2.315	0.206	262	0.164	0.187	0.882
2453.2	60	1.6	2.322	0.200	258	0.155	0.184	0.904
2453.4	58	1.5	2.309	0.204	259	0.142	0.193	0.886

## ROUNDHEAD\_1 (page 8 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2453.6	57	1.3	2.292	0.212	261	0.132	0.204	0.944
2453.8	56	1.2	2.280	0.224	265	0.148	0.210	0.941
2454.0	53	1.2	2.269	0.218	265	0.102	0.221	0.927
2454.2	53	1.2	2.273	0.205	267	0.061	0.223	0.918
2454.4	55	1.3	2.285	0.193	265	0.044	0.218	0.920
2454.6	53	1.3	2.298	0.201	266	0.104	0.203	0.940
2454.8	52	1.2	2.292	0.210	264	0.124	0.205	0.953
2455.0	53	1.1	2.287	0.222	263	0.160	0.204	0.973
2455.2	51	1.1	2.280	0.225	259	0.156	0.209	0.989
2455.4	48	1.0	2.282	0.211	262	0.105	0.213	1.000
2455.6	45	1.1	2.281	0.207	262	0.087	0.216	1.000
2455.8	41	1.1	2.282	0.203	263	0.075	0.216	1.000
2456.0	40	1.1	2.290	0.194	262	0.060	0.213	1.000
2456.2	42	1.1	2.294	0.187	261	0.044	0.212	1.000
2456.4	42	1.1	2.300	0.182	259	0.038	0.210	1.000
2456.6	41	1.1	2.303	0.175	258	0.018	0.209	1.000
2456.8	41	1.1	2.300	0.178	257	0.023	0.211	1.000
2457.0	40	1.1	2.295	0.189	260	0.054	0.211	1.000
2457.2	42	1.0	2.281	0.201	263	0.067	0.218	1.000
2457.4	42	1.0	2.269	0.207	270	0.060	0.226	1.000
2457.6	44	0.9	2.266	0.223	275	0.112	0.222	1.000
2457.8	46	0.9	2.251	0.233	278	0.118	0.231	0.988
2458.0	48	0.9	2.242	0.226	279	0.070	0.241	0.965
2458.2	49	1.0	2.252	0.208	273	0.025	0.240	0.961
2458.4	44	1.1	2.277	0.190	262	0.015	0.225	1.000
2458.6	40	1.1	2.297	0.185	260	0.043	0.211	1.000
2458.8	37	1.1	2.298	0.189	262	0.059	0.208	1.000
2459.0	34	1.0	2.278	0.183	267	0.000	0.226	1.000
2459.2	31	1.0	2.271	0.185	271	0.000	0.229	1.000
2459.4	30	1.0	2.271	0.176	271	0.000	0.226	1.000
2459.6	31	1.0	2.267	0.180	272	0.000	0.228	1.000
2459.8	33	1.0	2.260	0.195	269	0.000	0.237	0.994
2460.0	31	1.0	2.269	0.212	270	0.080	0.224	1.000
2460.2	29	1.0	2.282	0.210	269	0.103	0.213	1.000
2460.4	31	1.0	2.286	0.204	269	0.087	0.213	1.000
2460.6	33	1.0	2.283	0.210	267	0.105	0.212	1.000
2460.8	32	1.0	2.282	0.215	269	0.122	0.211	1.000
2461.0	31	1.0	2.288	0.193	270	0.049	0.216	1.000
2461.2	32	1.0	2.304	0.180	270	0.037	0.207	1.000
2461.4	33	1.1	2.313	0.181	266	0.064	0.198	1.000
2461.6	31	1.1	2.305	0.179	264	0.036	0.206	1.000
2461.8	29	1.0	2.292	0.195	263	0.069	0.211	1.000
2462.0	30	0.9	2.283	0.197	266	0.057	0.217	1.000
2462.2	32	0.9	2.280	0.186	268	0.009	0.224	1.000
2462.4	32	1.0	2.285	0.183	266	0.006	0.222	1.000
2462.6	33	1.0	2.286	0.183	264	0.007	0.221	1.000
2462.8	33	1.0	2.282	0.186	264	0.008	0.224	1.000
2463.0	31	1.0	2.283	0.189	265	0.025	0.221	1.000
2463.2	30	1.0	2.284	0.198	265	0.060	0.217	1.000
2463.4	31	1.0	2.277	0.215	265	0.109	0.215	1.000
2463.6	31	0.9	2.278	0.200	266	0.055	0.221	1.000
2463.8	34	0.9	2.272	0.188	268	0.000	0.230	1.000
2464.0	35	0.9	2.261	0.199	272	0.011	0.236	1.000
2464.2	34	0.9	2.267	0.197	272	0.019	0.231	1.000
2464.4	33	1.0	2.283	0.172	270	0.000	0.219	1.000

## ROUNDHEAD\_1 (page 9 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2464.6	34	1.1	2.295	0.157	265	0.000	0.209	1.000
2464.8	32	1.1	2.309	0.161	261	0.000	0.205	1.000
2465.0	31	1.1	2.298	0.177	262	0.015	0.213	1.000
2465.2	32	1.1	2.279	0.193	267	0.030	0.223	1.000
2465.4	32	1.0	2.278	0.196	268	0.042	0.222	1.000
2465.6	34	1.1	2.291	0.187	268	0.037	0.215	1.000
2465.8	33	1.0	2.288	0.187	267	0.027	0.218	1.000
2466.0	28	1.0	2.284	0.189	267	0.029	0.220	1.000
2466.2	30	0.9	2.278	0.197	269	0.043	0.222	1.000
2466.4	29	0.9	2.265	0.203	273	0.037	0.231	1.000
2466.6	28	0.9	2.259	0.201	277	0.016	0.237	1.000
2466.8	31	0.9	2.263	0.206	279	0.043	0.231	1.000
2467.0	33	0.9	2.257	0.216	282	0.068	0.232	1.000
2467.2	30	0.9	2.250	0.219	287	0.063	0.237	1.000
2467.4	31	0.9	2.256	0.202	290	0.014	0.239	1.000
2467.6	33	0.9	2.261	0.199	288	0.012	0.236	1.000
2467.8	31	0.9	2.268	0.198	283	0.025	0.230	1.000
2468.0	28	0.9	2.271	0.202	281	0.045	0.226	1.000
2468.2	29	0.9	2.274	0.214	283	0.097	0.219	1.000
2468.4	32	0.9	2.268	0.224	284	0.121	0.220	1.000
2468.6	34	0.9	2.257	0.235	290	0.137	0.225	1.000
2468.8	34	1.0	2.250	0.226	287	0.088	0.235	0.958
2469.0	33	1.0	2.263	0.211	280	0.064	0.229	0.996
2469.2	32	1.0	2.274	0.204	278	0.061	0.223	1.000
2469.4	30	0.9	2.271	0.216	276	0.099	0.220	1.000
2469.6	33	0.9	2.280	0.211	278	0.100	0.215	1.000
2469.8	35	0.9	2.289	0.200	277	0.078	0.212	1.000
2470.0	32	1.0	2.280	0.195	278	0.040	0.221	1.000
2470.2	30	1.0	2.282	0.210	278	0.103	0.213	1.000
2470.4	32	1.0	2.282	0.211	282	0.106	0.213	1.000
2470.6	31	0.9	2.275	0.221	283	0.127	0.215	1.000
2470.8	33	0.9	2.266	0.223	286	0.114	0.222	1.000
2471.0	35	0.9	2.268	0.220	284	0.109	0.221	1.000
2471.2	34	0.9	2.271	0.215	278	0.095	0.221	1.000
2471.4	33	1.0	2.275	0.199	274	0.043	0.224	1.000
2471.6	33	1.0	2.282	0.199	272	0.062	0.218	1.000
2471.8	31	1.0	2.288	0.215	271	0.133	0.206	1.000
2472.0	31	1.0	2.294	0.204	271	0.104	0.206	1.000
2472.2	32	1.0	2.290	0.187	271	0.033	0.216	1.000
2472.4	32	1.1	2.291	0.176	268	0.000	0.218	1.000
2472.6	33	1.2	2.278	0.183	263	0.000	0.226	0.955
2472.8	33	1.2	2.259	0.196	264	0.000	0.238	0.915
2473.0	31	1.1	2.257	0.204	266	0.021	0.237	0.946
2473.2	31	1.0	2.273	0.195	270	0.027	0.227	1.000
2473.4	32	1.0	2.286	0.192	270	0.043	0.217	1.000
2473.6	31	1.0	2.297	0.183	271	0.033	0.212	1.000
2473.8	28	1.1	2.311	0.167	271	0.007	0.205	1.000
2474.0	28	1.1	2.310	0.163	267	0.000	0.206	1.000
2474.2	31	1.0	2.295	0.167	270	0.000	0.213	1.000
2474.4	30	1.0	2.281	0.180	275	0.000	0.223	1.000
2474.6	31	0.9	2.277	0.197	277	0.043	0.223	1.000
2474.8	32	1.0	2.277	0.193	275	0.025	0.225	1.000
2475.0	32	1.1	2.279	0.174	266	0.000	0.222	0.989
2475.2	33	1.4	2.300	0.174	264	0.007	0.212	0.936
2475.4	34	1.4	2.318	0.188	257	0.101	0.192	0.979



## ROUNDHEAD\_1 (page 10 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2475.6	33	1.3	2.304	0.177	261	0.029	0.208	0.991
2475.8	32	1.1	2.283	0.163	267	0.000	0.216	1.000
2476.0	33	0.9	2.279	0.167	275	0.000	0.219	1.000
2476.2	33	1.1	2.299	0.161	275	0.000	0.209	1.000
2476.4	35	1.2	2.330	0.147	265	0.000	0.192	1.000
2476.6	36	1.2	2.330	0.156	263	0.009	0.194	1.000
2476.8	34	1.1	2.309	0.173	261	0.023	0.205	1.000
2477.0	31	1.1	2.306	0.170	269	0.004	0.209	1.000
2477.2	33	1.2	2.300	0.148	264	0.000	0.203	1.000
2477.4	35	1.3	2.265	0.143	259	0.000	0.214	0.978
2477.6	34	1.2	2.313	0.159	262	0.000	0.203	1.000
2477.8	32	1.1	2.293	0.171	269	0.000	0.215	1.000
2478.0	30	1.1	2.289	0.174	270	0.000	0.218	1.000
2478.2	32	1.1	2.293	0.172	269	0.000	0.216	1.000
2478.4	33	1.1	2.290	0.173	270	0.000	0.217	1.000
2478.6	31	1.0	2.289	0.171	270	0.000	0.217	1.000
2478.8	30	1.0	2.262	0.186	272	0.000	0.233	1.000
2479.0	30	1.0	2.258	0.202	272	0.015	0.237	0.981
2479.2	32	1.0	2.289	0.207	274	0.107	0.209	1.000
2479.4	34	1.1	2.323	0.196	272	0.143	0.184	1.000
2479.6	36	1.1	2.325	0.182	268	0.094	0.188	1.000
2479.8	38	1.2	2.319	0.176	267	0.059	0.196	1.000
2480.0	37	1.1	2.316	0.180	267	0.067	0.197	1.000
2480.2	37	1.1	2.312	0.182	271	0.064	0.199	1.000
2480.4	40	1.3	2.330	0.160	265	0.023	0.192	1.000
2480.6	47	1.5	2.367	0.151	259	0.073	0.165	1.000
2480.8	47	1.4	2.358	0.178	258	0.156	0.162	1.000
2481.0	44	1.1	2.304	0.201	263	0.119	0.199	1.000
2481.2	43	1.2	2.277	0.217	276	0.120	0.214	0.937
2481.4	48	1.4	2.304	0.212	269	0.158	0.194	0.907
2481.6	51	1.5	2.344	0.192	266	0.178	0.168	1.000
2481.8	50	1.3	2.331	0.195	267	0.157	0.178	1.000
2482.0	45	1.0	2.283	0.208	276	0.096	0.214	1.000
2482.2	43	0.9	2.267	0.202	286	0.038	0.229	1.000
2482.4	48	1.0	2.288	0.186	283	0.026	0.218	1.000
2482.6	58	1.5	2.321	0.185	275	0.096	0.190	0.943
2482.8	67	2.5	2.381	0.178	265	0.207	0.143	0.851
2483.0	83	4.2	2.459	0.176	257	0.380	0.083	1.000
2483.2	101	5.2	2.515	0.171	248	0.488	0.034	0.996
2483.4	111	5.5	2.532	0.182	247	0.569	0.011	1.000
2483.6	114	5.6	2.535	0.204	250	0.660	0.000	1.000
2483.8	117	5.4	2.541	0.209	253	0.693	0.000	1.000
2484.0	120	5.5	2.545	0.207	255	0.696	0.000	1.000
2484.2	112	5.3	2.527	0.201	254	0.630	0.002	1.000
2484.4	101	5.2	2.520	0.193	255	0.585	0.011	1.000
2484.6	96	4.9	2.516	0.193	253	0.576	0.013	1.000
2484.8	99	4.8	2.505	0.197	253	0.563	0.019	1.000
2485.0	100	4.8	2.506	0.190	253	0.541	0.024	1.000
2485.2	105	5.0	2.516	0.186	254	0.547	0.019	1.000
2485.4	106	5.1	2.519	0.193	256	0.582	0.011	1.000
2485.6	104	4.9	2.515	0.206	256	0.621	0.005	1.000
2485.8	105	5.2	2.515	0.210	260	0.637	0.002	1.000
2486.0	108	5.0	2.509	0.213	259	0.632	0.003	1.000
2486.2	107	4.8	2.479	0.204	260	0.533	0.035	0.961
2486.4	99	4.4	2.463	0.193	260	0.454	0.073	1.000

## ROUNDHEAD\_1 (page 11 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2486.6	100	4.3	2.483	0.194	258	0.504	0.043	0.955
2486.8	104	4.8	2.509	0.191	257	0.551	0.020	1.000
2487.0	107	4.8	2.508	0.197	255	0.569	0.017	1.000
2487.2	107	4.6	2.507	0.202	255	0.587	0.013	1.000
2487.4	107	4.7	2.507	0.197	256	0.570	0.017	1.000
2487.6	107	4.6	2.497	0.201	258	0.563	0.021	1.000
2487.8	102	4.3	2.472	0.205	259	0.518	0.043	0.924
2488.0	105	4.4	2.475	0.196	260	0.492	0.051	0.890
2488.2	112	4.9	2.520	0.193	259	0.583	0.011	1.000
2488.4	118	6.3	2.562	0.207	259	0.733	0.000	1.000
2488.6	114	6.6	2.557	0.207	255	0.720	0.000	1.000
2488.8	113	5.2	2.517	0.191	250	0.570	0.014	1.000
2489.0	100	3.7	2.470	0.173	246	0.394	0.075	1.000
2489.2	75	3.1	2.429	0.160	250	0.250	0.110	1.000
2489.4	62	2.7	2.400	0.143	260	0.121	0.140	0.985
2489.6	65	3.2	2.409	0.143	258	0.140	0.133	0.924
2489.8	74	3.3	2.452	0.159	252	0.297	0.093	1.000
2490.0	70	2.4	2.440	0.170	254	0.313	0.098	1.000
2490.2	58	1.7	2.374	0.181	259	0.202	0.148	1.000
2490.4	47	1.3	2.328	0.192	273	0.140	0.182	1.000
2490.6	46	1.3	2.321	0.183	280	0.089	0.191	1.000
2490.8	46	1.4	2.323	0.176	280	0.069	0.192	1.000
2491.0	45	1.7	2.334	0.169	278	0.064	0.186	0.999
2491.2	50	2.1	2.373	0.155	264	0.102	0.158	1.000
2491.4	56	2.5	2.393	0.151	253	0.131	0.144	0.994
2491.6	58	3.0	2.408	0.148	245	0.158	0.132	0.952
2491.8	63	3.0	2.458	0.144	241	0.255	0.092	1.000
2492.0	59	2.4	2.423	0.160	240	0.235	0.115	1.000
2492.2	49	1.6	2.344	0.174	247	0.110	0.175	1.000
2492.4	43	1.3	2.295	0.191	255	0.059	0.210	1.000
2492.6	43	1.3	2.274	0.200	263	0.046	0.224	0.985
2492.8	42	1.3	2.259	0.199	263	0.009	0.237	0.954
2493.0	43	1.2	2.261	0.209	269	0.050	0.231	0.964
2493.2	46	1.2	2.267	0.215	274	0.086	0.225	0.999
2493.4	54	1.2	2.252	0.224	280	0.087	0.234	0.961
2493.6	61	1.2	2.247	0.217	278	0.050	0.240	0.942
2493.8	64	1.4	2.271	0.202	278	0.048	0.226	0.922
2494.0	62	1.7	2.297	0.177	267	0.010	0.214	0.914
2494.2	61	1.5	2.297	0.182	270	0.032	0.212	0.956
2494.4	60	1.3	2.264	0.213	270	0.074	0.227	0.950
2494.6	57	1.1	2.243	0.225	275	0.068	0.241	0.975
2494.8	58	1.1	2.248	0.222	284	0.070	0.238	0.979
2495.0	59	1.2	2.256	0.226	282	0.102	0.229	0.972
2495.2	59	1.2	2.264	0.208	279	0.053	0.229	0.975
2495.4	55	1.2	2.265	0.203	273	0.038	0.230	0.986
2495.6	56	1.1	2.257	0.213	275	0.054	0.234	0.987
2495.8	54	1.1	2.252	0.215	278	0.052	0.237	1.000
2496.0	50	1.1	2.252	0.209	279	0.031	0.239	1.000
2496.2	51	1.0	2.249	0.214	279	0.042	0.240	1.000
2496.4	50	1.1	2.240	0.212	279	0.015	0.248	0.996
2496.6	48	1.1	2.245	0.214	277	0.032	0.243	0.989
2496.8	50	1.1	2.255	0.221	276	0.081	0.232	0.981
2497.0	54	1.2	2.250	0.215	277	0.045	0.239	0.968
2497.2	53	1.1	2.233	0.207	279	0.000	0.252	0.965
2497.4	51	1.1	2.209	0.222	280	0.000	0.267	0.919

## ROUNDHEAD\_1 (page 12 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2497.6	53	1.1	2.203	0.234	277	0.014	0.271	0.889
2497.8	55	1.1	2.225	0.237	278	0.075	0.251	0.918
2498.0	55	1.2	2.255	0.231	278	0.118	0.228	0.957
2498.2	55	1.3	2.286	0.213	275	0.124	0.208	0.985
2498.4	55	1.4	2.302	0.198	270	0.100	0.202	0.985
2498.6	53	1.5	2.304	0.200	266	0.113	0.199	0.958
2498.8	53	1.5	2.297	0.200	265	0.101	0.204	0.940
2499.0	47	1.5	2.301	0.204	266	0.124	0.200	0.968
2499.2	43	1.4	2.305	0.204	265	0.132	0.196	1.000
2499.4	45	1.3	2.299	0.209	267	0.138	0.200	1.000
2499.6	47	1.2	2.284	0.216	272	0.129	0.210	1.000
2499.8	46	1.2	2.283	0.217	274	0.129	0.210	1.000
2500.0	45	1.3	2.294	0.214	272	0.142	0.202	1.000
2500.2	45	1.3	2.303	0.212	271	0.159	0.195	1.000
2500.4	44	1.2	2.304	0.201	269	0.119	0.198	1.000
2500.6	46	1.2	2.297	0.195	271	0.080	0.206	1.000
2500.8	50	1.4	2.303	0.187	269	0.064	0.205	1.000
2501.0	56	1.6	2.331	0.164	265	0.039	0.190	1.000
2501.2	61	2.1	2.373	0.151	258	0.086	0.160	1.000
2501.4	62	2.5	2.386	0.148	251	0.106	0.150	0.972
2501.6	61	2.4	2.383	0.155	253	0.125	0.150	0.980
2501.8	60	2.2	2.378	0.161	254	0.139	0.152	0.998
2502.0	58	2.2	2.365	0.159	257	0.099	0.164	0.967
2502.2	57	2.3	2.359	0.166	259	0.110	0.166	0.919
2502.4	56	2.4	2.369	0.177	261	0.178	0.153	0.904
2502.6	57	2.4	2.377	0.190	260	0.245	0.142	0.932
2502.8	60	2.2	2.365	0.193	261	0.229	0.150	0.936
2503.0	63	2.2	2.355	0.180	262	0.158	0.163	0.917
2503.2	62	2.5	2.375	0.163	260	0.137	0.153	0.936
2503.4	67	2.9	2.409	0.152	256	0.174	0.129	0.962
2503.6	73	3.4	2.426	0.152	251	0.214	0.115	0.938
2503.8	72	3.4	2.418	0.159	251	0.220	0.120	0.899
2504.0	71	3.3	2.409	0.174	252	0.257	0.121	0.857
2504.2	72	3.4	2.407	0.182	253	0.281	0.121	1.000
2504.4	72	3.5	2.412	0.181	251	0.292	0.117	1.000
2504.6	71	3.7	2.408	0.167	252	0.229	0.124	1.000
2504.8	73	3.7	2.404	0.165	252	0.209	0.129	1.000
2505.0	72	3.3	2.396	0.180	255	0.250	0.129	1.000
2505.2	72	3.0	2.389	0.188	256	0.263	0.133	1.000
2505.4	79	3.0	2.392	0.183	259	0.252	0.132	1.000
2505.6	95	3.7	2.440	0.182	255	0.360	0.095	0.864
2505.8	102	4.7	2.501	0.189	252	0.525	0.030	1.000
2506.0	99	4.9	2.500	0.187	252	0.514	0.033	0.993
2506.2	96	3.7	2.453	0.194	259	0.432	0.083	0.897
2506.4	88	2.9	2.416	0.198	264	0.365	0.109	0.900
2506.6	86	2.5	2.405	0.178	266	0.264	0.123	1.000
2506.8	89	2.7	2.415	0.182	265	0.299	0.115	0.986
2507.0	90	2.9	2.426	0.186	257	0.343	0.105	0.967
2507.2	94	3.0	2.432	0.196	259	0.393	0.097	0.953
2507.4	99	3.5	2.449	0.197	255	0.438	0.084	0.902
2507.6	97	3.9	2.476	0.186	251	0.457	0.065	1.000
2507.8	96	4.1	2.473	0.181	251	0.431	0.071	0.953
2508.0	95	3.6	2.460	0.187	254	0.424	0.079	0.957
2508.2	100	3.4	2.453	0.187	258	0.408	0.084	0.978
2508.4	104	3.8	2.467	0.181	256	0.415	0.076	0.970

## ROUNDHEAD\_1 (page 13 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2508.6	107	4.3	2.494	0.176	252	0.458	0.055	1.000
2508.8	109	5.2	2.524	0.173	249	0.519	0.023	1.000
2509.0	115	5.8	2.544	0.177	248	0.579	0.007	1.000
2509.2	123	6.0	2.550	0.179	249	0.599	0.004	1.000
2509.4	126	5.6	2.531	0.197	250	0.624	0.003	1.000
2509.6	120	5.2	2.506	0.199	251	0.576	0.015	1.000
2509.8	116	5.2	2.511	0.187	250	0.541	0.022	1.000
2510.0	119	5.5	2.529	0.171	249	0.519	0.021	1.000
2510.2	118	5.6	2.535	0.163	247	0.504	0.022	1.000
2510.4	104	4.3	2.506	0.177	249	0.490	0.038	1.000
2510.6	90	2.8	2.443	0.195	255	0.416	0.089	1.000
2510.8	81	2.1	2.376	0.206	265	0.304	0.137	0.983
2511.0	75	1.8	2.341	0.206	273	0.220	0.166	0.966
2511.2	69	1.7	2.331	0.202	276	0.182	0.176	0.981
2511.4	65	1.6	2.332	0.205	278	0.199	0.173	0.985
2511.6	66	1.7	2.339	0.211	277	0.234	0.165	0.988
2511.8	68	1.7	2.337	0.211	274	0.230	0.167	0.970
2512.0	69	1.7	2.330	0.203	273	0.186	0.176	0.951
2512.2	68	1.7	2.325	0.208	272	0.194	0.178	0.953
2512.4	65	1.6	2.319	0.201	273	0.153	0.185	0.986
2512.6	63	1.5	2.320	0.197	275	0.141	0.186	1.000
2512.8	68	1.6	2.336	0.196	275	0.173	0.174	1.000
2513.0	79	1.8	2.357	0.201	273	0.240	0.154	1.000
2513.2	89	1.8	2.342	0.228	274	0.308	0.157	0.945
2513.4	83	1.5	2.292	0.242	276	0.246	0.192	0.888
2513.6	67	1.3	2.282	0.214	282	0.115	0.212	0.983
2513.8	59	1.3	2.315	0.191	279	0.105	0.193	1.000
2514.0	58	1.5	2.340	0.191	273	0.162	0.172	1.000
2514.2	59	1.7	2.340	0.182	269	0.127	0.176	1.000
2514.4	64	1.9	2.359	0.175	268	0.144	0.163	1.000
2514.6	67	2.1	2.378	0.176	267	0.194	0.146	1.000
2514.8	73	2.5	2.403	0.179	264	0.263	0.124	0.995
2515.0	83	2.8	2.425	0.181	260	0.320	0.107	1.000
2515.2	88	3.1	2.414	0.201	258	0.369	0.110	0.855
2515.4	87	2.9	2.393	0.213	258	0.370	0.122	1.000
2515.6	84	2.7	2.389	0.195	262	0.289	0.131	0.888
2515.8	81	2.6	2.393	0.182	264	0.252	0.131	0.940
2516.0	82	2.6	2.402	0.189	260	0.298	0.122	0.947
2516.2	74	2.3	2.383	0.191	261	0.263	0.136	0.956
2516.4	62	2.0	2.346	0.186	265	0.158	0.169	0.932
2516.6	57	1.9	2.342	0.169	267	0.084	0.179	0.972
2516.8	63	2.4	2.393	0.162	263	0.176	0.139	1.000
2517.0	73	2.8	2.423	0.177	254	0.302	0.109	1.000
2517.2	70	2.7	2.399	0.195	250	0.314	0.123	0.916
2517.4	57	2.1	2.364	0.184	254	0.192	0.155	0.974
2517.6	47	1.4	2.346	0.171	267	0.101	0.175	1.000
2517.8	44	1.4	2.339	0.168	274	0.075	0.182	1.000
2518.0	47	1.5	2.339	0.163	270	0.053	0.184	1.000
2518.2	49	1.7	2.345	0.157	268	0.048	0.181	1.000
2518.4	48	1.6	2.334	0.155	267	0.011	0.191	1.000
2518.6	46	1.7	2.338	0.147	270	0.000	0.189	1.000
2518.8	52	1.7	2.369	0.151	263	0.079	0.163	1.000
2519.0	59	1.6	2.379	0.187	261	0.240	0.141	1.000
2519.2	53	1.5	2.345	0.207	263	0.235	0.161	1.000
2519.4	43	1.2	2.314	0.202	270	0.145	0.190	1.000

## ROUNDHEAD\_1 (page 14 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2519.6	38	1.1	2.313	0.201	275	0.138	0.191	1.000
2519.8	38	1.2	2.324	0.192	271	0.128	0.185	1.000
2520.0	38	1.3	2.332	0.171	266	0.070	0.186	1.000
2520.2	37	1.3	2.335	0.161	264	0.039	0.188	1.000
2520.4	35	1.3	2.338	0.158	262	0.033	0.186	1.000
2520.6	36	1.3	2.334	0.161	263	0.035	0.189	1.000
2520.8	36	1.3	2.329	0.177	263	0.085	0.187	1.000
2521.0	36	1.3	2.326	0.187	263	0.117	0.185	1.000
2521.2	36	1.3	2.327	0.177	263	0.082	0.188	1.000
2521.4	38	1.3	2.323	0.167	264	0.032	0.196	1.000
2521.6	40	1.3	2.325	0.163	265	0.023	0.196	1.000
2521.8	39	1.3	2.330	0.164	265	0.037	0.191	1.000
2522.0	38	1.4	2.324	0.163	262	0.021	0.196	1.000
2522.2	38	1.4	2.325	0.163	260	0.023	0.195	1.000
2522.4	37	1.4	2.334	0.156	260	0.015	0.191	1.000
2522.6	34	1.4	2.335	0.151	260	0.000	0.192	1.000
2522.8	35	1.5	2.331	0.150	257	0.000	0.192	1.000
2523.0	38	1.5	2.334	0.156	255	0.019	0.190	1.000
2523.2	36	1.5	2.345	0.163	254	0.069	0.179	1.000
2523.4	35	1.5	2.352	0.158	254	0.069	0.174	1.000
2523.6	35	1.4	2.344	0.154	256	0.034	0.183	1.000
2523.8	35	1.4	2.331	0.165	259	0.042	0.190	1.000
2524.0	36	1.3	2.328	0.170	263	0.055	0.190	1.000
2524.2	35	1.4	2.326	0.167	263	0.042	0.193	1.000
2524.4	31	1.4	2.326	0.169	260	0.048	0.192	1.000
2524.6	30	1.4	2.333	0.170	263	0.068	0.186	1.000
2524.8	30	1.3	2.340	0.164	267	0.062	0.182	1.000
2525.0	31	1.3	2.358	0.150	271	0.048	0.173	1.000
2525.2	36	1.4	2.381	0.129	271	0.023	0.161	1.000
2525.4	47	1.8	2.406	0.118	264	0.036	0.145	1.000
2525.6	55	2.3	2.404	0.128	255	0.073	0.143	1.000
2525.8	58	2.8	2.399	0.138	251	0.098	0.143	0.971
2526.0	59	2.7	2.396	0.147	251	0.124	0.142	0.960
2526.2	60	2.8	2.394	0.155	252	0.151	0.141	0.923
2526.4	62	3.1	2.413	0.154	249	0.191	0.126	0.931
2526.6	60	3.4	2.442	0.137	246	0.193	0.108	1.000
2526.8	59	3.8	2.452	0.117	244	0.141	0.107	1.000
2527.0	61	4.1	2.449	0.107	241	0.095	0.113	0.992
2527.2	59	4.3	2.459	0.098	238	0.086	0.108	1.000
2527.4	57	4.5	2.475	0.098	234	0.121	0.095	1.000
2527.6	53	3.7	2.452	0.122	233	0.159	0.105	1.000
2527.8	49	3.0	2.410	0.137	240	0.119	0.134	0.968
2528.0	42	2.6	2.387	0.136	246	0.065	0.153	0.969
2528.2	41	2.6	2.397	0.131	245	0.068	0.147	1.000
2528.4	41	2.5	2.408	0.135	243	0.109	0.136	1.000
2528.6	40	2.1	2.387	0.145	245	0.098	0.150	1.000
2528.8	42	1.7	2.359	0.152	254	0.058	0.171	1.000
2529.0	43	1.5	2.344	0.157	261	0.045	0.182	1.000
2529.2	46	1.5	2.340	0.157	265	0.035	0.185	1.000
2529.4	46	1.6	2.344	0.150	263	0.018	0.185	1.000
2529.6	45	1.7	2.356	0.145	259	0.024	0.176	1.000
2529.8	44	1.9	2.366	0.142	255	0.037	0.169	1.000
2530.0	47	2.1	2.377	0.143	252	0.068	0.159	1.000
2530.2	50	2.2	2.379	0.152	253	0.103	0.155	1.000
2530.4	52	2.2	2.372	0.158	255	0.113	0.158	0.978

## ROUNDHEAD\_1 (page 15 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2530.6	54	2.4	2.380	0.157	254	0.128	0.151	0.957
2530.8	50	2.8	2.403	0.136	252	0.099	0.140	0.989
2531.0	48	3.1	2.417	0.123	248	0.084	0.133	0.988
2531.2	50	3.6	2.427	0.121	243	0.097	0.126	0.960
2531.4	57	3.8	2.436	0.125	238	0.136	0.117	0.948
2531.6	58	3.5	2.440	0.135	240	0.179	0.111	1.000
2531.8	53	2.8	2.420	0.145	246	0.172	0.123	1.000
2532.0	47	2.2	2.390	0.155	255	0.140	0.144	1.000
2532.2	45	2.1	2.367	0.156	258	0.091	0.163	0.998
2532.4	44	2.2	2.362	0.151	258	0.062	0.169	0.961
2532.6	47	2.1	2.371	0.155	256	0.098	0.160	1.000
2532.8	49	2.0	2.362	0.162	256	0.102	0.165	1.000
2533.0	52	1.8	2.346	0.171	261	0.103	0.174	0.995
2533.2	52	1.9	2.347	0.176	266	0.122	0.172	0.980
2533.4	51	2.1	2.362	0.177	261	0.161	0.159	0.970
2533.6	52	2.1	2.370	0.171	260	0.154	0.155	1.000
2533.8	54	2.0	2.363	0.171	261	0.143	0.160	0.993
2534.0	56	2.0	2.349	0.170	263	0.104	0.173	0.967
2534.2	58	2.0	2.352	0.168	263	0.104	0.171	0.975
2534.4	58	2.0	2.360	0.165	261	0.110	0.165	0.988
2534.6	58	1.9	2.358	0.174	262	0.141	0.163	0.995
2534.8	63	1.8	2.343	0.196	265	0.190	0.167	0.986
2535.0	69	1.8	2.343	0.203	267	0.216	0.165	0.969
2535.2	73	1.9	2.374	0.188	268	0.232	0.145	1.000
2535.4	86	2.1	2.389	0.188	267	0.263	0.133	1.000
2535.6	104	2.4	2.406	0.203	268	0.359	0.115	0.984
2535.8	114	2.6	2.424	0.216	268	0.450	0.097	0.977
2536.0	105	2.8	2.415	0.212	269	0.415	0.106	0.909
2536.2	95	2.9	2.388	0.209	265	0.340	0.128	1.000
2536.4	91	2.7	2.384	0.212	263	0.344	0.129	1.000
2536.6	88	2.8	2.398	0.212	262	0.376	0.119	1.000
2536.8	86	2.9	2.402	0.203	261	0.350	0.118	0.856
2537.0	90	3.0	2.410	0.196	260	0.344	0.114	0.868
2537.2	93	3.1	2.419	0.198	259	0.371	0.107	0.876
2537.4	96	3.0	2.415	0.194	261	0.346	0.111	0.888
2537.6	98	3.0	2.404	0.196	260	0.328	0.119	0.853
2537.8	92	3.1	2.413	0.199	257	0.361	0.111	1.000
2538.0	92	3.4	2.442	0.185	253	0.373	0.093	0.918
2538.2	94	3.8	2.457	0.179	251	0.383	0.084	0.919
2538.4	93	3.7	2.451	0.175	250	0.357	0.089	0.931
2538.6	91	3.4	2.442	0.178	252	0.348	0.095	0.945
2538.8	91	3.2	2.429	0.189	254	0.359	0.102	0.907
2539.0	90	3.1	2.417	0.186	256	0.324	0.111	0.890
2539.2	92	3.1	2.419	0.183	256	0.314	0.111	0.900
2539.4	92	3.2	2.434	0.187	254	0.363	0.099	0.932
2539.6	95	3.3	2.447	0.179	252	0.362	0.091	0.980
2539.8	96	3.4	2.455	0.171	251	0.350	0.088	1.000
2540.0	94	3.4	2.462	0.163	251	0.338	0.084	1.000
2540.2	92	3.2	2.466	0.161	251	0.339	0.081	1.000
2540.4	91	3.0	2.468	0.163	251	0.350	0.080	1.000
2540.6	91	3.0	2.457	0.169	251	0.350	0.086	1.000
2540.8	90	3.0	2.442	0.170	251	0.317	0.097	1.000
2541.0	88	3.0	2.445	0.165	251	0.306	0.096	1.000
2541.2	86	2.8	2.455	0.166	251	0.334	0.088	1.000
2541.4	83	2.7	2.454	0.169	252	0.340	0.088	1.000

## ROUNDHEAD\_1 (page 16 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2541.6	81	2.5	2.445	0.175	252	0.344	0.093	1.000
2541.8	81	2.3	2.438	0.181	255	0.350	0.097	1.000
2542.0	76	2.3	2.432	0.186	256	0.356	0.100	1.000
2542.2	72	2.2	2.430	0.183	257	0.337	0.103	1.000
2542.4	73	2.3	2.429	0.179	255	0.321	0.104	1.000
2542.6	74	2.3	2.438	0.175	255	0.328	0.098	1.000
2542.8	70	2.2	2.440	0.173	254	0.323	0.098	1.000
2543.0	66	2.2	2.435	0.182	254	0.348	0.099	1.000
2543.2	64	2.2	2.430	0.178	254	0.320	0.104	1.000
2543.4	65	2.1	2.417	0.166	255	0.246	0.117	1.000
2543.6	63	2.1	2.417	0.171	255	0.263	0.116	1.000
2543.8	64	2.1	2.420	0.181	256	0.307	0.111	1.000
2544.0	64	2.1	2.414	0.184	256	0.307	0.114	1.000
2544.2	62	2.1	2.405	0.183	256	0.282	0.122	1.000
2544.4	60	2.1	2.406	0.177	254	0.260	0.123	1.000
2544.6	57	2.1	2.418	0.172	253	0.271	0.114	1.000
2544.8	57	1.7	2.433	0.170	252	0.297	0.104	1.000
2545.0	58	1.6	2.467	0.165	252	0.354	0.080	1.000
2545.2	59	1.8	2.496	0.153	252	0.378	0.061	1.000
2545.4	61	3.0	2.504	0.135	248	0.326	0.060	1.000
2545.6	61	3.9	2.502	0.113	242	0.241	0.068	1.000
2545.8	64	4.4	2.511	0.105	236	0.230	0.063	1.000
2546.0	67	5.5	2.520	0.110	230	0.271	0.054	1.000
2546.2	73	6.8	2.540	0.113	225	0.329	0.038	1.000
2546.4	79	8.3	2.564	0.111	224	0.373	0.022	1.000
2546.6	82	9.6	2.579	0.096	222	0.352	0.014	1.000
2546.8	77	9.9	2.565	0.078	221	0.250	0.029	1.000
2547.0	70	9.5	2.557	0.077	220	0.230	0.036	1.000
2547.2	61	8.2	2.555	0.079	219	0.233	0.036	1.000
2547.4	59	7.0	2.533	0.087	220	0.211	0.052	1.000
2547.6	57	6.0	2.507	0.098	223	0.195	0.069	1.000
2547.8	57	5.2	2.480	0.106	226	0.162	0.088	1.000
2548.0	54	4.5	2.454	0.098	230	0.071	0.112	0.971
2548.2	51	4.0	2.440	0.103	232	0.059	0.122	0.971
2548.4	49	3.4	2.434	0.112	232	0.082	0.123	1.000
2548.6	47	2.8	2.414	0.124	234	0.080	0.135	1.000
2548.8	46	2.3	2.381	0.144	238	0.079	0.156	1.000
2549.0	45	1.9	2.359	0.150	244	0.051	0.172	1.000
2549.2	43	1.7	2.356	0.158	250	0.076	0.171	1.000
2549.4	42	1.5	2.358	0.162	254	0.095	0.168	1.000
2549.6	42	1.4	2.345	0.157	259	0.045	0.181	1.000
2549.8	43	1.4	2.331	0.155	264	0.009	0.193	1.000
2550.0	44	1.3	2.326	0.164	264	0.028	0.194	1.000
2550.2	43	1.3	2.324	0.175	266	0.066	0.192	1.000
2550.4	43	1.2	2.319	0.188	267	0.102	0.191	1.000
2550.6	45	1.2	2.304	0.192	267	0.085	0.202	1.000
2550.8	45	1.2	2.300	0.183	266	0.042	0.209	1.000
2551.0	44	1.2	2.303	0.168	265	0.000	0.210	1.000
2551.2	46	1.3	2.307	0.164	263	0.000	0.207	1.000
2551.4	46	1.3	2.301	0.177	263	0.020	0.210	1.000
2551.6	44	1.3	2.303	0.178	262	0.029	0.209	1.000
2551.8	43	1.3	2.304	0.173	262	0.014	0.209	1.000
2552.0	46	1.3	2.308	0.179	262	0.044	0.204	1.000
2552.2	47	1.3	2.313	0.175	263	0.039	0.201	1.000
2552.4	48	1.3	2.315	0.170	262	0.026	0.201	1.000

## ROUNDHEAD\_1 (page 17 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2552.6	49	1.3	2.309	0.183	260	0.061	0.202	1.000
2552.8	51	1.3	2.303	0.192	261	0.081	0.203	1.000
2553.0	50	1.3	2.303	0.188	261	0.069	0.204	1.000
2553.2	50	1.3	2.307	0.181	262	0.048	0.204	1.000
2553.4	49	1.4	2.306	0.173	261	0.017	0.208	1.000
2553.6	47	1.4	2.313	0.171	260	0.025	0.203	1.000
2553.8	46	1.4	2.318	0.171	258	0.036	0.199	1.000
2554.0	46	1.4	2.316	0.165	258	0.010	0.203	1.000
2554.2	46	1.4	2.311	0.169	258	0.014	0.205	1.000
2554.4	46	1.4	2.314	0.172	258	0.034	0.201	1.000
2554.6	45	1.4	2.324	0.172	258	0.055	0.193	1.000
2554.8	46	1.3	2.327	0.172	258	0.061	0.190	1.000
2555.0	47	1.3	2.323	0.173	258	0.055	0.194	1.000
2555.2	46	1.3	2.311	0.167	260	0.006	0.206	1.000
2555.4	43	1.3	2.307	0.171	260	0.013	0.208	1.000
2555.6	43	1.3	2.307	0.177	261	0.034	0.205	1.000
2555.8	47	1.3	2.308	0.176	264	0.031	0.205	1.000
2556.0	53	1.4	2.317	0.169	264	0.027	0.200	1.000
2556.2	52	1.4	2.311	0.172	265	0.027	0.203	1.000
2556.4	50	1.4	2.299	0.187	263	0.056	0.208	1.000
2556.6	50	1.4	2.309	0.184	262	0.066	0.201	1.000
2556.8	48	1.5	2.331	0.172	260	0.070	0.187	1.000
2557.0	47	1.6	2.336	0.161	257	0.040	0.187	1.000
2557.2	46	1.7	2.346	0.145	254	0.004	0.184	1.000
2557.4	45	1.9	2.363	0.130	251	0.000	0.173	1.000
2557.6	42	2.1	2.380	0.129	245	0.021	0.162	1.000
2557.8	39	2.2	2.390	0.126	243	0.031	0.155	1.000
2558.0	38	2.4	2.401	0.113	239	0.006	0.151	1.000
2558.2	36	2.5	2.409	0.104	237	0.000	0.145	1.000
2558.4	36	2.4	2.404	0.112	236	0.010	0.148	1.000
2558.6	37	2.3	2.405	0.120	236	0.045	0.144	1.000
2558.8	38	2.2	2.411	0.121	238	0.059	0.140	1.000
2559.0	39	2.2	2.411	0.114	237	0.035	0.141	1.000
2559.2	42	2.3	2.407	0.109	236	0.007	0.146	1.000
2559.4	44	2.3	2.409	0.116	237	0.038	0.142	1.000
2559.6	48	2.2	2.395	0.124	242	0.036	0.151	1.000
2559.8	52	1.9	2.377	0.134	247	0.032	0.163	1.000
2560.0	53	1.7	2.347	0.151	253	0.027	0.182	1.000
2560.2	56	1.6	2.326	0.167	259	0.040	0.193	1.000
2560.4	60	1.5	2.319	0.168	262	0.027	0.199	1.000
2560.6	64	1.4	2.307	0.180	265	0.046	0.204	1.000
2560.8	68	1.3	2.288	0.197	269	0.069	0.213	0.992
2561.0	71	1.3	2.281	0.198	272	0.055	0.219	0.980
2561.2	71	1.3	2.287	0.187	271	0.025	0.219	1.000
2561.4	67	1.3	2.293	0.184	271	0.029	0.214	1.000
2561.6	66	1.3	2.282	0.192	275	0.032	0.221	0.971
2561.8	65	1.2	2.275	0.195	277	0.026	0.226	1.000
2562.0	60	1.1	2.280	0.206	277	0.083	0.217	1.000
2562.2	60	1.1	2.271	0.231	279	0.157	0.214	1.000
2562.4	61	1.0	2.268	0.233	280	0.157	0.216	1.000
2562.6	59	1.1	2.264	0.230	280	0.136	0.221	1.000
2562.8	61	1.2	2.277	0.224	279	0.141	0.213	1.000
2563.0	60	1.2	2.296	0.216	275	0.158	0.199	1.000
2563.2	54	1.2	2.299	0.227	270	0.205	0.192	1.000
2563.4	52	1.1	2.297	0.220	269	0.173	0.197	1.000



ROUNDHEAD\_1 (page 18 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2563.6	51	1.1	2.292	0.208	267	0.117	0.206	1.000
2563.8	49	1.1	2.286	0.213	268	0.123	0.209	1.000
2564.0	49	1.1	2.288	0.211	267	0.118	0.208	1.000
2564.2	48	1.1	2.288	0.197	266	0.064	0.214	1.000
2564.4	48	1.1	2.289	0.184	265	0.021	0.218	1.000
2564.6	50	1.1	2.294	0.186	263	0.037	0.213	1.000
2564.8	50	1.1	2.296	0.197	263	0.083	0.207	1.000
2565.0	47	1.1	2.292	0.200	263	0.088	0.209	1.000
2565.2	42	1.1	2.292	0.191	261	0.055	0.212	1.000
2565.4	43	1.1	2.292	0.187	261	0.040	0.214	1.000
2565.6	45	1.1	2.287	0.181	262	0.003	0.221	1.000
2565.8	45	1.1	2.288	0.184	267	0.016	0.219	1.000
2566.0	43	1.0	2.280	0.183	274	0.000	0.225	1.000
2566.2	44	1.0	2.275	0.182	275	0.000	0.227	1.000
2566.4	45	1.1	2.284	0.185	273	0.012	0.222	1.000
2566.6	40	1.1	2.304	0.179	267	0.036	0.207	1.000
2566.8	38	1.3	2.322	0.165	262	0.024	0.197	1.000
2567.0	38	1.3	2.334	0.152	257	0.003	0.192	1.000
2567.2	35	1.4	2.348	0.146	254	0.012	0.182	1.000
2567.4	31	1.4	2.360	0.136	252	0.000	0.176	1.000
2567.6	30	1.4	2.361	0.138	252	0.010	0.175	1.000
2567.8	29	1.4	2.357	0.135	251	0.000	0.177	1.000
2568.0	29	1.4	2.364	0.134	251	0.002	0.174	1.000
2568.2	30	1.4	2.366	0.140	250	0.029	0.170	1.000
2568.4	30	1.4	2.363	0.144	253	0.037	0.171	1.000
2568.6	34	1.3	2.367	0.140	252	0.032	0.169	1.000
2568.8	32	1.1	2.398	0.147	255	0.130	0.140	1.000
2569.0	28	1.1	2.438	0.158	253	0.263	0.104	1.000
2569.2	29	1.3	2.434	0.143	252	0.197	0.112	1.000
2569.4	33	1.8	2.409	0.117	243	0.043	0.142	1.000
2569.6	31	2.7	2.404	0.103	235	0.000	0.147	1.000
2569.8	26	2.9	2.383	0.098	233	0.000	0.152	0.987
2570.0	28	2.4	2.358	0.111	240	0.000	0.166	0.982
2570.2	30	2.2	2.359	0.123	239	0.000	0.171	1.000
2570.4	28	2.1	2.359	0.123	242	0.000	0.171	1.000
2570.6	29	2.0	2.345	0.130	243	0.000	0.179	1.000
2570.8	30	1.8	2.339	0.136	245	0.000	0.184	1.000
2571.0	28	1.8	2.335	0.133	250	0.000	0.184	1.000
2571.2	30	1.8	2.352	0.123	249	0.000	0.173	1.000
2571.4	30	1.8	2.375	0.119	248	0.000	0.164	1.000
2571.6	27	1.9	2.372	0.130	244	0.005	0.168	1.000
2571.8	26	2.0	2.356	0.161	246	0.088	0.170	0.983
2572.0	26	2.0	2.361	0.176	247	0.154	0.160	0.977
2572.2	27	2.1	2.372	0.172	245	0.162	0.153	0.984
2572.4	25	2.2	2.377	0.159	242	0.130	0.153	1.000
2572.6	28	2.2	2.383	0.153	242	0.119	0.151	1.000
2572.8	30	2.4	2.387	0.153	240	0.127	0.147	0.987
2573.0	30	2.6	2.391	0.158	238	0.154	0.142	0.957
2573.2	27	2.6	2.392	0.150	238	0.129	0.144	0.965
2573.4	29	2.3	2.378	0.136	239	0.044	0.161	1.000
2573.6	30	2.0	2.359	0.131	243	0.000	0.175	1.000
2573.8	29	1.9	2.347	0.152	243	0.033	0.181	1.000
2574.0	27	1.9	2.361	0.153	242	0.068	0.169	1.000
2574.2	26	2.1	2.379	0.140	240	0.059	0.159	1.000
2574.4	26	2.2	2.383	0.140	240	0.066	0.156	1.000

ROUNDHEAD\_1 (page 19 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2574.6	27	2.2	2.383	0.140	240	0.068	0.156	1.000
2574.8	26	2.3	2.383	0.140	238	0.068	0.156	1.000
2575.0	27	2.1	2.378	0.147	239	0.084	0.157	1.000
2575.2	26	1.9	2.377	0.157	240	0.120	0.154	1.000
2575.4	25	1.8	2.386	0.151	240	0.117	0.149	1.000
2575.6	24	1.8	2.383	0.141	243	0.072	0.155	1.000
2575.8	23	1.7	2.369	0.136	246	0.021	0.169	1.000
2576.0	23	1.7	2.362	0.136	249	0.007	0.175	1.000
2576.2	27	1.7	2.363	0.132	247	0.000	0.174	1.000
2576.4	29	1.7	2.368	0.121	248	0.000	0.167	1.000
2576.6	28	1.7	2.378	0.115	247	0.000	0.161	1.000
2576.8	28	1.9	2.395	0.108	247	0.000	0.152	1.000
2577.0	31	2.2	2.408	0.105	238	0.000	0.146	1.000
2577.2	32	2.2	2.401	0.113	233	0.006	0.151	1.000
2577.4	32	1.8	2.363	0.121	236	0.000	0.169	1.000
2577.6	35	1.6	2.352	0.129	246	0.000	0.176	1.000
2577.8	35	1.7	2.370	0.124	251	0.000	0.168	1.000
2578.0	34	1.8	2.391	0.111	248	0.000	0.155	1.000
2578.2	31	1.8	2.386	0.117	251	0.000	0.159	1.000
2578.4	30	1.5	2.363	0.135	253	0.004	0.174	1.000
2578.6	28	1.3	2.341	0.146	261	0.000	0.188	1.000
2578.8	31	1.3	2.328	0.152	263	0.000	0.195	1.000
2579.0	34	1.3	2.335	0.156	265	0.020	0.189	1.000
2579.2	34	1.5	2.347	0.158	265	0.054	0.179	1.000
2579.4	33	1.6	2.340	0.160	258	0.047	0.184	1.000
2579.6	33	1.5	2.327	0.157	260	0.007	0.196	1.000
2579.8	32	1.6	2.336	0.158	258	0.030	0.188	1.000
2580.0	33	1.7	2.362	0.156	256	0.082	0.167	1.000
2580.2	31	1.9	2.387	0.135	250	0.061	0.154	1.000
2580.4	29	1.9	2.391	0.114	245	0.000	0.156	1.000
2580.6	31	1.5	2.375	0.114	241	0.000	0.161	1.000
2580.8	37	1.2	2.343	0.133	248	0.000	0.181	1.000
2581.0	41	1.0	2.317	0.151	257	0.000	0.198	1.000
2581.2	41	1.0	2.315	0.159	267	0.000	0.202	1.000
2581.4	42	1.1	2.322	0.164	265	0.021	0.197	1.000
2581.6	41	1.1	2.314	0.171	264	0.027	0.202	1.000
2581.8	41	1.0	2.299	0.181	266	0.031	0.211	1.000
2582.0	42	1.1	2.308	0.174	263	0.026	0.205	1.000
2582.2	39	1.2	2.327	0.159	260	0.013	0.195	1.000
2582.4	35	1.2	2.337	0.144	253	0.000	0.188	1.000
2582.6	38	1.2	2.344	0.150	250	0.016	0.185	1.000
2582.8	45	1.3	2.352	0.160	250	0.075	0.174	1.000
2583.0	49	1.3	2.343	0.161	247	0.059	0.181	1.000
2583.2	45	1.2	2.334	0.149	248	0.000	0.191	1.000
2583.4	44	1.1	2.318	0.155	250	0.000	0.200	1.000
2583.6	46	1.0	2.301	0.166	256	0.000	0.210	1.000
2583.8	51	1.0	2.300	0.170	260	0.000	0.212	1.000
2584.0	51	1.1	2.304	0.171	260	0.005	0.210	1.000
2584.2	47	1.1	2.307	0.179	260	0.041	0.205	1.000
2584.4	45	1.1	2.311	0.171	258	0.021	0.204	1.000
2584.6	46	1.1	2.311	0.167	257	0.006	0.206	1.000
2584.8	45	1.1	2.300	0.171	256	0.000	0.213	1.000
2585.0	44	1.1	2.292	0.186	258	0.035	0.214	1.000
2585.2	44	1.1	2.298	0.189	259	0.059	0.208	1.000
2585.4	45	1.2	2.312	0.181	259	0.061	0.200	1.000

## ROUNDHEAD\_1 (page 20 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2585.6	47	1.3	2.319	0.182	256	0.082	0.193	1.000
2585.8	46	1.2	2.310	0.182	255	0.062	0.201	1.000
2586.0	48	1.2	2.295	0.188	261	0.050	0.211	1.000
2586.2	49	1.2	2.292	0.178	259	0.004	0.217	1.000
2586.4	46	1.3	2.313	0.160	250	0.000	0.204	1.000
2586.6	48	1.4	2.336	0.152	246	0.007	0.190	1.000
2586.8	50	1.6	2.346	0.153	245	0.033	0.182	1.000
2587.0	49	1.7	2.349	0.151	244	0.033	0.180	1.000
2587.2	48	1.5	2.335	0.169	245	0.066	0.185	1.000
2587.4	54	1.3	2.293	0.201	255	0.093	0.208	1.000
2587.6	60	1.1	2.272	0.204	264	0.055	0.224	1.000
2587.8	56	1.1	2.286	0.193	267	0.048	0.217	1.000
2588.0	53	1.2	2.295	0.197	260	0.081	0.208	1.000
2588.2	50	1.2	2.295	0.201	258	0.098	0.206	1.000
2588.4	51	1.2	2.303	0.196	258	0.095	0.202	1.000
2588.6	54	1.2	2.310	0.183	258	0.064	0.201	1.000
2588.8	58	1.1	2.305	0.181	258	0.046	0.205	1.000
2589.0	59	1.0	2.281	0.201	264	0.066	0.218	1.000
2589.2	60	1.1	2.267	0.202	267	0.035	0.230	1.000
2589.4	62	1.1	2.272	0.196	269	0.025	0.228	1.000
2589.6	64	1.2	2.275	0.192	269	0.020	0.226	1.000
2589.8	67	1.2	2.275	0.195	268	0.032	0.225	1.000
2590.0	64	1.2	2.273	0.190	270	0.005	0.229	1.000
2590.2	65	1.2	2.277	0.202	270	0.061	0.221	1.000
2590.4	69	1.2	2.286	0.207	269	0.098	0.212	1.000
2590.6	62	1.3	2.300	0.191	264	0.069	0.206	1.000
2590.8	53	1.3	2.313	0.167	257	0.010	0.204	1.000
2591.0	57	1.2	2.312	0.168	259	0.013	0.204	1.000
2591.2	62	1.2	2.301	0.181	261	0.039	0.208	1.000
2591.4	63	1.2	2.297	0.195	265	0.080	0.207	1.000
2591.6	63	1.3	2.299	0.186	267	0.051	0.208	1.000
2591.8	62	1.2	2.294	0.191	267	0.060	0.211	1.000
2592.0	62	1.2	2.277	0.198	269	0.046	0.222	1.000
2592.2	73	1.2	2.268	0.209	271	0.066	0.226	0.980
2592.4	74	1.3	2.293	0.211	270	0.132	0.204	1.000
2592.6	66	1.3	2.313	0.213	269	0.185	0.186	1.000
2592.8	62	1.2	2.314	0.203	265	0.150	0.189	1.000
2593.0	66	1.2	2.298	0.185	265	0.045	0.210	1.000
2593.2	69	1.3	2.290	0.188	266	0.037	0.216	0.998
2593.4	67	1.4	2.285	0.193	267	0.043	0.218	0.968
2593.6	69	1.3	2.280	0.206	271	0.083	0.216	0.963
2593.8	70	1.2	2.267	0.214	274	0.083	0.225	0.978
2594.0	71	1.2	2.262	0.208	276	0.046	0.232	0.981
2594.2	71	1.2	2.263	0.197	275	0.009	0.235	0.990
2594.4	72	1.2	2.259	0.201	276	0.015	0.237	0.970
2594.6	71	1.2	2.257	0.211	276	0.050	0.234	0.972
2594.8	71	1.2	2.261	0.217	278	0.082	0.228	0.979
2595.0	72	1.2	2.273	0.224	275	0.133	0.216	0.981
2595.2	73	1.3	2.290	0.218	273	0.149	0.204	0.973
2595.4	76	1.3	2.292	0.211	274	0.128	0.205	0.981
2595.6	77	1.3	2.278	0.213	276	0.104	0.216	0.946
2595.8	80	1.3	2.285	0.212	278	0.117	0.210	0.960
2596.0	82	1.4	2.303	0.215	277	0.169	0.193	0.987
2596.2	76	1.4	2.306	0.207	274	0.148	0.194	0.993
2596.4	72	1.4	2.302	0.197	272	0.099	0.202	0.994

## ROUNDHEAD\_1 (page 21 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2596.6	73	1.3	2.298	0.191	274	0.069	0.207	1.000
2596.8	80	1.4	2.288	0.212	270	0.124	0.207	0.966
2597.0	79	1.4	2.288	0.213	269	0.127	0.207	0.956
2597.2	76	1.4	2.303	0.183	269	0.049	0.206	0.996
2597.4	77	1.5	2.304	0.183	270	0.049	0.206	0.984
2597.6	77	1.4	2.289	0.206	270	0.104	0.209	0.959
2597.8	75	1.3	2.277	0.229	272	0.162	0.210	0.948
2598.0	72	1.3	2.272	0.218	272	0.109	0.219	0.964
2598.2	77	1.2	2.272	0.203	272	0.051	0.225	0.986
2598.4	77	1.2	2.275	0.199	272	0.044	0.224	1.000
2598.6	74	1.3	2.276	0.219	275	0.121	0.215	0.961
2598.8	79	1.4	2.295	0.218	276	0.161	0.200	0.950
2599.0	77	1.5	2.314	0.203	271	0.148	0.189	0.985
2599.2	74	1.5	2.309	0.201	268	0.131	0.194	0.980
2599.4	72	1.3	2.290	0.208	268	0.113	0.207	0.981
2599.6	71	1.2	2.290	0.214	270	0.134	0.205	1.000
2599.8	71	1.3	2.300	0.199	271	0.102	0.203	1.000
2600.0	72	1.3	2.307	0.193	273	0.096	0.199	1.000
2600.2	69	1.3	2.300	0.194	272	0.083	0.204	1.000
2600.4	65	1.3	2.285	0.202	273	0.077	0.215	0.990
2600.6	69	1.3	2.289	0.206	274	0.101	0.210	1.000
2600.8	74	1.4	2.312	0.198	273	0.125	0.193	1.000
2601.0	78	1.5	2.335	0.194	274	0.163	0.175	1.000
2601.2	77	1.4	2.334	0.206	273	0.205	0.171	1.000
2601.4	71	1.4	2.308	0.211	271	0.167	0.191	1.000
2601.6	62	1.2	2.285	0.218	270	0.141	0.208	1.000
2601.8	55	1.1	2.282	0.220	269	0.139	0.209	1.000
2602.0	54	1.1	2.292	0.210	266	0.127	0.205	1.000
2602.2	54	1.1	2.295	0.204	267	0.110	0.205	1.000
2602.4	50	1.1	2.286	0.203	269	0.085	0.213	1.000
2602.6	50	1.1	2.284	0.200	271	0.071	0.215	1.000
2602.8	53	1.1	2.296	0.205	272	0.115	0.204	1.000
2603.0	56	1.1	2.306	0.195	274	0.100	0.199	1.000
2603.2	63	1.2	2.315	0.177	272	0.051	0.199	1.000
2603.4	74	1.4	2.341	0.192	270	0.171	0.171	1.000
2603.6	78	1.5	2.355	0.204	271	0.248	0.154	1.000
2603.8	66	1.5	2.336	0.190	273	0.152	0.175	1.000
2604.0	57	1.4	2.319	0.168	272	0.028	0.199	1.000
2604.2	53	1.5	2.339	0.149	264	0.003	0.189	1.000
2604.4	45	1.9	2.377	0.131	257	0.020	0.164	1.000
2604.6	42	2.1	2.400	0.117	251	0.020	0.150	1.000
2604.8	41	2.1	2.424	0.114	248	0.065	0.131	1.000
2605.0	50	2.4	2.465	0.114	238	0.156	0.098	1.000
2605.2	69	2.8	2.477	0.136	233	0.268	0.080	1.000
2605.4	85	3.2	2.445	0.177	237	0.350	0.093	1.000
2605.6	90	2.9	2.405	0.207	257	0.373	0.115	0.851
2605.8	88	2.3	2.367	0.206	265	0.281	0.144	0.878
2606.0	86	2.1	2.347	0.198	268	0.204	0.164	0.903
2606.2	90	2.2	2.347	0.200	269	0.213	0.163	0.878
2606.4	93	2.2	2.357	0.207	266	0.263	0.152	0.875
2606.6	98	2.3	2.363	0.202	265	0.257	0.149	0.894
2606.8	101	2.2	2.359	0.195	266	0.220	0.155	0.914
2607.0	103	1.9	2.346	0.196	269	0.196	0.165	0.942
2607.2	102	1.9	2.344	0.193	272	0.180	0.168	0.951
2607.4	99	1.9	2.353	0.192	271	0.198	0.161	0.963

## ROUNDHEAD\_1 (page 22 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2607.6	100	2.1	2.361	0.202	269	0.251	0.150	0.933
2607.8	100	2.1	2.358	0.202	268	0.248	0.152	0.912
2608.0	101	2.0	2.360	0.191	270	0.208	0.155	0.953
2608.2	99	2.1	2.353	0.180	270	0.152	0.166	0.935
2608.4	97	2.0	2.347	0.189	271	0.170	0.167	0.926
2608.6	95	1.8	2.346	0.200	273	0.212	0.163	0.974
2608.8	92	1.7	2.338	0.207	276	0.218	0.167	0.991
2609.0	98	1.7	2.342	0.215	276	0.257	0.161	0.970
2609.2	101	1.8	2.360	0.216	273	0.303	0.147	1.000
2609.4	96	1.8	2.356	0.219	270	0.305	0.149	0.987
2609.6	88	1.6	2.329	0.219	271	0.243	0.170	0.989
2609.8	93	1.5	2.321	0.222	276	0.239	0.175	0.987
2610.0	104	1.6	2.332	0.216	276	0.239	0.169	0.992
2610.2	111	1.8	2.341	0.198	274	0.192	0.168	0.957
2610.4	122	2.0	2.353	0.200	271	0.228	0.157	0.937
2610.6	133	2.4	2.385	0.200	267	0.302	0.132	0.921
2610.8	133	2.9	2.426	0.193	261	0.369	0.103	0.960
2611.0	127	3.4	2.454	0.180	256	0.384	0.085	1.000
2611.2	123	3.8	2.457	0.187	256	0.416	0.082	0.890
2611.4	126	4.0	2.463	0.211	255	0.520	0.046	0.907
2611.6	131	4.1	2.472	0.218	254	0.567	0.025	1.000
2611.8	129	3.9	2.465	0.205	253	0.502	0.052	0.902
2612.0	125	3.6	2.445	0.180	257	0.362	0.093	0.913
2612.2	130	3.5	2.446	0.200	260	0.441	0.086	0.876
2612.4	140	3.7	2.462	0.198	258	0.472	0.066	0.919
2612.6	146	4.3	2.476	0.179	254	0.429	0.070	0.916
2612.8	140	4.2	2.476	0.176	250	0.419	0.070	0.944
2613.0	132	3.2	2.445	0.185	255	0.382	0.091	0.982
2613.2	127	2.4	2.411	0.201	264	0.363	0.112	1.000
2613.4	130	2.1	2.394	0.216	270	0.382	0.121	1.000
2613.6	134	2.2	2.411	0.218	271	0.427	0.107	1.000
2613.8	136	2.8	2.460	0.208	267	0.502	0.054	1.000
2614.0	135	4.2	2.505	0.191	257	0.540	0.025	1.000
2614.2	142	5.5	2.504	0.193	247	0.546	0.023	1.000
2614.4	140	4.9	2.487	0.183	245	0.472	0.053	0.878
2614.6	123	3.6	2.481	0.177	250	0.434	0.066	1.000
2614.8	108	2.9	2.459	0.199	255	0.465	0.071	1.000
2615.0	103	2.7	2.434	0.225	259	0.506	0.063	0.986
2615.2	101	2.7	2.422	0.229	259	0.497	0.073	0.935
2615.4	103	2.7	2.422	0.220	261	0.460	0.093	0.925
2615.6	105	2.7	2.413	0.197	262	0.354	0.111	0.943
2615.8	109	2.8	2.408	0.182	262	0.286	0.119	0.932
2616.0	108	2.9	2.425	0.186	260	0.339	0.106	0.952
2616.2	108	3.0	2.435	0.197	259	0.406	0.095	0.970
2616.4	107	2.8	2.430	0.207	259	0.431	0.096	0.959
2616.6	108	2.8	2.422	0.214	261	0.438	0.100	0.926
2616.8	112	2.8	2.424	0.215	262	0.446	0.098	0.907
2617.0	111	3.1	2.434	0.205	261	0.432	0.094	0.900
2617.2	104	3.3	2.447	0.192	260	0.415	0.087	0.956
2617.4	109	3.6	2.468	0.190	259	0.454	0.070	0.997
2617.6	121	4.0	2.487	0.195	257	0.517	0.038	1.000
2617.8	127	4.3	2.505	0.201	254	0.578	0.015	1.000
2618.0	128	4.2	2.509	0.200	254	0.587	0.012	1.000
2618.2	123	3.8	2.501	0.206	255	0.586	0.014	1.000
2618.4	118	3.6	2.486	0.210	257	0.569	0.021	1.000

## ROUNDHEAD\_1 (page 23 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2618.6	113	3.5	2.483	0.190	258	0.487	0.050	1.000
2618.8	107	3.4	2.474	0.193	257	0.477	0.058	1.000
2619.0	103	3.2	2.457	0.213	257	0.512	0.051	0.982
2619.2	103	2.8	2.443	0.207	261	0.460	0.082	1.000
2619.4	94	2.7	2.445	0.191	261	0.404	0.089	1.000
2619.6	85	3.1	2.469	0.183	259	0.429	0.073	1.000
2619.8	90	4.0	2.513	0.172	249	0.487	0.036	1.000
2620.0	87	4.5	2.533	0.152	239	0.458	0.033	1.000
2620.2	69	3.9	2.507	0.130	235	0.316	0.058	1.000
2620.4	50	3.0	2.456	0.125	234	0.181	0.100	1.000
2620.6	41	2.2	2.403	0.125	237	0.059	0.144	1.000
2620.8	36	1.8	2.377	0.127	245	0.007	0.165	1.000
2621.0	33	1.6	2.365	0.127	249	0.000	0.171	1.000
2621.2	30	1.5	2.357	0.138	255	0.001	0.178	1.000
2621.4	31	1.3	2.342	0.148	258	0.006	0.187	1.000
2621.6	30	1.3	2.332	0.153	263	0.002	0.193	1.000
2621.8	28	1.2	2.355	0.161	261	0.085	0.171	1.000
2622.0	28	1.1	2.368	0.168	265	0.140	0.157	1.000
2622.2	31	1.1	2.344	0.165	266	0.073	0.179	1.000
2622.4	31	1.0	2.317	0.162	269	0.001	0.202	1.000
2622.6	28	1.0	2.310	0.173	273	0.027	0.204	1.000
2622.8	25	1.1	2.310	0.180	272	0.051	0.202	1.000
2623.0	27	1.1	2.320	0.170	269	0.039	0.197	1.000
2623.2	28	1.2	2.326	0.166	265	0.038	0.193	1.000
2623.4	29	1.1	2.322	0.164	264	0.019	0.198	1.000
2623.6	29	1.1	2.315	0.158	263	0.000	0.202	1.000
2623.8	28	1.1	2.311	0.154	265	0.000	0.202	1.000
2624.0	28	1.1	2.307	0.155	265	0.000	0.203	1.000
2624.2	26	1.1	2.302	0.169	264	0.000	0.211	1.000
2624.4	23	1.1	2.304	0.186	266	0.059	0.205	1.000
2624.6	29	1.2	2.316	0.172	268	0.038	0.199	1.000
2624.8	39	1.1	2.316	0.159	267	0.000	0.202	1.000
2625.0	50	1.0	2.284	0.177	273	0.000	0.221	1.000
2625.2	55	0.9	2.261	0.186	278	0.000	0.233	1.000
2625.4	53	1.0	2.276	0.176	281	0.000	0.224	1.000
2625.6	52	1.1	2.302	0.164	276	0.000	0.209	1.000
2625.8	50	1.1	2.312	0.169	270	0.017	0.204	1.000
2626.0	49	1.1	2.309	0.178	266	0.041	0.204	1.000
2626.2	53	1.0	2.285	0.195	269	0.051	0.217	1.000
2626.4	56	1.0	2.261	0.218	273	0.084	0.228	1.000
2626.6	55	1.0	2.261	0.224	276	0.105	0.226	1.000
2626.8	56	1.0	2.265	0.221	276	0.105	0.223	1.000
2627.0	59	1.0	2.264	0.217	278	0.085	0.226	1.000
2627.2	59	1.0	2.257	0.222	279	0.088	0.230	1.000
2627.4	61	1.0	2.246	0.235	282	0.113	0.234	1.000
2627.6	61	1.0	2.255	0.218	282	0.069	0.233	1.000
2627.8	57	1.1	2.281	0.192	279	0.031	0.222	1.000
2628.0	52	1.1	2.281	0.190	278	0.023	0.222	1.000
2628.2	50	1.1	2.274	0.208	273	0.076	0.221	1.000
2628.4	55	1.0	2.284	0.195	270	0.051	0.218	1.000
2628.6	55	1.0	2.288	0.183	261	0.012	0.219	1.000
2628.8	56	0.9	2.271	0.197	265	0.027	0.228	1.000
2629.0	56	0.9	2.262	0.196	272	0.003	0.236	1.000
2629.2	56	0.9	2.256	0.190	281	0.000	0.237	1.000
2629.4	57	1.0	2.249	0.202	282	0.000	0.244	1.000

## ROUNDHEAD\_1 (page 24 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2629.6	55	1.0	2.264	0.208	277	0.054	0.230	1.000
2629.8	58	1.1	2.290	0.207	275	0.107	0.208	1.000
2630.0	65	1.1	2.287	0.220	277	0.152	0.205	1.000
2630.2	68	1.1	2.263	0.224	280	0.111	0.224	1.000
2630.4	63	1.0	2.252	0.213	287	0.042	0.238	1.000
2630.6	62	1.0	2.249	0.214	286	0.042	0.240	1.000
2630.8	63	1.0	2.243	0.225	285	0.068	0.241	1.000
2631.0	62	1.0	2.249	0.215	286	0.045	0.240	1.000
2631.2	61	1.0	2.254	0.198	286	0.000	0.241	1.000
2631.4	62	1.0	2.247	0.217	284	0.049	0.240	1.000
2631.6	63	1.0	2.238	0.225	281	0.059	0.245	1.000
2631.8	62	1.0	2.242	0.231	281	0.091	0.239	1.000
2632.0	65	1.0	2.251	0.234	280	0.122	0.230	1.000
2632.2	67	1.1	2.263	0.214	278	0.075	0.228	1.000
2632.4	65	1.1	2.274	0.203	276	0.058	0.223	1.000
2632.6	59	1.0	2.265	0.218	276	0.094	0.225	1.000
2632.8	56	0.9	2.242	0.213	279	0.021	0.247	1.000
2633.0	57	0.9	2.226	0.211	280	0.000	0.256	1.000
2633.2	62	0.9	2.219	0.223	281	0.008	0.262	0.996
2633.4	70	1.0	2.224	0.228	281	0.036	0.256	0.994
2633.6	76	1.0	2.222	0.240	282	0.077	0.252	0.965
2633.8	78	1.0	2.218	0.245	280	0.087	0.254	0.953
2634.0	77	1.0	2.229	0.228	279	0.051	0.251	0.987
2634.2	81	1.0	2.244	0.222	279	0.059	0.241	1.000
2634.4	82	1.0	2.253	0.226	280	0.095	0.231	1.000
2634.6	80	1.1	2.273	0.220	279	0.119	0.217	1.000
2634.8	79	1.1	2.279	0.229	276	0.166	0.208	1.000
2635.0	80	1.1	2.257	0.231	276	0.123	0.226	1.000
2635.2	85	1.0	2.233	0.241	279	0.105	0.243	0.976
2635.4	84	1.0	2.240	0.234	280	0.098	0.239	0.981
2635.6	80	1.1	2.245	0.237	280	0.120	0.234	0.982
2635.8	80	1.0	2.244	0.242	278	0.136	0.233	0.985
2636.0	80	1.0	2.240	0.250	278	0.159	0.232	0.989
2636.2	81	1.0	2.237	0.250	279	0.151	0.235	0.983
2636.4	86	1.0	2.234	0.241	282	0.112	0.241	0.982
2636.6	85	1.0	2.236	0.224	283	0.049	0.247	0.997
2636.8	83	1.1	2.238	0.212	284	0.010	0.250	0.976
2637.0	84	1.1	2.242	0.224	286	0.061	0.242	0.981
2637.2	83	1.0	2.226	0.222	285	0.018	0.257	0.961
2637.4	77	1.0	2.220	0.217	285	0.000	0.261	0.950
2637.6	70	1.0	2.242	0.218	285	0.041	0.244	0.992
2637.8	66	1.1	2.289	0.215	277	0.136	0.206	1.000
2638.0	61	1.3	2.360	0.182	256	0.176	0.159	1.000
2638.2	58	1.7	2.412	0.145	242	0.153	0.130	1.000
2638.4	68	2.4	2.412	0.132	248	0.107	0.134	1.000
2638.6	83	2.8	2.412	0.146	253	0.158	0.129	0.994
2638.8	90	3.0	2.429	0.158	255	0.244	0.111	1.000
2639.0	87	3.1	2.437	0.163	254	0.278	0.103	1.000
2639.2	87	2.8	2.422	0.174	253	0.290	0.111	1.000
2639.4	87	2.4	2.387	0.184	257	0.245	0.135	0.954
2639.6	85	2.3	2.375	0.198	264	0.269	0.141	0.911
2639.8	84	2.6	2.394	0.213	262	0.368	0.122	0.866
2640.0	83	3.1	2.404	0.214	258	0.397	0.113	1.000
2640.2	78	3.2	2.390	0.210	255	0.351	0.125	1.000
2640.4	84	3.1	2.386	0.196	254	0.288	0.132	1.000

ROUNDHEAD\_1 (page 25 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2640.6	89	3.1	2.395	0.179	253	0.243	0.131	1.000
2640.8	88	3.0	2.394	0.175	255	0.225	0.133	0.855
2641.0	87	3.0	2.395	0.167	254	0.198	0.136	0.868
2641.2	89	2.9	2.413	0.160	254	0.213	0.123	0.972
2641.4	88	2.8	2.408	0.178	254	0.271	0.120	0.944
2641.6	79	2.5	2.381	0.198	257	0.284	0.136	0.889
2641.8	76	2.3	2.358	0.197	261	0.227	0.154	0.880
2642.0	80	2.2	2.354	0.180	262	0.151	0.165	0.903
2642.2	77	2.3	2.361	0.172	263	0.141	0.161	0.918
2642.4	76	2.4	2.369	0.175	260	0.168	0.154	0.902
2642.6	79	2.6	2.374	0.175	259	0.182	0.150	0.876
2642.8	86	3.0	2.382	0.168	256	0.172	0.146	1.000
2643.0	88	3.0	2.397	0.162	254	0.182	0.136	0.882
2643.2	84	2.9	2.400	0.165	254	0.205	0.132	0.902
2643.4	78	2.5	2.374	0.191	251	0.243	0.143	0.888
2643.6	76	1.9	2.337	0.204	257	0.206	0.169	0.901
2643.8	71	1.8	2.332	0.185	259	0.122	0.181	0.935
2644.0	69	1.8	2.342	0.171	257	0.091	0.178	0.974
2644.2	67	1.8	2.330	0.179	257	0.094	0.185	0.936
2644.4	69	1.9	2.327	0.195	256	0.150	0.181	0.906
2644.6	70	2.1	2.347	0.180	254	0.137	0.170	0.903
2644.8	71	2.4	2.367	0.149	248	0.068	0.165	0.934
2645.0	70	2.1	2.342	0.165	251	0.071	0.180	0.907
2645.2	70	1.6	2.297	0.200	254	0.097	0.205	0.923
2645.4	68	1.4	2.282	0.207	262	0.091	0.215	0.942
2645.6	66	1.5	2.284	0.200	264	0.069	0.216	0.926
2645.8	66	1.6	2.287	0.197	263	0.064	0.214	0.901
2646.0	65	1.6	2.298	0.203	262	0.110	0.203	0.908
2646.2	67	1.7	2.311	0.215	260	0.188	0.187	0.911
2646.4	71	1.7	2.313	0.210	260	0.175	0.187	0.909
2646.6	72	1.7	2.307	0.199	261	0.117	0.197	0.894
2646.8	70	1.6	2.306	0.198	258	0.111	0.198	0.934
2647.0	67	1.4	2.291	0.205	261	0.105	0.208	0.966
2647.2	64	1.2	2.265	0.221	262	0.105	0.224	0.971
2647.4	66	1.1	2.256	0.215	269	0.062	0.233	0.980
2647.6	69	1.2	2.264	0.201	268	0.027	0.232	0.962
2647.8	73	1.3	2.269	0.193	266	0.008	0.232	0.965
2648.0	74	1.2	2.255	0.208	267	0.032	0.237	0.952
2648.2	74	1.1	2.246	0.236	269	0.119	0.233	0.945
2648.4	72	1.1	2.248	0.237	273	0.126	0.231	0.978
2648.6	73	1.1	2.247	0.222	273	0.067	0.238	0.966
2648.8	70	1.2	2.259	0.203	273	0.023	0.236	0.974
2649.0	69	1.3	2.275	0.193	272	0.022	0.226	0.976
2649.2	73	1.3	2.278	0.192	269	0.026	0.224	0.969
2649.4	79	1.3	2.279	0.202	271	0.066	0.219	0.952
2649.6	84	1.4	2.280	0.210	271	0.098	0.215	0.944
2649.8	90	1.4	2.286	0.210	272	0.112	0.210	0.925
2650.0	97	1.7	2.326	0.209	265	0.200	0.176	0.925
2650.2	94	2.1	2.354	0.198	262	0.219	0.158	0.917
2650.4	87	2.3	2.347	0.190	262	0.176	0.166	0.864
2650.6	83	2.1	2.337	0.194	262	0.167	0.174	0.872
2650.8	82	2.2	2.353	0.181	263	0.153	0.166	0.901
2651.0	82	2.6	2.383	0.160	256	0.145	0.148	0.927
2651.2	87	3.1	2.392	0.154	251	0.141	0.143	0.871
2651.4	86	3.2	2.379	0.168	251	0.165	0.148	1.000



## ROUNDHEAD\_1 (page 26 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2651.6	87	3.3	2.388	0.167	253	0.183	0.141	1.000
2651.8	95	3.8	2.409	0.152	250	0.174	0.130	1.000
2652.0	97	4.4	2.417	0.149	244	0.182	0.124	1.000
2652.2	96	4.3	2.403	0.148	240	0.144	0.136	1.000
2652.4	96	4.0	2.384	0.148	243	0.101	0.152	1.000
2652.6	93	3.1	2.380	0.167	250	0.165	0.148	1.000
2652.8	86	2.6	2.359	0.186	259	0.186	0.158	1.000
2653.0	81	2.2	2.322	0.203	264	0.168	0.182	1.000
2653.2	80	1.9	2.305	0.214	267	0.169	0.192	1.000
2653.4	76	1.7	2.298	0.223	267	0.186	0.195	0.874
2653.6	70	1.6	2.300	0.214	268	0.157	0.197	0.893
2653.8	73	1.7	2.309	0.206	270	0.149	0.192	0.886
2654.0	80	1.9	2.324	0.205	267	0.178	0.180	0.866
2654.2	85	2.3	2.340	0.197	262	0.187	0.169	1.000
2654.4	86	2.6	2.360	0.176	258	0.153	0.161	1.000
2654.6	77	2.3	2.369	0.174	258	0.166	0.155	0.939
2654.8	68	1.6	2.326	0.196	262	0.149	0.182	0.977
2655.0	66	1.3	2.275	0.215	270	0.104	0.217	0.971
2655.2	68	1.4	2.287	0.202	277	0.083	0.212	0.944
2655.4	77	1.7	2.342	0.183	267	0.136	0.174	1.000
2655.6	79	1.6	2.334	0.187	263	0.135	0.179	0.999
2655.8	74	1.3	2.277	0.196	263	0.037	0.223	0.983
2656.0	64	1.0	2.259	0.210	274	0.050	0.233	1.000
2656.2	62	1.0	2.262	0.211	278	0.059	0.230	1.000
2656.4	67	1.0	2.253	0.205	280	0.017	0.240	1.000
2656.6	66	1.0	2.249	0.210	283	0.027	0.242	1.000
2656.8	64	1.1	2.249	0.219	283	0.060	0.238	0.979
2657.0	70	1.3	2.277	0.216	281	0.113	0.215	0.955
2657.2	79	1.6	2.321	0.210	275	0.193	0.180	0.955
2657.4	78	1.7	2.340	0.210	272	0.232	0.165	0.969
2657.6	75	1.8	2.336	0.213	272	0.238	0.166	0.921
2657.8	72	1.7	2.337	0.214	269	0.245	0.165	0.972
2658.0	71	1.5	2.321	0.221	268	0.233	0.176	0.978
2658.2	68	1.3	2.269	0.224	270	0.125	0.219	0.928
2658.4	68	1.1	2.230	0.230	279	0.059	0.250	0.937
2658.6	67	1.0	2.219	0.242	285	0.080	0.254	0.966
2658.8	61	1.0	2.215	0.245	284	0.082	0.256	0.949
2659.0	63	1.0	2.219	0.240	281	0.072	0.255	0.946
2659.2	65	1.0	2.223	0.240	280	0.082	0.251	0.938
2659.4	65	1.1	2.220	0.247	280	0.102	0.251	0.926
2659.6	67	1.0	2.223	0.234	281	0.059	0.254	0.941
2659.8	67	1.0	2.227	0.232	282	0.058	0.252	0.958
2660.0	68	1.1	2.229	0.244	282	0.110	0.244	0.944
2660.2	71	1.1	2.242	0.241	281	0.128	0.235	0.955
2660.4	74	1.2	2.250	0.215	279	0.050	0.238	0.945
2660.6	76	1.4	2.261	0.208	272	0.045	0.232	0.878
2660.8	77	1.8	2.290	0.203	261	0.092	0.210	1.000
2661.0	74	1.8	2.318	0.188	255	0.102	0.192	0.896
2661.2	68	1.5	2.320	0.171	261	0.044	0.196	1.000
2661.4	65	1.3	2.290	0.182	267	0.012	0.218	1.000
2661.6	73	1.3	2.272	0.199	273	0.037	0.226	0.975
2661.8	82	1.4	2.278	0.217	277	0.119	0.214	0.937
2662.0	80	1.4	2.288	0.231	276	0.196	0.200	0.915
2662.2	72	1.4	2.285	0.219	272	0.142	0.207	0.917
2662.4	72	1.5	2.288	0.202	268	0.084	0.212	0.933

## ROUNDHEAD\_1 (page 27 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2662.6	74	1.6	2.298	0.204	268	0.114	0.203	0.903
2662.8	73	1.7	2.302	0.196	263	0.095	0.202	0.892
2663.0	67	1.8	2.301	0.194	263	0.086	0.203	0.878
2663.2	58	1.5	2.290	0.195	261	0.062	0.213	0.929
2663.4	56	1.3	2.274	0.189	264	0.003	0.229	0.985
2663.6	57	1.2	2.264	0.197	268	0.014	0.234	0.993
2663.8	59	1.3	2.269	0.203	267	0.044	0.228	0.954
2664.0	61	1.4	2.283	0.213	262	0.113	0.212	0.951
2664.2	63	1.3	2.295	0.210	261	0.129	0.203	0.984
2664.4	63	1.4	2.292	0.197	266	0.075	0.210	0.984
2664.6	67	1.5	2.308	0.190	266	0.086	0.199	0.982
2664.8	68	1.6	2.329	0.188	264	0.126	0.182	1.000
2665.0	66	1.5	2.325	0.192	255	0.130	0.185	1.000
2665.2	59	1.2	2.310	0.190	257	0.091	0.198	1.000
2665.4	52	1.2	2.297	0.194	262	0.073	0.208	1.000
2665.6	50	1.1	2.295	0.194	265	0.069	0.209	1.000
2665.8	51	1.1	2.295	0.186	263	0.041	0.212	1.000
2666.0	52	1.1	2.284	0.191	264	0.034	0.220	1.000
2666.2	55	1.1	2.270	0.191	263	0.002	0.231	1.000
2666.4	58	1.1	2.265	0.184	266	0.000	0.231	1.000
2666.6	54	1.2	2.282	0.174	265	0.000	0.221	1.000
2666.8	53	1.3	2.305	0.162	255	0.000	0.207	1.000
2667.0	53	1.4	2.313	0.157	251	0.000	0.202	1.000
2667.2	49	1.2	2.301	0.175	253	0.016	0.211	1.000
2667.4	50	1.1	2.289	0.186	260	0.028	0.217	1.000
2667.6	55	1.2	2.291	0.182	258	0.015	0.217	1.000
2667.8	56	1.3	2.306	0.177	256	0.033	0.206	1.000
2668.0	54	1.5	2.316	0.164	250	0.007	0.203	1.000
2668.2	55	1.5	2.317	0.164	249	0.007	0.202	1.000
2668.4	54	1.3	2.313	0.180	253	0.057	0.200	1.000
2668.6	51	1.2	2.292	0.196	258	0.073	0.211	1.000
2668.8	52	1.1	2.280	0.198	262	0.052	0.220	1.000
2669.0	53	1.2	2.288	0.189	263	0.035	0.217	1.000
2669.2	55	1.3	2.300	0.186	258	0.054	0.208	1.000
2669.4	56	1.2	2.295	0.192	259	0.064	0.209	1.000
2669.6	54	1.2	2.287	0.200	262	0.075	0.214	1.000
2669.8	51	1.2	2.286	0.194	263	0.049	0.217	1.000
2670.0	53	1.2	2.281	0.189	263	0.019	0.223	1.000
2670.2	57	1.2	2.288	0.194	260	0.053	0.215	1.000
2670.4	61	1.4	2.302	0.188	259	0.064	0.205	1.000
2670.6	59	1.5	2.317	0.177	255	0.057	0.197	1.000
2670.8	64	1.6	2.321	0.169	251	0.037	0.197	1.000
2671.0	68	1.5	2.309	0.161	253	0.000	0.205	1.000
2671.2	69	1.4	2.285	0.177	257	0.000	0.221	0.954
2671.4	67	1.4	2.264	0.197	263	0.012	0.234	0.919
2671.6	66	1.2	2.256	0.206	267	0.026	0.237	0.970
2671.8	62	1.1	2.253	0.210	272	0.033	0.239	0.990
2672.0	59	1.1	2.253	0.210	273	0.036	0.238	0.976
2672.2	64	1.2	2.260	0.212	270	0.059	0.231	0.967
2672.4	69	1.2	2.264	0.194	268	0.000	0.235	0.969
2672.6	70	1.2	2.255	0.193	267	0.000	0.238	0.968
2672.8	68	1.2	2.244	0.204	269	0.000	0.247	0.953
2673.0	68	1.1	2.244	0.208	273	0.009	0.247	0.964
2673.2	67	1.1	2.259	0.203	274	0.025	0.235	0.989
2673.4	64	1.2	2.277	0.190	272	0.013	0.226	1.000

## ROUNDHEAD\_1 (page 28 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2673.6	63	1.3	2.287	0.182	268	0.010	0.220	1.000
2673.8	60	1.3	2.294	0.179	264	0.010	0.216	1.000
2674.0	59	1.3	2.297	0.185	265	0.040	0.211	1.000
2674.2	60	1.3	2.289	0.197	263	0.070	0.213	0.987
2674.4	62	1.3	2.289	0.192	265	0.051	0.214	0.995
2674.6	59	1.4	2.286	0.184	264	0.013	0.220	0.973
2674.8	59	1.2	2.281	0.199	265	0.056	0.219	1.000
2675.0	62	1.1	2.252	0.222	265	0.079	0.234	0.997
2675.2	64	1.0	2.234	0.245	271	0.122	0.241	0.987
2675.4	66	1.0	2.231	0.246	279	0.123	0.242	0.984
2675.6	66	1.0	2.232	0.237	282	0.089	0.245	0.977
2675.8	69	1.0	2.232	0.242	281	0.109	0.243	0.951
2676.0	72	1.1	2.234	0.239	279	0.102	0.243	0.956
2676.2	69	1.0	2.232	0.220	277	0.027	0.252	0.973
2676.4	62	1.0	2.233	0.210	278	0.000	0.253	1.000
2676.6	54	0.9	2.233	0.213	280	0.000	0.254	1.000
2676.8	54	0.9	2.237	0.231	283	0.079	0.243	1.000
2677.0	57	0.9	2.236	0.226	284	0.057	0.246	1.000
2677.2	63	1.0	2.238	0.217	282	0.028	0.248	1.000
2677.4	76	1.3	2.278	0.196	278	0.040	0.222	0.990
2677.6	90	1.9	2.388	0.192	260	0.276	0.132	1.000
2677.8	99	3.6	2.500	0.194	248	0.542	0.025	1.000
2678.0	105	6.3	2.547	0.191	242	0.637	0.001	1.000
2678.2	106	6.9	2.563	0.196	245	0.693	0.000	1.000
2678.4	102	6.6	2.555	0.213	246	0.738	0.000	1.000
2678.6	101	6.7	2.551	0.209	248	0.715	0.000	1.000
2678.8	104	7.1	2.571	0.197	249	0.714	0.000	1.000
2679.0	109	8.1	2.595	0.197	247	0.771	0.000	1.000
2679.2	115	8.3	2.610	0.206	241	0.839	0.000	1.000
2679.4	111	6.4	2.587	0.197	241	0.753	0.000	1.000
2679.6	99	4.4	2.505	0.189	247	0.535	0.026	1.000
2679.8	83	3.3	2.438	0.184	247	0.362	0.096	0.929
2680.0	62	2.7	2.400	0.162	250	0.190	0.133	0.952
2680.2	46	2.5	2.393	0.139	248	0.088	0.148	0.996
2680.4	40	2.4	2.397	0.123	240	0.038	0.150	1.000
2680.6	41	2.6	2.415	0.115	239	0.048	0.138	1.000
2680.8	47	2.8	2.414	0.112	233	0.034	0.140	1.000
2681.0	54	2.8	2.391	0.120	235	0.013	0.156	0.967
2681.2	62	2.6	2.372	0.138	238	0.037	0.165	0.914
2681.4	75	2.2	2.354	0.160	247	0.078	0.172	0.934
2681.6	84	1.8	2.341	0.182	254	0.131	0.174	0.975
2681.8	83	1.6	2.333	0.178	256	0.100	0.183	1.000
2682.0	80	1.6	2.338	0.180	259	0.117	0.178	1.000
2682.2	75	1.5	2.329	0.192	260	0.142	0.181	1.000
2682.4	72	1.5	2.311	0.199	263	0.127	0.193	0.978
2682.6	72	1.5	2.307	0.200	267	0.122	0.196	0.968
2682.8	74	1.5	2.312	0.196	270	0.116	0.194	0.981
2683.0	77	1.5	2.316	0.199	269	0.139	0.189	0.985
2683.2	74	1.5	2.309	0.212	267	0.170	0.190	0.964
2683.4	72	1.4	2.298	0.211	270	0.142	0.200	0.962
2683.6	76	1.4	2.285	0.209	273	0.106	0.211	0.948
2683.8	77	1.4	2.286	0.211	273	0.114	0.210	0.941
2684.0	75	1.4	2.292	0.203	272	0.098	0.208	0.961
2684.2	72	1.4	2.291	0.206	273	0.107	0.207	0.961
2684.4	71	1.4	2.287	0.221	273	0.156	0.204	0.926

## ROUNDHEAD\_1 (page 29 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2684.6	68	1.5	2.300	0.216	274	0.166	0.196	0.950
2684.8	64	1.6	2.319	0.192	271	0.117	0.190	0.961
2685.0	66	1.6	2.337	0.184	266	0.128	0.177	1.000
2685.2	71	1.6	2.328	0.191	267	0.135	0.182	0.991
2685.4	69	1.5	2.306	0.197	269	0.108	0.198	0.951
2685.6	63	1.5	2.300	0.187	271	0.059	0.207	0.950
2685.8	66	1.6	2.318	0.184	266	0.084	0.194	0.968
2686.0	72	1.7	2.325	0.192	264	0.132	0.184	0.937
2686.2	75	1.7	2.314	0.205	265	0.156	0.188	0.915
2686.4	73	1.5	2.307	0.193	270	0.095	0.199	0.969
2686.6	69	1.5	2.306	0.183	270	0.054	0.204	0.977
2686.8	72	1.6	2.314	0.188	268	0.090	0.195	0.965
2687.0	74	1.7	2.321	0.190	266	0.116	0.189	0.949
2687.2	80	1.8	2.335	0.201	265	0.190	0.172	0.949
2687.4	85	1.8	2.344	0.191	263	0.174	0.168	0.974
2687.6	88	1.8	2.346	0.180	259	0.137	0.171	0.979
2687.8	85	1.9	2.352	0.171	256	0.116	0.170	0.987
2688.0	76	2.1	2.365	0.159	250	0.098	0.164	0.984
2688.2	71	2.3	2.374	0.150	247	0.088	0.159	0.964
2688.4	72	2.5	2.384	0.147	243	0.099	0.152	0.955
2688.6	65	2.8	2.400	0.124	240	0.046	0.147	0.978
2688.8	54	3.1	2.413	0.105	234	0.004	0.143	0.998
2689.0	47	3.3	2.418	0.104	233	0.015	0.139	0.989
2689.2	45	3.0	2.404	0.115	232	0.024	0.147	0.973
2689.4	45	2.5	2.387	0.125	236	0.020	0.158	0.991
2689.6	44	2.0	2.382	0.130	237	0.030	0.160	1.000
2689.8	45	1.7	2.373	0.139	244	0.041	0.164	1.000
2690.0	44	1.5	2.350	0.157	250	0.057	0.177	1.000
2690.2	43	1.6	2.326	0.161	255	0.017	0.195	1.000
2690.4	45	1.6	2.318	0.158	259	0.000	0.201	0.995
2690.6	45	1.6	2.321	0.152	259	0.000	0.197	1.000
2690.8	45	1.6	2.325	0.155	260	0.000	0.197	1.000
2691.0	48	1.5	2.331	0.167	261	0.052	0.189	1.000
2691.2	45	1.4	2.333	0.163	263	0.043	0.188	1.000
2691.4	41	1.4	2.340	0.156	260	0.031	0.185	1.000
2691.6	42	1.6	2.339	0.162	260	0.051	0.184	1.000
2691.8	46	1.7	2.336	0.166	260	0.061	0.185	1.000
2692.0	44	1.5	2.323	0.177	262	0.072	0.192	1.000
2692.2	42	1.4	2.311	0.191	264	0.097	0.196	1.000
2692.4	45	1.4	2.308	0.185	265	0.065	0.202	1.000
2692.6	53	1.4	2.319	0.169	264	0.031	0.199	1.000
2692.8	56	1.6	2.341	0.160	264	0.049	0.183	1.000
2693.0	56	2.0	2.369	0.144	257	0.053	0.166	1.000
2693.2	58	2.6	2.389	0.129	251	0.040	0.155	0.970
2693.4	64	2.9	2.381	0.134	249	0.040	0.159	0.893
2693.6	63	3.0	2.366	0.141	249	0.032	0.170	1.000
2693.8	64	2.6	2.368	0.145	251	0.053	0.166	0.896
2694.0	65	2.0	2.371	0.164	253	0.133	0.156	1.000
2694.2	59	1.7	2.339	0.187	257	0.145	0.174	0.996
2694.4	49	1.4	2.321	0.185	263	0.098	0.190	1.000
2694.6	44	1.4	2.329	0.173	263	0.068	0.189	1.000
2694.8	44	1.4	2.336	0.165	259	0.057	0.185	1.000
2695.0	42	1.4	2.336	0.167	256	0.061	0.185	1.000
2695.2	43	1.3	2.332	0.171	258	0.069	0.187	1.000
2695.4	51	1.3	2.325	0.174	264	0.062	0.192	1.000

## ROUNDHEAD\_1 (page 30 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2695.6	55	1.5	2.316	0.173	265	0.038	0.200	1.000
2695.8	57	1.7	2.322	0.172	263	0.049	0.195	0.961
2696.0	53	1.8	2.345	0.165	259	0.074	0.178	1.000
2696.2	53	1.5	2.340	0.176	260	0.107	0.178	1.000
2696.4	53	1.4	2.321	0.181	266	0.083	0.192	1.000
2696.6	47	1.2	2.316	0.170	267	0.029	0.200	1.000
2696.8	43	1.2	2.329	0.172	266	0.067	0.188	1.000
2697.0	43	1.3	2.329	0.180	262	0.096	0.186	1.000
2697.2	42	1.4	2.334	0.173	257	0.084	0.184	1.000
2697.4	38	1.5	2.355	0.149	251	0.040	0.175	1.000
2697.6	37	1.6	2.363	0.136	246	0.007	0.174	1.000
2697.8	37	1.6	2.354	0.125	246	0.000	0.174	1.000
2698.0	37	1.6	2.351	0.129	248	0.000	0.177	1.000
2698.2	37	1.6	2.350	0.140	249	0.000	0.182	1.000
2698.4	38	1.6	2.356	0.152	249	0.050	0.174	1.000
2698.6	40	1.6	2.358	0.153	250	0.063	0.171	1.000
2698.8	40	1.6	2.357	0.149	250	0.042	0.174	1.000
2699.0	40	1.6	2.362	0.147	250	0.045	0.171	1.000
2699.2	41	1.6	2.369	0.143	248	0.048	0.166	1.000
2699.4	38	1.6	2.372	0.135	247	0.024	0.167	1.000
2699.6	37	1.6	2.374	0.128	247	0.005	0.167	1.000
2699.8	39	1.6	2.375	0.121	248	0.000	0.165	1.000
2700.0	38	1.7	2.377	0.119	248	0.000	0.163	1.000
2700.2	42	1.8	2.390	0.115	247	0.000	0.157	1.000
2700.4	52	2.0	2.403	0.132	244	0.085	0.142	1.000
2700.6	64	2.2	2.395	0.170	248	0.212	0.134	1.000
2700.8	68	2.3	2.378	0.184	253	0.226	0.143	0.945
2701.0	69	2.1	2.372	0.180	263	0.195	0.150	0.976
2701.2	65	1.9	2.354	0.184	267	0.167	0.163	0.975
2701.4	61	1.8	2.353	0.176	268	0.135	0.167	1.000
2701.6	62	1.8	2.370	0.169	266	0.147	0.156	1.000
2701.8	63	1.8	2.364	0.178	265	0.170	0.157	1.000
2702.0	62	1.6	2.345	0.179	263	0.128	0.173	1.000
2702.2	53	1.5	2.344	0.170	265	0.094	0.177	1.000
2702.4	42	1.4	2.349	0.157	259	0.055	0.178	1.000
2702.6	38	1.5	2.358	0.149	252	0.046	0.173	1.000
2702.8	38	1.6	2.366	0.147	248	0.058	0.167	1.000
2703.0	39	1.7	2.366	0.139	246	0.027	0.170	1.000
2703.2	42	1.7	2.355	0.139	247	0.000	0.179	1.000
2703.4	43	1.6	2.348	0.141	247	0.000	0.183	1.000
2703.6	44	1.5	2.350	0.146	252	0.016	0.181	1.000
2703.8	44	1.5	2.340	0.153	254	0.021	0.186	1.000
2704.0	47	1.4	2.331	0.166	258	0.049	0.189	1.000
2704.2	45	1.5	2.326	0.174	260	0.065	0.191	1.000
2704.4	44	1.5	2.341	0.161	256	0.052	0.183	1.000
2704.6	43	1.6	2.353	0.149	254	0.035	0.177	1.000
2704.8	44	1.7	2.358	0.153	253	0.061	0.172	1.000
2705.0	43	1.6	2.352	0.163	256	0.085	0.173	1.000
2705.2	43	1.6	2.342	0.167	258	0.079	0.179	1.000
2705.4	46	1.5	2.336	0.176	261	0.099	0.181	1.000
2705.6	50	1.5	2.323	0.174	261	0.059	0.193	1.000
2705.8	49	1.5	2.325	0.172	262	0.055	0.192	1.000
2706.0	45	1.5	2.329	0.163	260	0.031	0.192	1.000
2706.2	45	1.5	2.333	0.147	257	0.000	0.191	1.000
2706.4	43	1.6	2.340	0.157	256	0.033	0.185	1.000

## ROUNDHEAD\_1 (page 31 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2706.6	42	1.5	2.344	0.169	256	0.090	0.177	1.000
2706.8	43	1.5	2.350	0.164	254	0.084	0.174	1.000
2707.0	44	1.6	2.362	0.144	252	0.034	0.172	1.000
2707.2	41	1.7	2.365	0.143	250	0.038	0.170	1.000
2707.4	40	1.7	2.360	0.151	249	0.059	0.170	1.000
2707.6	39	1.8	2.358	0.137	249	0.000	0.177	1.000
2707.8	40	1.8	2.363	0.139	248	0.017	0.173	1.000
2708.0	42	1.8	2.369	0.153	249	0.085	0.162	1.000
2708.2	40	1.8	2.364	0.148	248	0.056	0.168	1.000
2708.4	42	1.8	2.361	0.140	250	0.018	0.174	1.000
2708.6	44	1.8	2.364	0.137	250	0.014	0.173	1.000
2708.8	46	1.8	2.359	0.132	249	0.000	0.175	1.000
2709.0	43	1.9	2.355	0.137	247	0.000	0.179	1.000
2709.2	41	2.0	2.367	0.139	244	0.027	0.170	1.000
2709.4	38	2.0	2.380	0.125	243	0.006	0.163	1.000
2709.6	37	2.1	2.390	0.127	241	0.034	0.155	1.000
2709.8	35	2.0	2.385	0.135	242	0.053	0.156	1.000
2710.0	36	2.0	2.385	0.131	243	0.039	0.157	1.000
2710.2	39	2.0	2.391	0.121	243	0.016	0.156	1.000
2710.4	40	2.0	2.395	0.121	243	0.025	0.152	1.000
2710.6	37	2.0	2.393	0.128	241	0.048	0.151	1.000
2710.8	39	1.9	2.388	0.122	241	0.010	0.158	1.000
2711.0	39	2.0	2.385	0.122	239	0.006	0.160	1.000
2711.2	38	1.9	2.378	0.122	239	0.000	0.164	1.000
2711.4	35	1.9	2.370	0.118	241	0.000	0.165	1.000
2711.6	35	1.8	2.357	0.120	241	0.000	0.171	1.000
2711.8	38	1.8	2.347	0.136	243	0.000	0.181	1.000
2712.0	38	1.7	2.347	0.139	245	0.000	0.182	1.000
2712.2	37	1.8	2.347	0.135	243	0.000	0.181	1.000
2712.4	38	1.8	2.343	0.132	243	0.000	0.181	1.000
2712.6	39	1.8	2.344	0.133	243	0.000	0.181	1.000
2712.8	40	1.7	2.351	0.130	243	0.000	0.177	1.000
2713.0	42	1.6	2.354	0.126	246	0.000	0.174	1.000
2713.2	43	1.6	2.344	0.136	250	0.000	0.182	1.000
2713.4	46	1.6	2.342	0.149	255	0.008	0.186	1.000
2713.6	51	1.7	2.347	0.158	257	0.054	0.179	1.000
2713.8	59	1.9	2.347	0.163	262	0.074	0.177	0.987
2714.0	68	2.2	2.356	0.164	260	0.099	0.169	0.918
2714.2	74	2.6	2.385	0.152	257	0.120	0.149	0.940
2714.4	72	2.4	2.393	0.144	254	0.106	0.146	1.000
2714.6	65	2.0	2.341	0.160	258	0.048	0.183	0.943
2714.8	59	1.6	2.295	0.181	265	0.020	0.214	0.922
2715.0	53	1.3	2.291	0.201	268	0.088	0.209	0.987
2715.2	50	1.4	2.304	0.193	267	0.090	0.201	1.000
2715.4	47	1.4	2.302	0.185	261	0.054	0.206	0.985
2715.6	45	1.5	2.305	0.173	259	0.014	0.209	0.982
2715.8	43	1.5	2.319	0.162	255	0.006	0.201	1.000
2716.0	45	1.5	2.336	0.157	256	0.024	0.189	1.000
2716.2	43	1.5	2.344	0.159	255	0.051	0.181	1.000
2716.4	39	1.5	2.347	0.154	255	0.040	0.180	1.000
2716.6	41	1.6	2.338	0.143	255	0.000	0.187	1.000
2716.8	41	1.6	2.340	0.138	252	0.000	0.184	1.000
2717.0	39	1.7	2.352	0.135	249	0.000	0.179	1.000
2717.2	38	1.7	2.353	0.141	248	0.004	0.180	1.000
2717.4	40	1.8	2.345	0.150	249	0.017	0.184	1.000

## ROUNDHEAD\_1 (page 32 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2717.6	43	1.8	2.329	0.167	250	0.047	0.191	0.961
2717.8	45	1.7	2.311	0.176	252	0.041	0.202	0.928
2718.0	46	1.6	2.316	0.168	252	0.021	0.201	0.962
2718.2	45	1.6	2.327	0.159	252	0.013	0.195	1.000
2718.4	44	1.6	2.338	0.160	251	0.040	0.186	1.000
2718.6	48	1.8	2.359	0.180	253	0.163	0.161	1.000
2718.8	66	1.9	2.408	0.199	260	0.348	0.115	1.000
2719.0	83	2.1	2.453	0.220	266	0.532	0.044	1.000
2719.2	76	1.9	2.428	0.212	266	0.444	0.096	1.000
2719.4	56	1.7	2.376	0.197	261	0.266	0.140	1.000
2719.6	44	1.5	2.345	0.176	256	0.119	0.174	1.000
2719.8	40	1.5	2.343	0.155	254	0.034	0.183	1.000
2720.0	38	1.6	2.353	0.149	249	0.034	0.177	1.000
2720.2	37	1.7	2.365	0.148	246	0.057	0.168	1.000
2720.4	38	1.8	2.363	0.148	240	0.054	0.169	1.000
2720.6	38	1.8	2.362	0.147	239	0.046	0.171	1.000
2720.8	37	1.8	2.371	0.143	240	0.053	0.165	1.000
2721.0	33	1.9	2.381	0.140	238	0.064	0.157	1.000
2721.2	31	1.9	2.380	0.143	238	0.074	0.157	1.000
2721.4	32	2.0	2.373	0.141	238	0.049	0.164	1.000
2721.6	34	1.9	2.371	0.141	239	0.047	0.165	1.000
2721.8	33	1.9	2.373	0.147	239	0.072	0.161	1.000
2722.0	32	2.0	2.376	0.146	239	0.075	0.159	1.000
2722.2	33	2.0	2.373	0.131	240	0.013	0.167	1.000
2722.4	32	2.0	2.376	0.126	240	0.000	0.166	1.000
2722.6	33	2.0	2.379	0.129	239	0.017	0.163	1.000
2722.8	37	2.0	2.373	0.127	240	0.000	0.168	1.000
2723.0	38	2.0	2.376	0.129	240	0.010	0.166	1.000
2723.2	37	2.0	2.375	0.136	240	0.038	0.163	1.000
2723.4	37	2.0	2.375	0.135	239	0.033	0.164	1.000
2723.6	36	2.0	2.377	0.133	238	0.029	0.163	1.000
2723.8	36	2.0	2.378	0.134	238	0.036	0.161	1.000
2724.0	37	2.0	2.388	0.131	238	0.047	0.155	1.000
2724.2	36	2.0	2.388	0.125	238	0.023	0.157	1.000
2724.4	36	2.1	2.386	0.111	236	0.000	0.156	1.000
2724.6	34	2.1	2.389	0.107	235	0.000	0.153	1.000
2724.8	34	2.2	2.395	0.116	235	0.005	0.154	1.000
2725.0	36	2.2	2.401	0.121	234	0.037	0.148	1.000
2725.2	36	2.3	2.398	0.124	234	0.042	0.149	1.000
2725.4	36	2.3	2.391	0.122	234	0.021	0.155	1.000
2725.6	37	2.3	2.395	0.104	235	0.000	0.150	1.000
2725.8	38	2.3	2.402	0.091	236	0.000	0.142	1.000
2726.0	39	2.4	2.408	0.093	236	0.000	0.141	1.000
2726.2	39	2.5	2.414	0.090	234	0.000	0.137	1.000
2726.4	38	2.6	2.419	0.091	234	0.000	0.136	1.000
2726.6	36	2.6	2.420	0.098	232	0.000	0.139	1.000
2726.8	35	2.5	2.424	0.100	233	0.010	0.136	1.000
2727.0	36	2.5	2.430	0.098	232	0.018	0.131	1.000
2727.2	35	2.5	2.429	0.096	232	0.006	0.134	1.000
2727.4	36	2.5	2.419	0.100	233	0.001	0.140	1.000
2727.6	37	2.5	2.417	0.113	233	0.047	0.137	1.000
2727.8	39	2.6	2.420	0.116	231	0.064	0.133	1.000
2728.0	40	2.5	2.414	0.101	232	0.000	0.142	1.000
2728.2	45	2.1	2.394	0.107	235	0.000	0.152	1.000
2728.4	50	1.7	2.351	0.136	245	0.000	0.180	1.000

## ROUNDHEAD\_1 (page 33 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2728.6	50	1.5	2.317	0.170	259	0.030	0.199	1.000
2728.8	51	1.4	2.305	0.185	265	0.060	0.204	1.000
2729.0	50	1.4	2.309	0.179	264	0.045	0.203	1.000
2729.2	50	1.5	2.323	0.154	260	0.000	0.197	1.000
2729.4	50	1.6	2.335	0.138	254	0.000	0.186	1.000
2729.6	50	1.6	2.339	0.141	250	0.000	0.186	1.000
2729.8	48	1.6	2.339	0.143	250	0.000	0.187	1.000
2730.0	49	1.6	2.338	0.150	252	0.005	0.189	1.000
2730.2	49	1.6	2.335	0.157	253	0.022	0.189	1.000
2730.4	50	1.5	2.334	0.157	253	0.018	0.191	1.000
2730.6	51	1.5	2.329	0.154	255	0.000	0.195	1.000
2730.8	64	1.6	2.343	0.157	258	0.042	0.182	1.000
2731.0	81	2.0	2.391	0.171	260	0.204	0.138	1.000
2731.2	88	2.7	2.458	0.169	254	0.348	0.086	1.000
2731.4	84	2.9	2.476	0.173	250	0.406	0.071	1.000
2731.6	68	2.0	2.419	0.182	255	0.312	0.111	1.000
2731.8	53	1.4	2.349	0.186	257	0.166	0.166	1.000
2732.0	52	1.3	2.313	0.173	263	0.033	0.202	1.000
2732.2	51	1.3	2.298	0.173	265	0.000	0.214	1.000
2732.4	52	1.4	2.278	0.179	262	0.000	0.224	0.950
2732.6	51	1.5	2.284	0.182	259	0.001	0.223	0.922
2732.8	51	1.6	2.307	0.167	255	0.000	0.208	0.965
2733.0	53	1.7	2.329	0.165	253	0.038	0.192	0.996
2733.2	53	1.7	2.336	0.167	252	0.063	0.185	1.000
2733.4	51	1.7	2.338	0.174	251	0.097	0.180	1.000
2733.6	49	1.7	2.346	0.167	251	0.088	0.176	1.000
2733.8	48	1.7	2.352	0.157	250	0.062	0.175	1.000
2734.0	51	1.8	2.353	0.150	249	0.037	0.177	1.000
2734.2	49	1.8	2.355	0.159	252	0.077	0.172	1.000
2734.4	46	1.8	2.354	0.163	252	0.089	0.171	1.000
2734.6	45	1.8	2.349	0.161	252	0.071	0.176	1.000
2734.8	48	1.8	2.350	0.158	253	0.060	0.177	1.000
2735.0	50	1.8	2.357	0.165	250	0.105	0.168	1.000
2735.2	49	1.8	2.364	0.168	253	0.130	0.161	1.000
2735.4	49	1.8	2.358	0.165	255	0.105	0.167	1.000
2735.6	48	1.7	2.344	0.172	258	0.102	0.176	1.000
2735.8	49	1.7	2.339	0.173	256	0.092	0.180	1.000
2736.0	50	1.7	2.337	0.168	257	0.069	0.184	0.997
2736.2	50	1.7	2.332	0.166	257	0.051	0.188	0.980
2736.4	48	1.8	2.337	0.170	256	0.079	0.182	0.977
2736.6	50	1.9	2.349	0.168	254	0.097	0.173	0.970
2736.8	55	2.0	2.368	0.163	254	0.122	0.159	1.000
2737.0	59	2.0	2.377	0.167	253	0.158	0.150	1.000
2737.2	56	1.9	2.365	0.165	255	0.124	0.161	1.000
2737.4	51	1.8	2.357	0.166	250	0.108	0.168	1.000
2737.6	52	2.0	2.368	0.165	246	0.126	0.159	1.000
2737.8	50	2.3	2.373	0.152	240	0.093	0.159	0.975
2738.0	50	2.2	2.372	0.142	243	0.050	0.164	0.987
2738.2	51	1.9	2.358	0.144	246	0.026	0.175	1.000
2738.4	51	1.7	2.340	0.146	249	0.000	0.188	1.000
2738.6	49	1.6	2.337	0.157	251	0.025	0.188	1.000
2738.8	47	1.7	2.343	0.172	251	0.097	0.177	1.000
2739.0	48	1.7	2.345	0.173	250	0.105	0.175	1.000
2739.2	48	1.8	2.357	0.158	246	0.076	0.171	1.000
2739.4	47	1.9	2.379	0.142	242	0.069	0.158	1.000



ROUNDHEAD\_1 (page 34 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2739.6	43	2.1	2.389	0.149	237	0.117	0.147	1.000
2739.8	44	2.2	2.388	0.143	236	0.093	0.150	1.000
2740.0	44	2.1	2.378	0.125	239	0.001	0.165	1.000
2740.2	47	1.9	2.371	0.122	241	0.000	0.166	1.000
2740.4	50	1.7	2.359	0.128	245	0.000	0.174	1.000
2740.6	53	1.6	2.351	0.128	249	0.000	0.176	1.000
2740.8	64	1.8	2.383	0.126	252	0.015	0.160	1.000
2741.0	71	2.0	2.411	0.145	253	0.150	0.131	1.000
2741.2	66	1.9	2.374	0.163	256	0.138	0.154	1.000
2741.4	57	1.6	2.332	0.172	260	0.072	0.186	1.000
2741.6	49	1.5	2.334	0.155	257	0.013	0.191	1.000
2741.8	46	1.8	2.351	0.137	245	0.000	0.180	1.000
2742.0	43	2.0	2.365	0.125	242	0.000	0.170	1.000
2742.2	43	2.2	2.380	0.124	239	0.002	0.164	1.000
2742.4	46	2.3	2.384	0.127	236	0.023	0.159	1.000
2742.6	49	2.3	2.379	0.130	239	0.021	0.163	1.000
2742.8	47	2.2	2.376	0.134	240	0.028	0.164	1.000
2743.0	46	2.1	2.377	0.134	242	0.030	0.163	1.000
2743.2	47	2.1	2.376	0.129	241	0.012	0.165	1.000
2743.4	49	2.1	2.364	0.125	241	0.000	0.170	1.000
2743.6	49	2.2	2.360	0.121	240	0.000	0.170	1.000
2743.8	48	2.1	2.361	0.120	242	0.000	0.169	1.000
2744.0	48	2.0	2.353	0.123	245	0.000	0.173	1.000
2744.2	47	1.9	2.347	0.120	248	0.000	0.175	1.000
2744.4	45	1.9	2.352	0.124	248	0.000	0.174	1.000
2744.6	43	2.0	2.366	0.124	245	0.000	0.169	1.000
2744.8	45	1.9	2.367	0.126	247	0.000	0.170	1.000
2745.0	54	1.8	2.360	0.121	255	0.000	0.170	1.000
2745.2	64	2.1	2.385	0.117	252	0.000	0.160	1.000
2745.4	72	2.7	2.434	0.115	248	0.092	0.122	1.000
2745.6	81	4.3	2.465	0.122	243	0.186	0.095	1.000
2745.8	92	5.8	2.477	0.151	238	0.326	0.076	1.000
2746.0	98	6.3	2.492	0.166	240	0.418	0.061	1.000
2746.2	96	6.4	2.487	0.166	243	0.405	0.065	1.000
2746.4	97	6.2	2.475	0.174	245	0.406	0.072	1.000
2746.6	99	5.9	2.480	0.187	246	0.470	0.058	1.000
2746.8	103	6.2	2.511	0.192	244	0.557	0.019	1.000
2747.0	105	6.5	2.525	0.182	243	0.554	0.015	1.000
2747.2	104	6.8	2.505	0.166	242	0.446	0.051	1.000
2747.4	99	6.7	2.497	0.163	241	0.417	0.058	1.000
2747.6	96	6.6	2.497	0.162	239	0.414	0.058	1.000
2747.8	84	5.9	2.480	0.150	238	0.329	0.074	1.000
2748.0	75	5.5	2.461	0.143	235	0.259	0.090	1.000
2748.2	67	4.7	2.441	0.134	238	0.179	0.110	1.000
2748.4	64	4.5	2.435	0.119	244	0.107	0.120	0.868
2748.6	63	4.6	2.454	0.120	241	0.158	0.104	0.916
2748.8	65	4.5	2.468	0.132	240	0.231	0.089	0.972
2749.0	61	4.5	2.448	0.136	241	0.203	0.104	0.879
2749.2	59	4.5	2.430	0.143	242	0.189	0.115	1.000
2749.4	56	4.8	2.442	0.150	240	0.244	0.103	1.000
2749.6	50	4.5	2.440	0.149	236	0.233	0.105	1.000
2749.8	45	3.9	2.406	0.151	240	0.164	0.132	1.000
2750.0	44	3.3	2.384	0.140	245	0.071	0.154	1.000
2750.2	46	3.1	2.387	0.126	245	0.026	0.157	0.888
2750.4	47	3.4	2.393	0.119	243	0.011	0.155	0.876

## ROUNDHEAD\_1 (page 35 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2750.6	48	4.1	2.414	0.113	239	0.038	0.140	0.856
2750.8	50	4.9	2.439	0.106	237	0.067	0.122	0.864
2751.0	55	5.5	2.448	0.099	232	0.063	0.116	1.000
2751.2	54	5.2	2.430	0.101	228	0.028	0.131	1.000
2751.4	50	3.8	2.404	0.118	233	0.036	0.146	0.853
2751.6	45	3.2	2.381	0.141	242	0.067	0.157	1.000
2751.8	46	2.8	2.368	0.148	246	0.065	0.165	0.858
2752.0	49	2.8	2.367	0.141	246	0.034	0.169	0.861
2752.2	49	3.0	2.371	0.144	243	0.055	0.164	1.000
2752.4	50	3.1	2.368	0.141	243	0.039	0.168	1.000
2752.6	50	2.8	2.364	0.131	244	0.000	0.173	0.878
2752.8	51	2.6	2.353	0.132	247	0.000	0.177	0.885
2753.0	54	2.4	2.350	0.140	249	0.000	0.182	0.888
2753.2	54	2.4	2.344	0.138	249	0.000	0.183	0.882
2753.4	49	2.6	2.344	0.130	247	0.000	0.179	0.880
2753.6	52	2.6	2.339	0.132	245	0.000	0.182	0.852
2753.8	58	2.6	2.343	0.159	246	0.049	0.182	1.000
2754.0	59	2.6	2.355	0.171	250	0.123	0.167	1.000
2754.2	54	2.3	2.343	0.159	250	0.050	0.182	0.868
2754.4	52	2.2	2.316	0.171	254	0.033	0.200	1.000
2754.6	52	2.1	2.310	0.180	255	0.051	0.202	1.000
2754.8	50	2.2	2.338	0.173	252	0.088	0.181	0.873
2755.0	49	2.9	2.374	0.145	246	0.067	0.161	0.852
2755.2	45	3.9	2.393	0.121	240	0.021	0.154	1.000
2755.4	44	4.4	2.400	0.119	234	0.029	0.149	1.000
2755.6	47	4.1	2.402	0.127	232	0.063	0.145	1.000
2755.8	52	3.9	2.395	0.130	238	0.060	0.149	1.000
2756.0	55	3.5	2.398	0.128	241	0.057	0.147	0.864
2756.2	55	3.2	2.395	0.131	242	0.061	0.149	0.889
2756.4	53	2.9	2.377	0.143	246	0.066	0.160	0.867
2756.6	55	2.4	2.351	0.166	251	0.095	0.172	0.861
2756.8	56	2.2	2.328	0.179	253	0.090	0.187	1.000
2757.0	57	2.0	2.309	0.172	254	0.019	0.205	0.858
2757.2	54	2.1	2.306	0.172	258	0.015	0.208	1.000
2757.4	49	2.1	2.320	0.186	256	0.100	0.190	1.000
2757.6	49	2.1	2.333	0.177	255	0.093	0.184	0.878
2757.8	52	2.4	2.349	0.153	251	0.043	0.179	0.878
2758.0	49	3.2	2.389	0.125	244	0.025	0.156	0.881
2758.2	48	4.3	2.429	0.104	235	0.037	0.130	0.896
2758.4	51	4.8	2.431	0.107	229	0.054	0.128	1.000
2758.6	51	3.9	2.412	0.123	229	0.070	0.138	0.852
2758.8	50	3.7	2.397	0.130	236	0.063	0.147	1.000
2759.0	50	3.3	2.397	0.132	237	0.071	0.146	0.879
2759.2	49	2.6	2.384	0.138	239	0.065	0.155	0.954
2759.4	46	2.1	2.342	0.157	246	0.040	0.183	0.913
2759.6	46	1.8	2.307	0.175	256	0.026	0.206	0.907
2759.8	47	1.6	2.303	0.175	261	0.016	0.210	0.936
2760.0	49	1.8	2.312	0.173	260	0.030	0.203	0.908
2760.2	48	2.0	2.337	0.162	256	0.046	0.186	0.923
2760.4	46	2.4	2.376	0.144	246	0.069	0.160	0.951
2760.6	47	2.8	2.393	0.125	238	0.036	0.152	0.964
2760.8	50	2.4	2.364	0.126	239	0.000	0.171	0.952
2761.0	51	2.0	2.333	0.142	242	0.000	0.189	0.937
2761.2	50	1.7	2.320	0.153	251	0.000	0.198	0.978
2761.4	52	1.6	2.325	0.155	257	0.000	0.197	1.000

## ROUNDHEAD\_1 (page 36 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2761.6	53	1.5	2.333	0.158	258	0.024	0.190	1.000
2761.8	54	1.5	2.321	0.165	260	0.020	0.198	1.000
2762.0	51	1.4	2.303	0.168	261	0.000	0.210	1.000
2762.2	50	1.4	2.293	0.176	263	0.000	0.217	0.988
2762.4	48	1.4	2.291	0.187	263	0.036	0.215	0.980
2762.6	49	1.4	2.295	0.191	264	0.058	0.210	0.973
2762.8	47	1.4	2.306	0.190	262	0.083	0.201	0.985
2763.0	45	1.5	2.318	0.174	260	0.048	0.197	1.000
2763.2	44	1.5	2.327	0.166	257	0.041	0.192	1.000
2763.4	45	1.6	2.331	0.170	256	0.065	0.188	1.000
2763.6	43	1.6	2.335	0.172	254	0.079	0.184	1.000
2763.8	43	1.6	2.339	0.172	254	0.091	0.180	1.000
2764.0	45	1.6	2.336	0.169	253	0.071	0.184	1.000
2764.2	45	1.6	2.328	0.166	253	0.040	0.192	1.000
2764.4	45	1.6	2.325	0.162	254	0.020	0.196	1.000
2764.6	46	1.6	2.325	0.169	253	0.044	0.193	1.000
2764.8	46	1.6	2.330	0.161	252	0.029	0.192	1.000
2765.0	42	1.6	2.338	0.153	251	0.015	0.188	1.000
2765.2	43	1.6	2.336	0.159	250	0.035	0.187	1.000
2765.4	44	1.6	2.330	0.166	250	0.046	0.190	1.000
2765.6	44	1.6	2.327	0.171	251	0.055	0.191	1.000
2765.8	49	1.6	2.328	0.164	252	0.033	0.193	1.000
2766.0	48	1.6	2.331	0.156	252	0.010	0.193	1.000
2766.2	47	1.6	2.331	0.156	250	0.011	0.193	1.000
2766.4	46	1.7	2.337	0.153	250	0.012	0.189	1.000
2766.6	43	1.6	2.331	0.156	251	0.009	0.193	1.000
2766.8	42	1.6	2.332	0.157	249	0.014	0.192	1.000
2767.0	41	1.7	2.342	0.158	249	0.043	0.183	1.000
2767.2	43	1.8	2.353	0.157	245	0.066	0.174	1.000
2767.4	44	1.8	2.363	0.160	244	0.098	0.165	1.000
2767.6	44	1.8	2.364	0.160	243	0.100	0.164	1.000
2767.8	41	1.8	2.355	0.150	244	0.040	0.176	1.000
2768.0	39	1.8	2.352	0.151	244	0.039	0.177	1.000
2768.2	41	1.8	2.350	0.154	243	0.046	0.178	1.000
2768.4	46	1.8	2.355	0.142	243	0.012	0.178	1.000
2768.6	47	1.8	2.357	0.141	245	0.013	0.177	1.000
2768.8	47	1.7	2.351	0.152	250	0.042	0.178	1.000
2769.0	45	1.7	2.343	0.160	251	0.053	0.181	1.000
2769.2	42	1.7	2.344	0.153	249	0.029	0.183	1.000
2769.4	41	1.8	2.350	0.152	246	0.038	0.179	1.000
2769.6	41	1.8	2.356	0.161	243	0.085	0.170	1.000
2769.8	44	1.8	2.359	0.168	242	0.118	0.165	1.000
2770.0	45	1.9	2.370	0.160	240	0.116	0.159	1.000
2770.2	46	1.9	2.377	0.143	241	0.067	0.159	1.000
2770.4	46	1.8	2.369	0.139	242	0.034	0.167	1.000
2770.6	47	1.7	2.359	0.141	245	0.020	0.175	1.000
2770.8	46	1.7	2.349	0.142	248	0.000	0.183	1.000
2771.0	43	1.6	2.342	0.132	248	0.000	0.181	1.000
2771.2	42	1.7	2.341	0.137	247	0.000	0.184	1.000
2771.4	41	1.7	2.346	0.140	247	0.000	0.183	1.000
2771.6	41	1.8	2.361	0.135	244	0.001	0.176	1.000
2771.8	42	1.9	2.373	0.136	242	0.030	0.165	1.000
2772.0	45	2.0	2.374	0.141	240	0.052	0.163	1.000
2772.2	44	2.0	2.357	0.153	242	0.060	0.172	0.996
2772.4	44	1.9	2.349	0.157	244	0.054	0.178	0.995

## ROUNDHEAD\_1 (page 37 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2772.6	49	1.8	2.347	0.163	244	0.074	0.177	0.986
2772.8	49	1.9	2.345	0.165	245	0.075	0.178	0.981
2773.0	49	1.9	2.343	0.159	245	0.048	0.182	0.976
2773.2	51	1.9	2.343	0.155	244	0.036	0.183	0.974
2773.4	50	1.9	2.345	0.162	245	0.064	0.179	0.981
2773.6	47	1.8	2.336	0.157	248	0.025	0.189	0.976
2773.8	48	1.7	2.333	0.153	250	0.006	0.192	1.000
2774.0	50	1.7	2.339	0.151	250	0.009	0.189	1.000
2774.2	47	1.7	2.338	0.165	249	0.062	0.183	0.991
2774.4	42	1.8	2.333	0.165	249	0.050	0.188	0.972
2774.6	44	1.7	2.331	0.159	249	0.019	0.192	0.986
2774.8	45	1.7	2.334	0.166	250	0.055	0.187	0.995
2775.0	45	1.7	2.340	0.159	251	0.044	0.184	1.000
2775.2	44	1.7	2.344	0.148	251	0.010	0.185	1.000
2775.4	43	1.7	2.345	0.153	250	0.032	0.182	1.000
2775.6	43	1.7	2.349	0.157	250	0.056	0.178	1.000
2775.8	44	1.6	2.343	0.169	253	0.089	0.178	1.000
2776.0	44	1.6	2.335	0.181	254	0.114	0.180	1.000
2776.2	44	1.6	2.323	0.181	256	0.085	0.190	0.994
2776.4	43	1.6	2.327	0.169	256	0.052	0.191	1.000
2776.6	43	1.6	2.329	0.166	257	0.045	0.191	1.000
2776.8	42	1.5	2.327	0.173	258	0.067	0.190	1.000
2777.0	43	1.4	2.325	0.178	260	0.080	0.190	1.000
2777.2	46	1.6	2.332	0.168	263	0.055	0.188	1.000
2777.4	54	1.9	2.365	0.143	262	0.041	0.169	1.000
2777.6	62	2.1	2.377	0.146	257	0.075	0.159	1.000
2777.8	61	2.2	2.363	0.167	257	0.124	0.162	0.935
2778.0	59	1.9	2.338	0.193	258	0.165	0.173	0.911
2778.2	59	1.6	2.310	0.202	265	0.136	0.193	0.930
2778.4	58	1.4	2.292	0.202	271	0.092	0.209	0.950
2778.6	57	1.4	2.296	0.200	271	0.098	0.205	0.973
2778.8	54	1.4	2.304	0.189	269	0.074	0.203	0.988
2779.0	48	1.5	2.305	0.167	265	0.000	0.209	0.992
2779.2	46	1.5	2.308	0.154	261	0.000	0.203	1.000
2779.4	43	1.5	2.312	0.158	260	0.000	0.203	1.000
2779.6	42	1.4	2.307	0.164	262	0.000	0.207	1.000
2779.8	45	1.3	2.292	0.169	266	0.000	0.215	1.000
2780.0	51	1.3	2.303	0.181	267	0.042	0.207	1.000
2780.2	57	1.4	2.330	0.181	264	0.104	0.184	1.000
2780.4	58	1.6	2.334	0.177	263	0.098	0.182	1.000
2780.6	56	1.8	2.321	0.176	261	0.061	0.194	0.917
2780.8	57	1.8	2.320	0.171	263	0.042	0.197	0.924
2781.0	58	1.8	2.318	0.175	262	0.051	0.197	0.922
2781.2	53	1.6	2.304	0.177	263	0.028	0.208	0.940
2781.4	52	1.5	2.296	0.190	266	0.056	0.210	0.956
2781.6	55	1.5	2.313	0.193	263	0.107	0.194	0.968
2781.8	56	1.9	2.365	0.177	258	0.168	0.157	1.000
2782.0	55	2.9	2.404	0.150	249	0.156	0.134	0.938
2782.2	55	4.2	2.425	0.136	238	0.150	0.122	1.000
2782.4	52	4.1	2.429	0.131	236	0.141	0.121	0.870
2782.6	53	4.0	2.421	0.124	239	0.095	0.130	0.861
2782.8	55	4.0	2.420	0.123	239	0.090	0.131	0.862
2783.0	60	4.5	2.434	0.131	236	0.153	0.117	1.000
2783.2	62	4.3	2.420	0.143	238	0.164	0.124	1.000
2783.4	63	3.9	2.393	0.152	241	0.137	0.143	1.000

## ROUNDHEAD\_1 (page 38 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2783.6	62	3.1	2.368	0.164	250	0.125	0.159	1.000
2783.8	63	2.6	2.348	0.177	255	0.128	0.171	1.000
2784.0	64	2.7	2.349	0.174	258	0.121	0.171	1.000
2784.2	66	3.2	2.373	0.162	252	0.130	0.155	1.000
2784.4	75	3.8	2.398	0.169	247	0.214	0.132	1.000
2784.6	76	3.9	2.416	0.163	247	0.233	0.119	1.000
2784.8	74	3.7	2.422	0.159	248	0.231	0.116	0.855
2785.0	76	3.4	2.406	0.162	251	0.206	0.128	1.000
2785.2	77	3.3	2.402	0.169	249	0.225	0.128	1.000
2785.4	71	2.8	2.393	0.179	250	0.240	0.132	0.883
2785.6	64	2.0	2.353	0.186	256	0.174	0.163	0.938
2785.8	59	1.4	2.303	0.192	267	0.082	0.203	0.976
2786.0	60	1.3	2.282	0.197	271	0.054	0.219	0.983
2786.2	63	1.3	2.285	0.201	270	0.077	0.214	0.975
2786.4	63	1.4	2.303	0.205	269	0.130	0.197	0.973
2786.6	68	1.6	2.312	0.196	269	0.119	0.193	0.953
2786.8	70	1.6	2.304	0.190	271	0.076	0.203	0.944
2787.0	70	1.5	2.311	0.211	270	0.171	0.189	0.947
2787.2	74	1.6	2.333	0.218	269	0.250	0.167	0.979
2787.4	76	1.7	2.351	0.209	267	0.256	0.156	1.000
2787.6	80	1.7	2.338	0.195	270	0.176	0.172	0.990
2787.8	82	1.8	2.331	0.198	267	0.169	0.177	0.917
2788.0	79	1.8	2.352	0.190	267	0.188	0.162	0.992
2788.2	80	2.1	2.381	0.178	261	0.207	0.143	1.000
2788.4	80	2.5	2.399	0.184	259	0.270	0.126	0.977
2788.6	82	2.9	2.413	0.182	253	0.297	0.116	0.930
2788.8	87	3.1	2.432	0.171	252	0.299	0.105	0.980
2789.0	92	3.5	2.456	0.164	251	0.328	0.088	1.000
2789.2	92	3.6	2.459	0.181	258	0.398	0.081	0.968
2789.4	87	2.7	2.434	0.201	263	0.415	0.095	1.000
2789.6	78	2.1	2.402	0.200	266	0.339	0.119	1.000
2789.8	73	1.7	2.395	0.189	271	0.282	0.128	1.000
2790.0	72	1.7	2.370	0.179	272	0.188	0.151	1.000
2790.2	71	1.5	2.332	0.190	275	0.139	0.180	1.000
2790.4	69	1.4	2.310	0.213	278	0.178	0.189	0.992
2790.6	65	1.3	2.298	0.219	281	0.172	0.197	0.982
2790.8	59	1.2	2.277	0.228	283	0.161	0.210	0.993
2791.0	63	1.0	2.263	0.237	286	0.160	0.219	1.000
2791.2	72	1.1	2.282	0.238	286	0.207	0.202	1.000
2791.4	86	1.6	2.357	0.225	275	0.331	0.146	1.000
2791.6	96	2.6	2.465	0.206	262	0.508	0.050	1.000
2791.8	103	3.6	2.546	0.200	252	0.669	0.000	1.000
2792.0	107	3.0	2.551	0.210	259	0.721	0.000	1.000
2792.2	116	2.3	2.476	0.246	269	0.682	0.000	1.000
2792.4	128	2.1	2.411	0.246	274	0.534	0.058	1.000
2792.6	129	2.2	2.404	0.232	274	0.465	0.100	0.990
2792.8	126	2.4	2.415	0.235	273	0.500	0.074	0.958
2793.0	124	2.6	2.427	0.224	269	0.487	0.076	0.960
2793.2	124	2.9	2.441	0.210	267	0.465	0.081	0.975
2793.4	128	3.1	2.438	0.213	265	0.472	0.078	0.924
2793.6	126	3.1	2.433	0.220	267	0.487	0.073	0.897
2793.8	118	3.1	2.433	0.226	268	0.508	0.063	0.885
2794.0	115	3.4	2.441	0.234	266	0.555	0.038	0.959
2794.2	110	3.2	2.436	0.244	268	0.583	0.027	1.000
2794.4	108	2.8	2.405	0.238	273	0.490	0.085	1.000

## ROUNDHEAD\_1 (page 39 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2794.6	112	2.8	2.405	0.241	275	0.502	0.077	1.000
2794.8	109	3.2	2.443	0.246	272	0.608	0.016	1.000
2795.0	102	3.5	2.463	0.265	271	0.725	0.000	1.000
2795.2	93	3.4	2.470	0.266	275	0.744	0.000	1.000
2795.4	91	3.2	2.471	0.255	275	0.708	0.000	1.000
2795.6	86	3.4	2.464	0.248	271	0.663	0.000	1.000
2795.8	83	3.4	2.461	0.249	270	0.661	0.000	1.000
2796.0	82	3.1	2.471	0.243	272	0.658	0.000	1.000
2796.2	82	2.8	2.481	0.240	274	0.671	0.000	1.000
2796.4	78	2.8	2.492	0.258	274	0.764	0.000	1.000
2796.6	76	2.7	2.500	0.287	276	0.891	0.000	1.000
2796.8	79	2.6	2.494	0.287	278	0.880	0.000	1.000
2797.0	82	2.7	2.463	0.268	275	0.734	0.000	1.000
2797.2	78	2.7	2.445	0.257	273	0.655	0.000	1.000
2797.4	77	2.8	2.453	0.260	272	0.684	0.000	1.000
2797.6	79	3.0	2.458	0.257	272	0.686	0.000	1.000
2797.8	79	3.5	2.454	0.252	269	0.657	0.000	1.000
2798.0	79	4.3	2.467	0.252	265	0.685	0.000	1.000
2798.2	80	3.9	2.486	0.275	267	0.815	0.000	1.000
2798.4	76	3.1	2.492	0.285	274	0.870	0.000	1.000
2798.6	72	2.6	2.504	0.283	280	0.888	0.000	1.000
2798.8	74	2.5	2.526	0.285	280	0.948	0.000	1.000
2799.0	77	2.7	2.546	0.286	280	0.995	0.000	1.000
2799.2	78	2.9	2.553	0.304	279	1.000	0.000	1.000
2799.4	77	3.0	2.560	0.305	279	1.000	0.000	1.000
2799.6	76	3.0	2.550	0.282	279	0.990	0.000	1.000
2799.8	74	3.0	2.522	0.270	277	0.882	0.000	1.000
2800.0	70	2.9	2.490	0.269	274	0.801	0.000	1.000
2800.2	68	2.6	2.478	0.271	275	0.781	0.000	1.000
2800.4	69	2.5	2.483	0.263	279	0.761	0.000	1.000
2800.6	71	2.4	2.478	0.259	281	0.736	0.000	1.000
2800.8	80	2.4	2.476	0.257	282	0.727	0.000	1.000
2801.0	96	2.9	2.485	0.249	280	0.717	0.000	1.000
2801.2	106	3.3	2.479	0.265	274	0.761	0.000	1.000
2801.4	112	3.6	2.470	0.277	271	0.784	0.000	1.000
2801.6	117	3.5	2.475	0.285	275	0.829	0.000	1.000
2801.8	117	3.4	2.471	0.286	277	0.824	0.000	1.000
2802.0	117	3.3	2.471	0.278	277	0.794	0.000	1.000
2802.2	115	3.3	2.478	0.267	277	0.768	0.000	1.000
2802.4	109	3.2	2.485	0.260	278	0.755	0.000	1.000
2802.6	103	3.1	2.481	0.265	280	0.767	0.000	1.000
2802.8	99	3.1	2.475	0.268	281	0.763	0.000	1.000
2803.0	104	3.2	2.489	0.250	280	0.729	0.000	1.000
2803.2	106	3.5	2.532	0.259	274	0.861	0.000	1.000
2803.4	100	3.9	2.563	0.282	270	1.000	0.000	1.000
2803.6	103	4.1	2.554	0.263	268	0.926	0.000	1.000
2803.8	104	3.8	2.526	0.252	272	0.820	0.000	1.000
2804.0	102	3.5	2.506	0.280	276	0.881	0.000	1.000
2804.2	110	3.5	2.511	0.284	277	0.908	0.000	1.000
2804.4	114	3.6	2.520	0.263	274	0.846	0.000	1.000
2804.6	120	3.6	2.501	0.256	274	0.779	0.000	1.000
2804.8	117	3.5	2.474	0.269	274	0.766	0.000	1.000
2805.0	112	3.2	2.461	0.276	275	0.760	0.000	1.000
2805.2	111	3.1	2.465	0.272	278	0.758	0.000	1.000
2805.4	109	3.2	2.489	0.255	277	0.747	0.000	1.000

## ROUNDHEAD\_1 (page 40 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2805.6	106	3.3	2.509	0.256	275	0.798	0.000	1.000
2805.8	106	3.4	2.509	0.269	274	0.845	0.000	1.000
2806.0	104	3.5	2.502	0.279	272	0.868	0.000	1.000
2806.2	105	3.4	2.500	0.266	274	0.816	0.000	1.000
2806.4	103	3.3	2.499	0.263	275	0.801	0.000	1.000
2806.6	99	3.4	2.511	0.271	276	0.859	0.000	1.000
2806.8	101	3.4	2.527	0.271	275	0.895	0.000	1.000
2807.0	104	3.5	2.532	0.261	275	0.870	0.000	1.000
2807.2	105	3.4	2.521	0.264	276	0.853	0.000	1.000
2807.4	109	3.3	2.527	0.266	277	0.875	0.000	1.000
2807.6	111	3.4	2.545	0.269	277	0.928	0.000	1.000
2807.8	115	3.4	2.559	0.273	275	0.978	0.000	1.000
2808.0	111	3.4	2.570	0.274	273	1.000	0.000	1.000
2808.2	109	3.4	2.551	0.262	272	0.916	0.000	1.000
2808.4	108	3.3	2.533	0.257	270	0.856	0.000	1.000
2808.6	114	3.1	2.520	0.250	272	0.799	0.000	1.000
2808.8	113	3.0	2.511	0.245	274	0.759	0.000	1.000
2809.0	116	2.9	2.502	0.254	276	0.771	0.000	1.000
2809.2	120	2.8	2.484	0.274	277	0.808	0.000	1.000
2809.4	124	2.8	2.468	0.280	278	0.793	0.000	1.000
2809.6	125	2.6	2.455	0.284	278	0.781	0.000	1.000
2809.8	123	2.5	2.455	0.280	278	0.766	0.000	1.000
2810.0	124	2.5	2.464	0.257	277	0.699	0.000	1.000
2810.2	118	2.6	2.469	0.269	276	0.753	0.000	1.000
2810.4	118	2.8	2.480	0.281	276	0.823	0.000	1.000
2810.6	119	3.2	2.491	0.291	276	0.889	0.000	1.000
2810.8	120	3.4	2.500	0.290	275	0.905	0.000	1.000
2811.0	124	3.5	2.510	0.271	276	0.855	0.000	1.000
2811.2	123	3.3	2.514	0.250	278	0.783	0.000	1.000
2811.4	126	3.0	2.524	0.268	279	0.877	0.000	1.000
2811.6	125	2.8	2.538	0.285	283	0.972	0.000	1.000
2811.8	115	2.8	2.563	0.289	285	1.000	0.000	1.000
2812.0	116	3.0	2.586	0.293	286	1.000	0.000	1.000
2812.2	116	3.3	2.585	0.288	281	1.000	0.000	1.000
2812.4	112	3.6	2.573	0.266	274	0.982	0.000	1.000
2812.6	112	3.7	2.547	0.266	271	0.922	0.000	1.000
2812.8	105	3.9	2.520	0.252	269	0.805	0.000	1.000
2813.0	90	4.1	2.494	0.229	266	0.661	0.000	1.000
2813.2	75	4.2	2.472	0.203	260	0.512	0.045	1.000
2813.4	62	3.8	2.457	0.170	250	0.352	0.086	1.000
2813.6	50	3.2	2.462	0.155	241	0.307	0.086	1.000
2813.8	42	2.5	2.433	0.156	240	0.245	0.108	1.000
2814.0	37	1.8	2.380	0.166	242	0.159	0.148	0.988
2814.2	34	1.4	2.350	0.172	245	0.115	0.171	1.000
2814.4	34	1.3	2.350	0.178	254	0.137	0.169	1.000
2814.6	33	1.3	2.372	0.176	257	0.178	0.152	1.000
2814.8	34	1.4	2.383	0.179	253	0.216	0.141	1.000
2815.0	35	1.4	2.377	0.181	253	0.209	0.145	1.000
2815.2	34	1.4	2.361	0.170	254	0.133	0.162	1.000
2815.4	35	1.3	2.346	0.159	255	0.055	0.179	1.000
2815.6	36	1.3	2.336	0.165	257	0.053	0.186	1.000
2815.8	37	1.2	2.335	0.175	258	0.093	0.182	1.000
2816.0	37	1.2	2.329	0.173	260	0.071	0.188	1.000
2816.2	36	1.2	2.320	0.168	262	0.031	0.198	1.000
2816.4	35	1.2	2.313	0.163	263	0.000	0.205	0.986

## ROUNDHEAD\_1 (page 41 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2816.6	37	1.2	2.321	0.148	260	0.000	0.196	1.000
2816.8	37	1.3	2.336	0.140	259	0.000	0.187	1.000
2817.0	37	1.3	2.352	0.148	255	0.027	0.179	1.000
2817.2	37	1.4	2.362	0.136	251	0.007	0.174	1.000
2817.4	36	1.4	2.359	0.132	248	0.000	0.175	1.000
2817.6	38	1.3	2.341	0.147	249	0.000	0.188	1.000
2817.8	42	1.3	2.329	0.167	255	0.048	0.191	1.000
2818.0	44	1.3	2.321	0.159	254	0.000	0.200	0.970
2818.2	44	1.3	2.325	0.147	250	0.000	0.193	0.991
2818.4	45	1.4	2.333	0.136	247	0.000	0.186	1.000
2818.6	44	1.4	2.338	0.129	246	0.000	0.181	1.000
2818.8	43	1.5	2.344	0.123	247	0.000	0.177	1.000
2819.0	44	1.4	2.327	0.118	245	0.000	0.180	1.000
2819.2	51	1.3	2.294	0.136	253	0.000	0.200	0.990
2819.4	59	1.1	2.268	0.174	264	0.000	0.226	0.929
2819.6	64	1.2	2.262	0.195	271	0.001	0.236	0.861
2819.8	63	1.2	2.281	0.196	271	0.046	0.220	0.877
2820.0	55	1.3	2.308	0.188	267	0.079	0.200	0.929
2820.2	47	1.5	2.347	0.159	263	0.058	0.179	0.987
2820.4	42	1.8	2.398	0.121	253	0.030	0.150	1.000
2820.6	37	2.6	2.430	0.087	237	0.000	0.130	1.000
2820.8	36	3.3	2.441	0.070	220	0.000	0.119	1.000
2821.0	38	3.3	2.443	0.073	218	0.000	0.120	1.000
2821.2	40	3.0	2.432	0.079	220	0.000	0.126	1.000
2821.4	40	2.8	2.424	0.090	221	0.000	0.134	0.988
2821.6	44	2.3	2.412	0.107	221	0.009	0.143	1.000
2821.8	48	1.9	2.383	0.133	229	0.043	0.158	0.987
2822.0	49	1.7	2.363	0.151	235	0.063	0.168	0.973
2822.2	46	1.6	2.364	0.139	242	0.022	0.172	1.000
2822.4	41	1.6	2.368	0.138	244	0.027	0.169	1.000
2822.6	40	1.4	2.364	0.137	246	0.014	0.172	1.000
2822.8	44	1.3	2.344	0.143	249	0.000	0.185	1.000
2823.0	48	1.3	2.330	0.156	255	0.008	0.194	1.000
2823.2	51	1.3	2.335	0.160	256	0.033	0.188	1.000
2823.4	50	1.3	2.342	0.152	256	0.021	0.185	1.000
2823.6	49	1.5	2.334	0.152	253	0.001	0.192	0.952
2823.8	49	1.4	2.326	0.161	252	0.018	0.196	0.935
2824.0	52	1.4	2.320	0.163	256	0.011	0.200	0.927
2824.2	52	1.4	2.323	0.150	255	0.000	0.196	0.950
2824.4	51	1.5	2.322	0.148	252	0.000	0.195	0.928
2824.6	57	1.7	2.323	0.152	250	0.000	0.197	0.864
2824.8	55	1.8	2.333	0.149	249	0.000	0.192	0.869
2825.0	54	1.7	2.335	0.154	250	0.012	0.191	0.881
2825.2	57	1.6	2.318	0.172	251	0.042	0.198	0.864
2825.4	55	1.6	2.321	0.157	253	0.000	0.199	0.876
2825.6	48	2.2	2.362	0.116	247	0.000	0.167	0.902
2825.8	42	3.2	2.412	0.080	237	0.000	0.134	0.934
2826.0	40	3.3	2.433	0.073	225	0.000	0.123	0.989
2826.2	39	3.3	2.433	0.074	220	0.000	0.123	0.984
2826.4	40	3.5	2.435	0.076	220	0.000	0.124	0.961
2826.6	42	3.4	2.430	0.080	220	0.000	0.127	0.951
2826.8	41	2.7	2.415	0.088	220	0.000	0.136	0.988
2827.0	40	2.2	2.397	0.101	226	0.000	0.148	1.000
2827.2	39	1.8	2.381	0.122	233	0.000	0.163	1.000
2827.4	35	1.5	2.353	0.136	243	0.000	0.179	0.998



## ROUNDHEAD\_1 (page 42 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2827.6	31	1.4	2.330	0.139	246	0.000	0.188	0.979
2827.8	31	1.4	2.319	0.139	249	0.000	0.192	0.977
2828.0	34	1.5	2.330	0.140	252	0.000	0.189	0.959
2828.2	35	1.7	2.363	0.124	246	0.000	0.170	0.999
2828.4	35	1.9	2.396	0.115	239	0.002	0.154	1.000
2828.6	36	2.2	2.408	0.112	232	0.021	0.145	1.000
2828.8	37	2.1	2.411	0.120	231	0.058	0.140	1.000
2829.0	38	2.0	2.411	0.119	235	0.055	0.139	1.000
2829.2	39	2.0	2.405	0.114	233	0.021	0.147	1.000
2829.4	36	2.0	2.409	0.112	233	0.022	0.144	1.000
2829.6	34	2.2	2.418	0.105	228	0.017	0.139	1.000
2829.8	37	2.3	2.425	0.099	226	0.008	0.136	1.000
2830.0	39	2.1	2.424	0.113	227	0.062	0.131	1.000
2830.2	41	2.0	2.410	0.128	230	0.083	0.138	1.000
2830.4	42	1.8	2.388	0.122	234	0.012	0.158	1.000
2830.6	41	1.7	2.376	0.115	238	0.000	0.162	1.000
2830.8	39	1.7	2.369	0.128	241	0.000	0.170	1.000
2831.0	40	1.7	2.367	0.145	241	0.049	0.167	0.983
2831.2	42	1.7	2.371	0.139	241	0.036	0.166	0.987
2831.4	40	1.8	2.373	0.134	239	0.025	0.166	0.974
2831.6	38	1.9	2.378	0.130	238	0.019	0.164	0.978
2831.8	39	1.9	2.385	0.128	238	0.027	0.158	0.991
2832.0	41	2.0	2.392	0.127	237	0.040	0.153	0.997
2832.2	41	2.1	2.398	0.126	237	0.051	0.148	0.996
2832.4	44	2.3	2.404	0.118	234	0.033	0.146	0.977
2832.6	44	2.5	2.417	0.101	232	0.000	0.141	0.997
2832.8	41	2.7	2.432	0.094	225	0.008	0.131	1.000
2833.0	37	2.6	2.430	0.094	224	0.003	0.133	1.000
2833.2	36	2.2	2.420	0.108	226	0.033	0.136	1.000
2833.4	38	2.0	2.411	0.123	230	0.069	0.139	1.000
2833.6	36	1.9	2.391	0.130	234	0.047	0.153	1.000
2833.8	36	1.8	2.382	0.131	237	0.031	0.160	1.000
2834.0	40	1.8	2.388	0.128	237	0.035	0.156	1.000
2834.2	38	1.9	2.395	0.116	235	0.006	0.154	1.000
2834.4	35	1.9	2.399	0.113	234	0.003	0.152	1.000
2834.6	34	1.9	2.399	0.107	234	0.000	0.150	1.000
2834.8	34	1.9	2.404	0.102	234	0.000	0.146	1.000
2835.0	32	2.0	2.407	0.107	233	0.000	0.147	1.000
2835.2	33	2.1	2.414	0.106	231	0.013	0.142	1.000
2835.4	33	2.0	2.415	0.103	231	0.002	0.143	1.000
2835.6	33	2.0	2.411	0.094	231	0.000	0.140	1.000
2835.8	33	2.0	2.408	0.095	231	0.000	0.142	1.000
2836.0	33	2.1	2.406	0.094	231	0.000	0.142	1.000
2836.2	34	2.1	2.416	0.098	230	0.000	0.140	1.000
2836.4	32	2.2	2.424	0.101	230	0.015	0.135	1.000
2836.6	31	2.2	2.429	0.099	229	0.019	0.132	1.000
2836.8	34	2.2	2.432	0.092	228	0.000	0.132	1.000
2837.0	36	2.3	2.427	0.085	226	0.000	0.131	1.000
2837.2	38	2.5	2.432	0.084	225	0.000	0.128	1.000
2837.4	40	2.5	2.429	0.095	226	0.003	0.134	1.000
2837.6	39	2.2	2.401	0.108	231	0.000	0.150	0.997
2837.8	36	1.9	2.371	0.121	237	0.000	0.166	0.970
2838.0	36	1.8	2.364	0.130	240	0.000	0.173	0.957
2838.2	38	1.8	2.380	0.134	240	0.037	0.161	0.993
2838.4	38	1.9	2.383	0.129	238	0.028	0.159	0.982

## ROUNDHEAD\_1 (page 43 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2838.6	38	2.0	2.382	0.119	236	0.000	0.162	0.976
2838.8	37	2.0	2.383	0.120	236	0.000	0.162	0.973
2839.0	36	2.0	2.379	0.123	236	0.000	0.164	0.961
2839.2	38	1.9	2.375	0.124	236	0.000	0.166	0.957
2839.4	38	2.0	2.388	0.117	235	0.000	0.158	0.991
2839.6	33	2.1	2.396	0.107	232	0.000	0.151	1.000
2839.8	32	2.1	2.403	0.100	230	0.000	0.145	1.000
2840.0	36	2.1	2.400	0.106	229	0.000	0.149	1.000
2840.2	36	2.1	2.394	0.106	230	0.000	0.151	0.999
2840.4	33	2.2	2.398	0.103	229	0.000	0.149	1.000
2840.6	32	2.3	2.405	0.099	229	0.000	0.144	1.000
2840.8	34	2.3	2.410	0.096	229	0.000	0.141	1.000
2841.0	35	2.3	2.410	0.093	230	0.000	0.140	1.000
2841.2	33	2.2	2.409	0.097	232	0.000	0.142	1.000
2841.4	36	2.3	2.409	0.100	232	0.000	0.143	1.000
2841.6	39	2.4	2.410	0.102	232	0.000	0.144	1.000
2841.8	41	2.5	2.411	0.098	231	0.000	0.142	0.992
2842.0	41	2.6	2.419	0.095	228	0.000	0.138	1.000
2842.2	39	2.6	2.426	0.096	227	0.002	0.136	1.000
2842.4	36	2.6	2.423	0.099	229	0.007	0.137	0.993
2842.6	37	2.5	2.419	0.101	230	0.002	0.140	0.991
2842.8	36	2.4	2.415	0.109	231	0.025	0.140	0.989
2843.0	36	2.3	2.419	0.113	232	0.052	0.135	1.000
2843.2	36	2.3	2.431	0.106	232	0.051	0.128	1.000
2843.4	38	2.4	2.449	0.099	231	0.063	0.116	1.000
2843.6	39	2.5	2.451	0.096	229	0.059	0.115	1.000
2843.8	40	2.5	2.442	0.101	229	0.057	0.121	1.000
2844.0	40	2.4	2.440	0.108	230	0.080	0.119	1.000
2844.2	37	2.3	2.429	0.113	232	0.073	0.127	1.000
2844.4	36	2.2	2.416	0.108	231	0.022	0.140	1.000
2844.6	38	2.2	2.413	0.098	232	0.000	0.141	1.000
2844.8	38	2.2	2.415	0.100	234	0.000	0.141	1.000
2845.0	39	2.2	2.414	0.107	236	0.015	0.142	1.000
2845.2	42	2.2	2.431	0.113	238	0.076	0.125	1.000
2845.4	53	2.5	2.450	0.130	241	0.187	0.103	1.000
2845.6	69	2.8	2.433	0.160	247	0.258	0.107	0.933
2845.8	78	2.8	2.412	0.185	254	0.303	0.116	1.000
2846.0	86	2.9	2.421	0.183	257	0.317	0.110	1.000
2846.2	106	3.4	2.449	0.185	258	0.392	0.088	1.000
2846.4	121	4.0	2.471	0.209	257	0.530	0.039	0.925
2846.6	119	4.6	2.467	0.213	255	0.535	0.038	0.903
2846.8	120	4.9	2.446	0.189	250	0.401	0.089	1.000
2847.0	131	4.0	2.395	0.180	253	0.247	0.131	1.000
2847.2	126	4.0	2.366	0.209	255	0.291	0.144	1.000
2847.4	108	3.7	2.387	0.213	258	0.355	0.127	1.000
2847.6	102	4.3	2.438	0.196	254	0.409	0.093	1.000
2847.8	108	4.8	2.496	0.192	249	0.523	0.032	0.983
2848.0	115	5.8	2.545	0.194	245	0.645	0.000	1.000
2848.2	119	7.4	2.564	0.206	243	0.736	0.000	1.000
2848.4	112	6.5	2.531	0.209	247	0.668	0.000	1.000
2848.6	110	6.2	2.508	0.218	251	0.652	0.000	1.000
2848.8	110	5.9	2.516	0.216	252	0.660	0.000	1.000
2849.0	104	6.4	2.513	0.196	252	0.579	0.013	1.000
2849.2	104	6.4	2.506	0.206	254	0.599	0.010	1.000
2849.4	110	7.0	2.511	0.241	257	0.743	0.000	1.000

## ROUNDHEAD\_1 (page 44 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2849.6	111	8.7	2.507	0.257	261	0.796	0.000	1.000
2849.8	109	9.2	2.487	0.250	265	0.724	0.000	1.000
2850.0	106	9.1	2.468	0.262	270	0.726	0.000	1.000
2850.2	109	8.8	2.466	0.275	269		Coal	
2850.4	114	9.2	2.383	0.282	270		Coal	
2850.6	120	11.0	2.313	0.328	293		Coal	
2850.8	126	12.3	2.350	0.333	295		Coal	
2851.0	128	12.5	2.455	0.248	288	0.644	0.002	1.000
2851.2	124	9.4	2.488	0.220	263	0.612	0.009	1.000
2851.4	123	8.4	2.472	0.204	259	0.517	0.043	1.000
2851.6	133	8.6	2.477	0.209	257	0.546	0.031	0.976
2851.8	136	8.2	2.502	0.238	252	0.713	0.000	1.000
2852.0	122	6.5	2.456	0.250	260		Coal	
2852.2	108	3.9	2.389	0.215	266		Coal	
2852.4	109	3.8	2.350	0.237	273		Coal	
2852.6	123	5.8	2.272	0.302	301		Coal	
2852.8	127	10.4	2.237	0.296	299		Coal	
2853.0	117	10.7	2.354	0.217	289	0.293	0.151	1.000
2853.2	115	8.6	2.489	0.219	260	0.611	0.009	1.000
2853.4	119	9.4	2.524	0.256	257	0.830	0.000	1.000
2853.6	115	10.6	2.518	0.299	262	0.979	0.000	1.000
2853.8	107	10.3	2.489	0.300	263	0.917	0.000	1.000
2854.0	100	8.2	2.467	0.253	260	0.690	0.000	1.000
2854.2	101	5.7	2.454	0.213	257	0.508	0.054	1.000
2854.4	99	5.1	2.446	0.199	260	0.437	0.086	1.000
2854.6	97	5.1	2.465	0.213	260	0.534	0.039	0.930
2854.8	112	6.4	2.513	0.230	260	0.709	0.000	1.000
2855.0	124	8.6	2.533	0.237	255	0.779	0.000	1.000
2855.2	125	10.4	2.536	0.222	250	0.730	0.000	1.000
2855.4	126	12.3	2.540	0.222	250	0.738	0.000	1.000
2855.6	132	11.7	2.523	0.236	253	0.754	0.000	1.000
2855.8	128	10.2	2.499	0.239	254	0.710	0.000	1.000
2856.0	116	7.6	2.473	0.228	257	0.608	0.012	1.000
2856.2	106	5.8	2.446	0.217	258	0.505	0.059	1.000
2856.4	98	5.2	2.423	0.211	257	0.428	0.100	1.000
2856.6	94	4.7	2.412	0.201	260	0.367	0.111	1.000
2856.8	86	3.8	2.392	0.198	262	0.309	0.127	1.000
2857.0	78	2.8	2.344	0.193	266	0.180	0.168	0.898
2857.2	72	2.3	2.321	0.188	273	0.109	0.189	0.948
2857.4	63	2.3	2.326	0.186	271	0.113	0.185	0.977
2857.6	60	2.2	2.312	0.188	271	0.089	0.196	0.951
2857.8	58	1.9	2.288	0.205	272	0.100	0.210	0.961
2858.0	61	1.8	2.275	0.225	281	0.143	0.213	0.943
2858.2	58	1.9	2.289	0.212	277	0.127	0.207	0.949
2858.4	52	2.2	2.330	0.175	268	0.077	0.187	1.000
2858.6	50	2.6	2.360	0.161	261	0.094	0.167	1.000
2858.8	48	2.9	2.368	0.161	255	0.114	0.160	0.980
2859.0	45	2.9	2.361	0.143	257	0.030	0.173	0.995
2859.2	44	2.9	2.359	0.128	257	0.000	0.173	1.000
2859.4	45	2.9	2.359	0.131	257	0.000	0.175	1.000
2859.6	46	2.9	2.366	0.134	258	0.005	0.172	1.000
2859.8	47	3.2	2.379	0.129	253	0.016	0.163	1.000
2860.0	55	3.5	2.387	0.124	247	0.016	0.159	0.999
2860.2	68	4.3	2.407	0.120	246	0.049	0.143	0.962
2860.4	94	5.9	2.437	0.130	239	0.156	0.114	0.866

ROUNDHEAD\_1 (page 45 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2860.6	117	7.9	2.493	0.185	239	0.492	0.044	1.000
2860.8	119	11.0	2.545	0.223	239	0.754	0.000	1.000
2861.0	115	12.9	2.554	0.220	240	0.763	0.000	1.000
2861.2	123	11.6	2.533	0.229	246	0.748	0.000	1.000
2861.4	120	9.4	2.515	0.236	253	0.738	0.000	1.000
2861.6	109	8.2	2.502	0.230	253	0.683	0.000	1.000
2861.8	104	7.6	2.500	0.221	251	0.643	0.001	1.000
2862.0	105	8.7	2.507	0.218	251	0.648	0.000	1.000
2862.2	115	9.3	2.509	0.231	250	0.703	0.000	1.000
2862.4	121	10.1	2.511	0.261	258	0.823	0.000	1.000
2862.6	128	12.0	2.531	0.251	258	0.828	0.000	1.000
2862.8	128	10.1	2.531	0.216	249	0.697	0.000	1.000
2863.0	121	6.8	2.487	0.184	247	0.473	0.053	1.000
2863.2	113	4.4	2.442	0.190	256	0.394	0.092	0.904
2863.4	107	3.2	2.428	0.191	260	0.364	0.102	1.000
2863.6	108	3.9	2.446	0.218	257		Coal	
2863.8	114	5.6	2.365	0.321	277		Coal	
2864.0	107	11.2	2.223	0.415	318		Coal	
2864.2	105	19.4	2.158	0.442	356		Coal	
2864.4	111	17.7	2.239	0.382	359		Coal	
2864.6	123	12.2	2.408	0.288	306		Coal	
2864.8	126	9.4	2.536	0.231	260	0.764	0.000	1.000
2865.0	119	8.5	2.527	0.223	248	0.712	0.000	1.000
2865.2	109	7.1	2.508	0.226	251	0.682	0.000	1.000
2865.4	111	7.5	2.503	0.224	253	0.661	0.000	1.000
2865.6	120	6.1	2.493	0.215	253	0.603	0.011	1.000
2865.8	121	5.8	2.478	0.224	255	0.606	0.012	1.000
2866.0	123	6.4	2.464	0.227	255	0.583	0.022	1.000
2866.2	123	5.8	2.472	0.209	255	0.533	0.037	0.931
2866.4	115	6.5	2.476	0.182	252	0.440	0.069	1.000
2866.6	107	6.0	2.471	0.184	252	0.437	0.072	1.000
2866.8	105	5.8	2.461	0.193	253	0.448	0.076	1.000
2867.0	103	5.6	2.448	0.197	255	0.432	0.085	1.000
2867.2	102	5.6	2.450	0.200	254	0.448	0.083	1.000
2867.4	99	5.2	2.443	0.198	254	0.428	0.088	1.000
2867.6	85	4.2	2.414	0.205	256	0.385	0.109	1.000
2867.8	73	3.4	2.376	0.196	260	0.264	0.140	0.863
2868.0	70	3.3	2.362	0.171	262	0.136	0.162	0.886
2868.2	76	4.1	2.380	0.157	259	0.126	0.151	0.852
2868.4	77	4.7	2.400	0.166	259	0.206	0.132	1.000
2868.6	78	4.5	2.384	0.176	259	0.209	0.141	1.000
2868.8	75	3.9	2.355	0.183	262	0.168	0.163	1.000
2869.0	71	3.5	2.334	0.187	261	0.133	0.179	1.000
2869.2	67	3.2	2.338	0.182	262	0.124	0.178	1.000
2869.4	66	2.9	2.347	0.183	263	0.149	0.169	0.900
2869.6	73	2.9	2.353	0.194	264	0.205	0.160	0.893
2869.8	94	3.4	2.371	0.200	262	0.266	0.143	1.000
2870.0	115	4.6	2.420	0.199	255	0.376	0.106	1.000
2870.2	126	5.9	2.467	0.224	248	0.580	0.022	1.000
2870.4	121	6.2	2.468	0.219	249	0.564	0.027	1.000
2870.6	103	5.2	2.444	0.196	252	0.422	0.088	1.000
2870.8	101	5.1	2.450	0.197	256	0.437	0.084	1.000
2871.0	110	5.8	2.483	0.208	256	0.557	0.026	1.000
2871.2	117	7.3	2.513	0.218	253	0.664	0.000	1.000
2871.4	117	9.7	2.535	0.204	251	0.658	0.000	1.000

## ROUNDHEAD\_1 (page 46 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2871.6	119	10.2	2.539	0.197	246	0.641	0.001	1.000
2871.8	110	7.1	2.517	0.191	247	0.569	0.014	1.000
2872.0	100	5.9	2.465	0.188	252	0.439	0.075	1.000
2872.2	104	6.0	2.472	0.208	255	0.528	0.039	0.903
2872.4	113	7.5	2.509	0.221	254	0.665	0.000	1.000
2872.6	115	10.4	2.532	0.225	251	0.733	0.000	1.000
2872.8	118	11.2	2.540	0.219	250	0.730	0.000	1.000
2873.0	123	10.2	2.536	0.223	250	0.733	0.000	1.000
2873.2	125	8.8	2.512	0.227	250	0.692	0.000	1.000
2873.4	119	8.4	2.498	0.221	254	0.639	0.002	1.000
2873.6	114	8.5	2.490	0.223	258	0.627	0.005	1.000
2873.8	107	8.2	2.478	0.222	259	0.597	0.015	1.000
2874.0	101	7.8	2.472	0.203	260	0.511	0.045	1.000
2874.2	96	7.3	2.478	0.192	258	0.481	0.054	1.000
2874.4	100	7.9	2.483	0.195	257	0.505	0.044	1.000
2874.6	107	8.6	2.497	0.208	256	0.589	0.014	1.000
2874.8	111	8.7	2.510	0.226	254	0.687	0.000	1.000
2875.0	118	8.3	2.517	0.230	253	0.716	0.000	1.000
2875.2	122	8.2	2.508	0.228	255	0.688	0.000	1.000
2875.4	125	7.9	2.507	0.242	263	0.742	0.000	1.000
2875.6	126	7.9	2.506	0.228	261	0.684	0.000	1.000
2875.8	121	7.9	2.508	0.202	260	0.588	0.012	1.000
2876.0	113	7.6	2.497	0.195	254	0.538	0.028	1.000
2876.2	106	8.0	2.481	0.199	251	0.519	0.039	1.000
2876.4	106	7.0	2.477	0.216	254		Coal	
2876.6	107	7.2	2.370	0.267	269		Coal	
2876.8	107	6.9	2.260	0.323	298		Coal	
2877.0	99	4.9	2.282	0.307	303		Coal	
2877.2	92	4.1	2.378	0.220	291		Coal	
2877.4	93	3.7	2.419	0.186	267		Coal	
2877.6	100	3.7	2.476	0.188	260	0.463	0.062	1.000
2877.8	109	6.6	2.516	0.199	256	0.597	0.009	1.000
2878.0	112	9.1	2.523	0.222	252	0.698	0.000	1.000
2878.2	119	10.0	2.531	0.243	259	0.798	0.000	1.000
2878.4	119	10.1	2.538	0.260	258	0.876	0.000	1.000
2878.6	121	10.2	2.500	0.286	262	0.890	0.000	1.000
2878.8	118	11.1	2.430	0.311	279	0.823	0.000	1.000
2879.0	120	13.6	2.397	0.290	286	0.669	0.000	1.000
2879.2	118	14.7	2.436	0.240	281	0.567	0.034	0.925
2879.4	114	13.8	2.457	0.209	267	0.500	0.056	1.000
2879.6	105	11.5	2.437	0.203	257	0.431	0.092	1.000
2879.8	100	9.0	2.418	0.231	253	0.492	0.078	1.000
2880.0	98	6.8	2.402	0.233	256	0.465	0.102	1.000
2880.2	102	6.6	2.426	0.221	259	0.473	0.084	1.000
2880.4	107	7.2	2.478	0.212	259	0.560	0.026	1.000
2880.6	103	8.1	2.496	0.207	253	0.581	0.016	1.000
2880.8	96	6.9	2.482	0.200	249	0.521	0.038	0.892
2881.0	99	6.6	2.470	0.205	253	0.516	0.044	1.000
2881.2	102	5.7	2.457	0.222	255	0.549	0.036	0.937
2881.4	94	5.0	2.426	0.236	256	0.533	0.053	1.000
2881.6	85	5.2	2.400	0.232	261	0.455	0.109	1.000
2881.8	86	4.9	2.401	0.228	271	0.443	0.112	1.000
2882.0	100	6.7	2.427	0.251	282	0.592	0.025	1.000
2882.2	118	10.8	2.468	0.287	282	0.822	0.000	1.000
2882.4	123	13.2	2.505	0.278	279	0.873	0.000	1.000

ROUNDHEAD\_1 (page 47 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2882.6	110	13.0	2.507	0.251	267	0.774	0.000	1.000
2882.8	93	11.1	2.492	0.213	255	0.595	0.013	1.000
2883.0	90	6.7	2.457	0.188	252	0.419	0.081	1.000
2883.2	104	4.8	2.416	0.200	253	0.370	0.109	1.000
2883.4	128	4.5	2.435	0.204	254	0.433	0.093	1.000
2883.6	148	4.9	2.498	0.193	255	0.533	0.029	1.000
2883.8	146	7.0	2.522	0.192	246	0.582	0.011	1.000
2884.0	129	10.1	2.525	0.193	240	0.596	0.008	1.000
2884.2	118	11.3	2.517	0.194	240	0.583	0.012	1.000
2884.4	118	11.4	2.507	0.208	241	0.610	0.008	1.000
2884.6	120	11.2	2.509	0.213	246	0.635	0.003	1.000
2884.8	111	10.5	2.517	0.203	248	0.613	0.006	1.000
2885.0	103	8.7	2.509	0.190	249	0.548	0.021	1.000
2885.2	106	9.8	2.507	0.184	248	0.520	0.029	1.000
2885.4	111	51.0	2.515	0.183	246	0.536	0.022	1.000
2885.6	111	11.0	2.520	0.181	244	0.539	0.020	1.000
2885.8	105	9.7	2.501	0.184	243	0.505	0.036	0.871
2886.0	95	8.7	2.481	0.183	244	0.454	0.064	1.000
2886.2	85	7.4	2.480	0.181	245	0.447	0.066	1.000
2886.4	80	7.5	2.471	0.183	248	0.435	0.072	1.000
2886.6	78	6.1	2.455	0.192	254	0.430	0.082	1.000
2886.8	74	4.7	2.427	0.181	254	0.326	0.105	1.000
2887.0	65	4.0	2.401	0.176	258		Coal	
2887.2	57	3.3	2.377	0.187	257		Coal	
2887.4	57	4.5	2.204	0.272	259		Coal	
2887.6	64	6.9	1.961	0.411	288		Coal	
2887.8	77	13.6	1.936	0.431	329		Coal	
2888.0	92	11.0	2.169	0.312	325		Coal	
2888.2	93	6.6	2.391	0.228	282	0.422	0.119	1.000
2888.4	89	4.9	2.429	0.178	254	0.316	0.105	1.000
2888.6	93	4.4	2.444	0.165	250	0.305	0.097	0.977
2888.8	100	5.2	2.456	0.176	248	0.373	0.085	0.866
2889.0	111	6.4	2.463	0.198	252	0.474	0.065	1.000
2889.2	125	8.1	2.485	0.227	252	0.631	0.005	1.000
2889.4	116	8.6	2.501	0.222	255	0.650	0.000	1.000
2889.6	103	5.8	2.471	0.198	252	0.491	0.054	1.000
2889.8	93	4.1	2.438	0.193	253	0.396	0.094	0.926
2890.0	82	3.6	2.409	0.185	258	0.299	0.118	0.947
2890.2	87	3.7	2.412	0.192	261	0.331	0.114	0.910
2890.4	108	4.6	2.457	0.208	260	0.496	0.058	0.872
2890.6	124	9.3	2.509	0.223	259	0.672	0.000	1.000
2890.8	128	11.4	2.522	0.235	257	0.749	0.000	1.000
2891.0	129	9.5	2.493	0.231	259	0.667	0.000	1.000
2891.2	126	8.4	2.450	0.222	263	0.534	0.044	1.000
2891.4	117	8.4	2.443	0.216	266	0.495	0.065	1.000
2891.6	111	8.9	2.472	0.215	261	0.557	0.029	1.000
2891.8	108	9.5	2.489	0.200	257	0.541	0.029	1.000
2892.0	107	8.7	2.498	0.187	253	0.512	0.035	0.909
2892.2	106	9.1	2.514	0.189	251	0.555	0.018	1.000
2892.4	112	12.6	2.506	0.217	251	0.644	0.001	1.000
2892.6	119	16.5	2.462	0.268	263	0.733	0.000	1.000
2892.8	114	19.3	2.425	0.333	277	0.894	0.000	1.000
2893.0	105	16.9	2.422	0.336	290	0.900	0.000	1.000
2893.2	98	12.0	2.423	0.248	280	0.570	0.036	0.888
2893.4	87	8.6	2.384	0.184	277	0.238	0.138	1.000

## ROUNDHEAD\_1 (page 48 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2893.6	75	6.4	2.348	0.171	272	0.107	0.173	1.000
2893.8	63	5.7	2.334	0.176	277	0.093	0.183	1.000
2894.0	60	5.6	2.346	0.164	278	0.075	0.177	1.000
2894.2	62	5.5	2.367	0.158	271	0.100	0.162	1.000
2894.4	64	5.3	2.378	0.169	267	0.169	0.148	1.000
2894.6	63	4.9	2.382	0.172	260	0.187	0.144	1.000
2894.8	65	4.5	2.381	0.169	260	0.174	0.146	1.000
2895.0	69	4.5	2.370	0.171	262	0.158	0.155	1.000
2895.2	68	4.2	2.368	0.176	262	0.172	0.154	1.000
2895.4	63	3.9	2.364	0.180	262	0.179	0.156	1.000
2895.6	57	3.6	2.351	0.179	265	0.143	0.167	1.000
2895.8	59	2.9	2.361	0.181	266	0.173	0.158	0.927
2896.0	74	3.5	2.433	0.189	265	0.367	0.099	1.000
2896.2	94	5.9	2.501	0.200	257	0.569	0.018	1.000
2896.4	110	12.5	2.505	0.220	255	0.650	0.000	1.000
2896.6	119	15.5	2.513	0.250	254	0.784	0.000	1.000
2896.8	129	17.2	2.493	0.275	252	0.830	0.000	1.000
2897.0	131	14.7	2.448	0.273	264	0.720	0.000	1.000
2897.2	122	9.8	2.428	0.242	262	0.560	0.039	1.000
2897.4	106	6.4	2.437	0.212	262	0.466	0.082	1.000
2897.6	97	5.1	2.425	0.206	251	0.412	0.100	1.000
2897.8	91	4.9	2.415	0.199	254	0.368	0.109	1.000
2898.0	96	4.7	2.425	0.198	254	0.384	0.102	1.000
2898.2	99	4.7	2.422	0.198	254	0.378	0.105	1.000
2898.4	103	5.1	2.418	0.188	252	0.329	0.111	1.000
2898.6	112	5.9	2.436	0.173	249	0.314	0.101	1.000
2898.8	123	7.9	2.474	0.175	244	0.412	0.071	1.000
2899.0	130	9.4	2.496	0.190	242	0.516	0.035	0.905
2899.2	121	8.3	2.482	0.201	245	0.524	0.037	0.867
2899.4	115	6.2	2.458	0.193	254	0.440	0.079	1.000
2899.6	122	7.1	2.443	0.193	257		Coal	
2899.8	128	8.7	2.394	0.221	262		Coal	
2900.0	123	11.7	2.297	0.290	292		Coal	
2900.2	116	15.4	2.258	0.327	306		Coal	
2900.4	115	16.9	2.343	0.289	311	0.539	0.076	1.000
2900.6	118	14.6	2.477	0.233	300	0.635	0.004	1.000
2900.8	127	11.2	2.529	0.209	261	0.667	0.000	1.000
2901.0	127	9.1	2.518	0.197	248	0.596	0.009	1.000
2901.2	120	7.6	2.495	0.193	244	0.526	0.032	0.977
2901.4	122	7.4	2.486	0.187	245	0.481	0.051	1.000
2901.6	136	8.7	2.498	0.203	246	0.569	0.019	1.000
2901.8	132	10.1	2.517	0.205	245	0.622	0.004	1.000
2902.0	118	10.5	2.519	0.191	245	0.575	0.013	1.000
2902.2	113	10.5	2.517	0.180	244	0.530	0.023	1.000
2902.4	116	9.8	2.496	0.187	245	0.503	0.039	1.000
2902.6	113	8.6	2.472	0.198	250	0.491	0.054	1.000
2902.8	100	5.5	2.431	0.186	255	0.352	0.101	1.000
2903.0	87	4.1	2.394	0.181	259	0.251	0.130	1.000
2903.2	82	3.7	2.388	0.183	264	0.241	0.136	0.874
2903.4	85	4.0	2.397	0.191	264	0.293	0.125	1.000
2903.6	82	4.2	2.398	0.198	260	0.322	0.123	1.000
2903.8	79	4.2	2.415	0.185	261	0.313	0.113	0.855
2904.0	79	4.4	2.431	0.168	258	0.285	0.106	0.932
2904.2	82	4.7	2.440	0.177	258	0.339	0.097	0.877
2904.4	84	4.5	2.416	0.192	255	0.340	0.111	1.000

## ROUNDHEAD\_1 (page 49 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2904.6	94	5.0	2.340	0.211	265	0.240	0.164	1.000
2904.8	110	6.4	2.346	0.237	284	0.349	0.152	1.000
2905.0	114	7.7	2.410	0.253	285	0.558	0.045	1.000
2905.2	104	7.2	2.436	0.220	282	0.492	0.069	1.000
2905.4	97	5.0	2.408	0.190	261	0.314	0.118	1.000
2905.6	95	4.4	2.403	0.179	258	0.261	0.124	1.000
2905.8	99	5.1	2.426	0.193	259	0.369	0.103	1.000
2906.0	112	6.3	2.456	0.236	263	0.600	0.017	1.000
2906.2	119	8.4	2.455	0.270	272	0.726	0.000	1.000
2906.4	120	8.3	2.453	0.249	272	0.642	0.003	1.000
2906.6	117	6.4	2.469	0.208	266	0.523	0.042	1.000
2906.8	123	6.2	2.458	0.209	256	0.501	0.055	1.000
2907.0	135	6.7	2.465	0.231	252	0.600	0.016	1.000
2907.2	140	7.6	2.506	0.249	257	0.764	0.000	1.000
2907.4	137	8.7	2.509	0.247	254	0.764	0.000	1.000
2907.6	123	8.0	2.495	0.228	252	0.658	0.000	1.000
2907.8	116	7.9	2.499	0.211	250	0.602	0.010	1.000
2908.0	124	8.0	2.519	0.226	250	0.706	0.000	1.000
2908.2	132	8.2	2.515	0.234	248	0.728	0.000	1.000
2908.4	132	7.7	2.493	0.233	249	0.672	0.000	1.000
2908.6	124	5.7	2.472	0.220	249	0.575	0.023	1.000
2908.8	121	4.5	2.449	0.204	251	0.461	0.078	0.852
2909.0	121	4.9	2.426	0.191	255	0.361	0.103	1.000
2909.2	106	4.5	2.412	0.198	256	0.354	0.112	1.000
2909.4	91	3.8	2.389	0.205	257	0.327	0.128	1.000
2909.6	75	3.4	2.363	0.209	260	0.283	0.146	1.000
2909.8	71	3.1	2.367	0.187	265	0.208	0.151	0.902
2910.0	77	3.2	2.377	0.179	266	0.201	0.146	0.932
2910.2	80	3.5	2.360	0.182	266	0.175	0.159	1.000
2910.4	76	3.1	2.336	0.190	267	0.152	0.175	1.000
2910.6	66	2.8	2.332	0.194	271	0.157	0.177	0.862
2910.8	63	2.9	2.344	0.196	272	0.192	0.167	0.864
2911.0	69	3.7	2.372	0.193	269	0.243	0.145	1.000
2911.2	77	4.2	2.396	0.179	263	0.244	0.131	1.000
2911.4	80	4.5	2.387	0.178	263	0.220	0.138	1.000
2911.6	80	4.3	2.375	0.179	267	0.198	0.148	1.000
2911.8	85	4.1	2.381	0.179	266	0.213	0.142	1.000
2912.0	87	4.7	2.376	0.186	268	0.226	0.144	1.000
2912.2	86	4.7	2.372	0.198	267	0.261	0.143	1.000
2912.4	77	3.7	2.362	0.198	271	0.242	0.151	1.000
2912.6	73	3.3	2.352	0.190	268	0.188	0.162	1.000
2912.8	83	3.9	2.372	0.190	265	0.233	0.145	1.000
2913.0	89	5.3	2.401	0.192	264	0.308	0.122	1.000
2913.2	75	4.7	2.379	0.189	257	0.246	0.140	1.000
2913.4	66	3.8	2.333	0.202	258	0.191	0.173	1.000
2913.6	68	3.2	2.317	0.204	261	0.161	0.186	1.000
2913.8	73	3.1	2.335	0.193	263	0.158	0.176	1.000
2914.0	80	3.5	2.346	0.178	260	0.128	0.172	1.000
2914.2	84	3.6	2.347	0.191	262	0.180	0.166	1.000
2914.4	82	3.8	2.365	0.201	262	0.257	0.147	1.000
2914.6	79	3.5	2.366	0.198	262	0.249	0.147	1.000
2914.8	75	3.5	2.351	0.178	263	0.140	0.168	1.000
2915.0	72	3.2	2.364	0.161	263	0.106	0.163	0.924
2915.2	73	3.2	2.378	0.173	262	0.182	0.148	0.932
2915.4	75	3.3	2.367	0.190	266	0.220	0.150	0.871



ROUNDHEAD\_1 (page 50 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2915.6	77	3.5	2.357	0.202	268	0.243	0.154	1.000
2915.8	82	3.6	2.368	0.207	267	0.286	0.143	1.000
2916.0	82	3.4	2.367	0.218	269	0.327	0.141	1.000
2916.2	79	3.3	2.340	0.223	267	0.283	0.160	1.000
2916.4	76	2.9	2.325	0.203	270	0.176	0.180	1.000
2916.6	68	2.7	2.316	0.200	269	0.143	0.189	1.000
2916.8	59	2.5	2.312	0.202	269	0.140	0.191	0.872
2917.0	61	2.5	2.327	0.201	269	0.173	0.179	0.900
2917.2	65	2.9	2.349	0.175	261	0.124	0.171	0.903
2917.4	75	3.8	2.371	0.151	257	0.081	0.162	0.868
2917.6	79	4.6	2.378	0.181	261	0.211	0.144	1.000
2917.8	83	5.2	2.396	0.210	262	0.363	0.121	1.000
2918.0	88	6.3	2.442	0.202	261	0.438	0.088	1.000
2918.2	88	7.1	2.469	0.192	248	0.463	0.066	1.000
2918.4	85	6.9	2.459	0.199	251	0.466	0.070	1.000
2918.6	91	7.5	2.458	0.215	253	0.525	0.046	1.000
2918.8	104	9.0	2.484	0.215	258	0.585	0.017	1.000
2919.0	110	11.2	2.495	0.215	255	0.611	0.009	1.000
2919.2	114	11.2	2.504	0.233	254	0.696	0.000	1.000
2919.4	117	11.0	2.496	0.236	251	0.690	0.000	1.000
2919.6	114	11.8	2.480	0.223	252	0.606	0.012	1.000
2919.8	104	10.4	2.468	0.228	256	0.598	0.016	1.000
2920.0	88	7.7	2.446	0.237	261	0.583	0.025	1.000
2920.2	75	6.0	2.426	0.215	259	0.451	0.096	1.000
2920.4	69	4.5	2.401	0.201	258	0.341	0.120	1.000
2920.6	66	4.0	2.380	0.210	258	0.324	0.133	1.000
2920.8	64	3.6	2.382	0.206	259	0.317	0.133	1.000
2921.0	63	3.5	2.386	0.201	262	0.308	0.131	0.851
2921.2	63	3.6	2.375	0.192	264	0.248	0.142	1.000
2921.4	69	3.9	2.382	0.188	262	0.248	0.138	1.000
2921.6	79	4.3	2.406	0.190	260	0.312	0.119	1.000
2921.8	91	5.8	2.394	0.242	271		Coal	
2922.0	96	9.7	2.236	0.336	300		Coal	
2922.2	97	20.0	2.135	0.392	314		Coal	
2922.4	98	20.3	2.184	0.342	339		Coal	
2922.6	94	9.0	2.312	0.267	305		Coal	
2922.8	87	5.5	2.360	0.210	287	0.280	0.148	1.000
2923.0	81	3.8	2.371	0.200	266	0.269	0.142	1.000
2923.2	83	3.2	2.367	0.181	266	0.187	0.154	0.890
2923.4	98	3.7	2.401	0.161	261	0.189	0.133	0.936
2923.6	114	5.1	2.442	0.177	249	0.346	0.095	1.000
2923.8	117	5.9	2.454	0.212	254	0.505	0.055	1.000
2924.0	116	6.2	2.448	0.254	261	0.648	0.001	1.000
2924.2	118	6.7	2.452	0.273	262	0.730	0.000	1.000
2924.4	111	6.2	2.448	0.240	258	0.594	0.020	1.000
2924.6	105	5.5	2.415	0.219	254	0.440	0.104	1.000
2924.8	107	5.4	2.426	0.212	253	0.442	0.097	1.000
2925.0	111	6.6	2.481	0.230	250	0.636	0.004	1.000
2925.2	109	13.0	2.506	0.237	248	0.719	0.000	1.000
2925.4	107	15.7	2.505	0.225	248	0.670	0.000	1.000
2925.6	107	14.9	2.506	0.219	252	0.649	0.000	1.000
2925.8	99	13.1	2.501	0.217	250	0.629	0.004	1.000
2926.0	93	10.3	2.469	0.227	251	0.597	0.016	1.000
2926.2	87	7.7	2.423	0.223	249	0.474	0.085	1.000
2926.4	76	5.9	2.386	0.208	257	0.334	0.129	1.000

## ROUNDHEAD\_1 (page 51 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPFI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2926.6	73	4.8	2.361	0.205	261	0.266	0.149	1.000
2926.8	78	4.0	2.361	0.222	264	0.328	0.144	1.000
2927.0	84	4.0	2.378	0.260	264	0.510	0.084	1.000
2927.2	91	5.3	2.349	0.296	282	0.581	0.045	1.000
2927.4	99	7.5	2.336	0.335	295	0.697	0.000	1.000
2927.6	104	9.5	2.391	0.354	293	0.898	0.000	1.000
2927.8	105	13.3	2.473	0.293	265	0.855	0.000	1.000
2928.0	107	14.9	2.507	0.251	248	0.771	0.000	1.000
2928.2	109	15.0	2.512	0.238	250	0.733	0.000	1.000
2928.4	108	15.5	2.493	0.259	258	0.773	0.000	1.000
2928.6	105	15.8	2.473	0.261	263	0.732	0.000	1.000
2928.8	102	15.5	2.478	0.240	264	0.665	0.000	1.000
2929.0	101	14.9	2.501	0.223	261	0.654	0.000	1.000
2929.2	108	13.9	2.510	0.223	254	0.677	0.000	1.000
2929.4	119	12.9	2.516	0.204	249	0.616	0.005	1.000
2929.6	121	11.6	2.509	0.188	247	0.536	0.024	1.000
2929.8	108	9.5	2.507	0.182	245	0.511	0.031	0.971
2930.0	80	6.0	2.473	0.194	248	0.481	0.057	1.000
2930.2	59	4.0	2.402	0.206	253	0.361	0.117	1.000
2930.4	50	2.6	2.358	0.185	259	0.183	0.159	0.987
2930.6	45	2.1	2.356	0.165	260	0.099	0.169	1.000
2930.8	46	2.1	2.355	0.153	259	0.053	0.174	1.000
2931.0	61	2.8	2.383	0.181	260	0.225	0.140	1.000
2931.2	86	4.1	2.456	0.213	255	0.513	0.051	0.934
2931.4	104	6.1	2.518	0.225	252	0.699	0.000	1.000
2931.6	96	7.3	2.513	0.217	242	0.658	0.000	1.000
2931.8	69	4.5	2.451	0.175	241	0.357	0.089	0.958
2932.0	53	3.2	2.392	0.138	244	0.082	0.149	1.000
2932.2	59	3.2	2.382	0.135	248	0.050	0.158	1.000
2932.4	69	3.7	2.405	0.151	248	0.160	0.133	0.974
2932.6	73	4.5	2.426	0.160	250	0.241	0.113	0.909
2932.8	76	4.8	2.433	0.162	250	0.266	0.106	0.886
2933.0	77	4.8	2.440	0.159	250	0.269	0.102	0.919
2933.2	82	5.5	2.483	0.158	248	0.365	0.070	1.000
2933.4	104	6.1	2.538	0.174	244	0.551	0.012	1.000
2933.6	128	8.3	2.553	0.199	242	0.684	0.000	1.000
2933.8	134	10.1	2.529	0.230	245	0.741	0.000	1.000
2934.0	131	12.3	2.506	0.258	256	0.797	0.000	1.000
2934.2	120	13.5	2.502	0.244	256	0.738	0.000	1.000
2934.4	110	11.5	2.516	0.201	246	0.605	0.008	1.000
2934.6	103	8.0	2.503	0.174	246	0.471	0.045	1.000
2934.8	95	6.4	2.457	0.186	252	0.412	0.082	1.000
2935.0	91	5.9	2.441	0.186	256	0.375	0.094	1.000
2935.2	94	6.9	2.435	0.186	261	0.363	0.098	1.000
2935.4	99	9.0	2.422	0.218	273	0.453	0.098	1.000
2935.6	109	11.3	2.425	0.274	284	0.671	0.000	1.000
2935.8	114	12.9	2.463	0.293	291	0.832	0.000	1.000
2936.0	109	12.6	2.460	0.283	289	0.786	0.000	1.000
2936.2	105	14.1	2.386	0.283	296	0.616	0.018	1.000
2936.4	111	15.1	2.370	0.264	286	0.507	0.089	1.000
2936.6	119	15.3	2.443	0.247	276	0.612	0.014	1.000
2936.8	119	14.3	2.512	0.250	252	0.780	0.000	1.000
2937.0	117	13.7	2.517	0.227	250	0.704	0.000	1.000
2937.2	113	11.7	2.509	0.196	250	0.570	0.016	1.000
2937.4	106	8.8	2.487	0.179	251	0.455	0.060	1.000

ROUNDHEAD\_1 (page 53 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2948.6	66	2.4	2.280	0.183	271	0.000	0.225	0.853
2948.8	59	2.4	2.268	0.187	278	0.000	0.231	1.000
2949.0	65	2.7	2.268	0.193	277	0.004	0.232	1.000
2949.2	73	2.8	2.279	0.207	276	0.085	0.217	1.000
2949.4	73	2.9	2.287	0.225	276	0.171	0.203	1.000
2949.6	71	3.3	2.294	0.225	276	0.187	0.197	1.000
2949.8	72	3.4	2.305	0.211	277	0.161	0.193	1.000
2950.0	73	4.1	2.299	0.209	276	0.138	0.199	1.000
2950.2	69	2.1	2.278	0.205	275	0.076	0.218	0.884
2950.4	74	2.2	2.305	0.187	272	0.068	0.203	0.940
2950.6	90	3.1	2.373	0.211	264	0.316	0.138	0.873
2950.8	107	6.6	2.402	0.260	268	0.568	0.041	1.000
2951.0	101	8.0	2.383	0.274	273	0.575	0.042	1.000
2951.2	91	6.7	2.384	0.254	276	0.503	0.086	1.000
2951.4	95	6.2	2.424	0.242	267	0.548	0.046	1.000
2951.6	110	6.4	2.480	0.240	259	0.667	0.000	1.000
2951.8	123	8.9	2.506	0.242	252	0.735	0.000	1.000
2952.0	127	13.9	2.491	0.246	249	0.718	0.000	1.000
2952.2	120	13.6	2.461	0.240	250	0.627	0.007	1.000
2952.4	114	12.8	2.447	0.256	256	0.653	0.000	1.000
2952.6	113	10.8	2.464	0.264	261	0.724	0.000	1.000
2952.8	111	7.5	2.466	0.227	257	0.587	0.020	1.000
2953.0	101	5.1	2.435	0.200	252	0.415	0.094	1.000
2953.2	92	3.9	2.407	0.189	250	0.309	0.119	0.857
2953.4	89	3.8	2.400	0.188	255	0.289	0.124	0.860
2953.6	91	4.0	2.410	0.189	255	0.318	0.116	0.856
2953.8	92	4.3	2.416	0.188	256	0.325	0.112	1.000
2954.0	90	4.2	2.397	0.192	253	0.297	0.125	1.000
2954.2	86	3.2	2.362	0.188	257	0.203	0.155	0.858
2954.4	94	3.0	2.360	0.187	260	0.194	0.157	0.890
2954.6	110	4.2	2.403	0.230	260	0.456	0.106	1.000
2954.8	119	8.9	2.417	0.272	266	0.646	0.002	1.000
2955.0	117	17.3	2.406	0.285	274	0.672	0.000	1.000
2955.2	108	11.1	2.396	0.280	275	0.629	0.010	1.000
2955.4	94	7.0	2.383	0.243	267	0.458	0.116	1.000
2955.6	82	4.5	2.369	0.195	260	0.246	0.146	1.000
2955.8	68	3.4	2.371	0.158	253	0.109	0.159	0.901
2956.0	56	3.1	2.385	0.151	257	0.117	0.149	1.000
2956.2	48	3.1	2.394	0.150	251		Coal	
2956.4	43	3.4	2.299	0.191	260		Coal	
2956.6	47	5.0	2.001	0.334	312		Coal	
2956.8	65	10.1	1.843	0.410	334		Coal	
2957.0	85	6.9	2.013	0.333	320		Coal	
2957.2	88	5.1	2.383	0.215	275	0.351	0.130	1.000
2957.4	85	4.3	2.451	0.171	248	0.341	0.090	1.000
2957.6	85	5.0	2.446	0.166	246	0.312	0.095	0.880
2957.8	94	5.5	2.460	0.168	247	0.353	0.084	0.863
2958.0	121	7.0	2.484	0.180	244	0.450	0.063	1.000
2958.2	134	8.7	2.492	0.210	241	0.583	0.016	1.000
2958.4	109	8.3	2.489	0.218	238	0.607	0.011	1.000
2958.6	75	6.1	2.451	0.202	243	0.459	0.078	1.000
2958.8	59	3.9	2.393	0.175	250	0.225	0.134	0.851
2959.0	53	3.1	2.351	0.160	257	0.072	0.175	0.893
2959.2	47	2.8	2.340	0.166	256	0.068	0.182	0.906
2959.4	44	2.7	2.346	0.164	255	0.074	0.178	0.942

## ROUNDHEAD\_1 (page 52 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2937.6	100	6.8	2.452	0.171	252	0.345	0.089	1.000
2937.8	98	5.0	2.430	0.178	251	0.320	0.104	1.000
2938.0	94	4.5	2.424	0.189	253	0.350	0.106	1.000
2938.2	91	4.4	2.428	0.188	253	0.352	0.103	1.000
2938.4	87	4.3	2.429	0.197	255		Coal	
2938.6	89	4.1	2.353	0.270	264		Coal	
2938.8	98	5.2	2.214	0.333	296		Coal	
2939.0	101	7.3	2.204	0.302	301		Coal	
2939.2	99	11.1	2.348	0.230	295		Coal	
2939.4	95	9.4	2.453	0.200	277	0.454	0.080	1.000
2939.6	94	8.1	2.450	0.190	256	0.412	0.086	1.000
2939.8	109	8.7	2.461	0.207	256	0.500	0.054	1.000
2940.0	121	10.9	2.473	0.237	262		Coal	
2940.2	117	13.9	2.376	0.289	281		Coal	
2940.4	112	17.3	2.275	0.315	286		Coal	
2940.6	115	18.6	2.322	0.274	277		Coal	
2940.8	116	13.1	2.439	0.221	258	0.506	0.061	1.000
2941.0	112	9.4	2.472	0.207	252	0.526	0.040	1.000
2941.2	111	8.9	2.480	0.214	258	0.573	0.022	1.000
2941.4	117	10.3	2.481	0.233	256	0.644	0.001	1.000
2941.6	118	15.9	2.402	0.268	264		Coal	
2941.8	110	21.7	2.216	0.330	287		Coal	
2942.0	101	26.0	2.080	0.364	329		Coal	
2942.2	92	14.1	2.106	0.324	320		Coal	
2942.4	94	6.9	2.272	0.227	294		Coal	
2942.6	93	4.9	2.385	0.183	265		Coal	
2942.8	98	5.5	2.405	0.176	258	0.254	0.124	1.000
2943.0	117	7.0	2.448	0.188	258	0.399	0.088	1.000
2943.2	124	11.7	2.485	0.197	253	0.518	0.038	1.000
2943.4	130	15.5	2.508	0.209	253	0.617	0.006	1.000
2943.6	133	16.5	2.526	0.228	244	0.732	0.000	1.000
2943.8	138	16.3	2.516	0.235	253	0.733	0.000	1.000
2944.0	136	16.2	2.492	0.231	254		Coal	
2944.2	132	16.7	2.486	0.221	254		Coal	
2944.4	122	20.4	2.312	0.238	255		Coal	
2944.6	103	28.0	2.020	0.322	275		Coal	
2944.8	96	30.1	1.972	0.373	318		Coal	
2945.0	107	27.3	2.217	0.332	332		Coal	
2945.2	116	19.9	2.457	0.280	300	0.769	0.000	1.000
2945.4	120	17.4	2.484	0.258	271	0.746	0.000	1.000
2945.6	121	17.8	2.490	0.244	265	0.705	0.000	1.000
2945.8	118	18.3	2.498	0.237	262	0.700	0.000	1.000
2946.0	119	18.6	2.508	0.238	256	0.725	0.000	1.000
2946.2	118	18.7	2.507	0.227	253	0.684	0.000	1.000
2946.4	113	18.1	2.499	0.223	252	0.651	0.000	1.000
2946.6	113	16.5	2.496	0.211	251	0.596	0.012	1.000
2946.8	117	14.3	2.492	0.197	251	0.532	0.031	0.964
2947.0	118	13.7	2.488	0.192	250	0.504	0.041	1.000
2947.2	116	13.3	2.479	0.189	250	0.473	0.057	1.000
2947.4	110	10.5	2.445	0.194	249	0.416	0.088	1.000
2947.6	99	6.6	2.389	0.187	254	0.261	0.132	1.000
2947.8	84	5.4	2.367	0.177	259	0.171	0.155	1.000
2948.0	79	4.8	2.383	0.171	263	0.186	0.144	1.000
2948.2	82	3.8	2.373	0.179	262	0.196	0.149	1.000
2948.4	76	2.8	2.321	0.179	263	0.075	0.193	0.856

## ROUNDHEAD\_1 (page 54 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2959.6	45	2.8	2.356	0.144	253	0.020	0.177	0.989
2959.8	49	3.1	2.367	0.129	250	0.000	0.171	0.976
2960.0	52	3.3	2.369	0.138	246	0.031	0.168	0.940
2960.2	51	3.3	2.358	0.161	250	0.093	0.168	0.882
2960.4	50	3.1	2.348	0.174	253	0.116	0.172	0.876
2960.6	51	3.1	2.359	0.171	255	0.133	0.163	0.902
2960.8	49	3.4	2.378	0.164	251	0.149	0.150	0.914
2961.0	50	3.3	2.371	0.162	249	0.124	0.157	0.912
2961.2	51	3.1	2.361	0.157	250	0.085	0.167	0.927
2961.4	51	2.9	2.354	0.148	250	0.033	0.177	0.949
2961.6	50	2.8	2.353	0.139	252	0.000	0.180	0.983
2961.8	47	2.6	2.350	0.149	251	0.027	0.180	0.998
2962.0	47	2.6	2.350	0.153	253	0.041	0.179	0.998
2962.2	46	2.7	2.382	0.137	250	0.053	0.158	1.000
2962.4	43	3.1	2.408	0.124	240	0.065	0.141	1.000
2962.6	43	3.6	2.394	0.125	236	0.038	0.152	0.987
2962.8	43	3.0	2.373	0.136	239	0.032	0.165	1.000
2963.0	44	2.5	2.355	0.151	243	0.045	0.175	1.000
2963.2	45	2.1	2.342	0.165	249	0.068	0.180	1.000
2963.4	44	1.9	2.336	0.172	255	0.080	0.183	1.000
2963.6	43	2.2	2.344	0.166	254	0.077	0.178	1.000
2963.8	41	2.4	2.363	0.146	249	0.043	0.170	1.000
2964.0	38	2.6	2.365	0.139	247	0.024	0.171	1.000
2964.2	38	2.5	2.349	0.151	248	0.031	0.180	1.000
2964.4	38	2.1	2.336	0.170	254	0.073	0.184	1.000
2964.6	40	1.9	2.324	0.185	257	0.105	0.187	1.000
2964.8	42	2.0	2.323	0.177	259	0.070	0.192	1.000
2965.0	42	2.6	2.364	0.135	248	0.008	0.173	1.000
2965.2	45	3.5	2.417	0.100	235	0.000	0.141	1.000
2965.4	53	4.5	2.456	0.090	221	0.049	0.113	1.000
2965.6	57	4.2	2.438	0.112	227	0.088	0.120	1.000
2965.8	55	3.6	2.401	0.130	230	0.071	0.145	0.995
2966.0	51	3.1	2.390	0.125	237	0.030	0.155	1.000
2966.2	49	3.2	2.399	0.114	241	0.009	0.152	1.000
2966.4	44	3.4	2.390	0.110	240	0.000	0.154	1.000
2966.6	41	3.5	2.397	0.101	237	0.000	0.148	1.000
2966.8	42	3.5	2.410	0.100	234	0.000	0.143	1.000
2967.0	45	3.6	2.409	0.109	234	0.010	0.145	1.000
2967.2	44	3.7	2.403	0.112	234	0.010	0.149	1.000
2967.4	43	3.9	2.421	0.120	231	0.080	0.131	1.000
2967.6	42	4.0	2.423	0.127	230	0.111	0.127	1.000
2967.8	44	3.9	2.403	0.131	233	0.081	0.142	0.968
2968.0	47	3.5	2.393	0.133	236	0.064	0.150	0.993
2968.2	46	3.3	2.394	0.146	240	0.115	0.145	1.000
2968.4	46	3.3	2.383	0.147	239	0.096	0.153	0.970
2968.6	47	3.2	2.383	0.138	235	0.060	0.157	0.995
2968.8	44	3.2	2.382	0.137	233	0.056	0.157	1.000
2969.0	47	3.0	2.372	0.145	233	0.063	0.163	0.987
2969.2	54	2.9	2.364	0.148	233	0.054	0.169	0.982
2969.4	55	2.9	2.370	0.130	230	0.001	0.170	1.000
2969.6	52	3.1	2.383	0.110	229	0.000	0.157	1.000
2969.8	50	3.1	2.379	0.103	230	0.000	0.155	1.000
2970.0	48	3.1	2.377	0.105	232	0.000	0.157	1.000
2970.2	48	3.2	2.392	0.101	232	0.000	0.150	1.000
2970.4	48	3.5	2.409	0.090	226	0.000	0.139	1.000

## ROUNDHEAD\_1 (page 55 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2970.6	51	3.3	2.397	0.092	225	0.000	0.144	1.000
2970.8	52	2.9	2.375	0.105	230	0.000	0.157	1.000
2971.0	50	2.6	2.371	0.108	236	0.000	0.160	1.000
2971.2	50	2.4	2.391	0.103	237	0.000	0.151	1.000
2971.4	49	2.4	2.411	0.109	239	0.016	0.144	1.000
2971.6	48	2.4	2.399	0.108	242	0.000	0.150	1.000
2971.8	49	2.4	2.372	0.112	245	0.000	0.161	1.000
2972.0	55	2.4	2.344	0.122	249	0.000	0.176	1.000
2972.2	60	2.3	2.335	0.137	253	0.000	0.186	1.000
2972.4	61	2.3	2.336	0.148	255	0.000	0.190	1.000
2972.6	66	2.2	2.336	0.159	255	0.033	0.188	1.000
2972.8	67	2.3	2.341	0.162	255	0.055	0.183	1.000
2973.0	64	2.7	2.366	0.151	252	0.072	0.165	1.000
2973.2	64	3.3	2.394	0.137	243	0.082	0.147	1.000
2973.4	63	3.5	2.405	0.127	237	0.070	0.142	1.000
2973.6	56	3.4	2.391	0.125	235	0.029	0.155	1.000
2973.8	49	2.9	2.356	0.131	238	0.000	0.176	0.987
2974.0	47	2.8	2.340	0.143	243	0.000	0.187	0.951
2974.2	51	2.9	2.344	0.138	242	0.000	0.183	0.952
2974.4	58	2.9	2.359	0.133	243	0.000	0.175	0.999
2974.6	60	2.9	2.355	0.141	243	0.008	0.178	0.967
2974.8	58	3.0	2.361	0.128	242	0.000	0.172	0.987
2975.0	59	3.3	2.381	0.114	240	0.000	0.159	1.000
2975.2	60	3.6	2.384	0.118	239	0.000	0.160	0.979
2975.4	57	3.4	2.382	0.123	241	0.003	0.162	0.986
2975.6	52	3.1	2.380	0.126	241	0.009	0.163	1.000
2975.8	51	3.1	2.370	0.132	241	0.009	0.169	0.982
2976.0	51	3.1	2.359	0.144	241	0.028	0.174	0.943
2976.2	54	3.0	2.358	0.147	242	0.037	0.174	0.952
2976.4	59	2.7	2.348	0.145	245	0.006	0.183	0.978
2976.6	63	2.5	2.331	0.159	248	0.020	0.192	0.963
2976.8	67	2.4	2.327	0.157	252	0.002	0.197	0.965
2977.0	69	2.9	2.334	0.133	251	0.000	0.184	0.948
2977.2	73	3.4	2.342	0.137	249	0.000	0.184	0.879
2977.4	74	3.3	2.346	0.145	251	0.002	0.185	0.878
2977.6	72	3.1	2.339	0.148	254	0.000	0.189	0.896
2977.8	71	2.9	2.330	0.163	256	0.035	0.191	0.885
2978.0	71	2.9	2.337	0.171	253	0.082	0.182	0.877
2978.2	71	3.1	2.341	0.177	251	0.113	0.177	0.857
2978.4	73	3.2	2.337	0.182	251	0.121	0.178	1.000
2978.6	74	3.2	2.343	0.177	251	0.115	0.175	1.000
2978.8	78	3.1	2.345	0.167	254	0.085	0.177	0.882
2979.0	81	3.3	2.351	0.166	253	0.094	0.173	0.865
2979.2	80	3.7	2.364	0.166	248	0.125	0.161	1.000
2979.4	79	3.9	2.381	0.162	243	0.148	0.149	0.856
2979.6	81	3.6	2.397	0.159	248	0.172	0.137	0.948
2979.8	84	3.3	2.409	0.170	249	0.239	0.123	1.000
2980.0	91	3.3	2.394	0.184	250	0.260	0.130	0.949
2980.2	91	3.3	2.371	0.182	250	0.202	0.149	0.880
2980.4	89	3.2	2.375	0.185	253	0.222	0.145	0.907
2980.6	94	3.5	2.415	0.166	247	0.241	0.119	1.000
2980.8	95	4.0	2.425	0.153	241	0.215	0.116	0.989
2981.0	91	4.4	2.392	0.151	241	0.129	0.144	1.000
2981.2	98	4.5	2.393	0.142	243	0.098	0.147	0.851
2981.4	110	5.1	2.426	0.136	240	0.154	0.121	0.888

## ROUNDHEAD\_1 (page 56 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2981.6	108	6.1	2.460	0.145	237	0.265	0.090	0.876
2981.8	104	6.5	2.461	0.148	235	0.278	0.088	1.000
2982.0	101	6.2	2.440	0.143	237	0.213	0.107	1.000
2982.2	101	6.2	2.424	0.141	238	0.168	0.121	1.000
2982.4	106	6.1	2.417	0.134	238	0.125	0.130	1.000
2982.6	118	6.2	2.412	0.143	239	0.147	0.130	1.000
2982.8	118	6.0	2.409	0.158	241	0.197	0.127	1.000
2983.0	121	5.8	2.408	0.158	242	0.194	0.128	1.000
2983.2	126	5.7	2.409	0.154	243	0.183	0.128	1.000
2983.4	134	5.7	2.408	0.156	243	0.185	0.129	1.000
2983.6	139	5.6	2.399	0.160	242	0.180	0.135	1.000
2983.8	134	5.6	2.388	0.157	242	0.144	0.145	1.000
2984.0	122	5.4	2.393	0.154	243	0.147	0.142	1.000
2984.2	113	5.4	2.388	0.156	243	0.141	0.145	1.000
2984.4	110	5.3	2.384	0.153	243	0.120	0.150	1.000
2984.6	117	5.3	2.396	0.151	242	0.140	0.141	1.000
2984.8	119	5.5	2.410	0.154	243	0.181	0.128	1.000
2985.0	117	5.4	2.409	0.158	243	0.197	0.127	1.000
2985.2	114	5.3	2.406	0.159	242	0.196	0.129	1.000
2985.4	119	5.3	2.404	0.150	246	0.154	0.134	1.000
2985.6	129	4.8	2.396	0.154	249	0.150	0.140	1.000
2985.8	139	4.4	2.389	0.176	250	0.218	0.137	1.000
2986.0	151	4.3	2.393	0.181	251	0.248	0.131	1.000
2986.2	163	4.5	2.392	0.175	250	0.221	0.135	1.000
2986.4	161	4.6	2.378	0.167	250	0.161	0.149	1.000
2986.6	155	4.4	2.366	0.176	250	0.168	0.156	1.000
2986.8	156	4.2	2.355	0.193	251	0.206	0.158	1.000
2987.0	148	4.1	2.345	0.196	251	0.193	0.166	1.000
2987.2	131	3.9	2.344	0.184	250	0.148	0.171	1.000
2987.4	123	4.0	2.358	0.168	247	0.116	0.166	1.000
2987.6	122	4.2	2.373	0.162	246	0.130	0.155	1.000
2987.8	116	4.5	2.374	0.167	248	0.150	0.153	1.000
2988.0	110	4.6	2.360	0.171	248	0.135	0.163	1.000
2988.2	108	4.7	2.353	0.172	247	0.122	0.168	1.000
2988.4	100	4.8	2.362	0.168	249	0.126	0.163	1.000
2988.6	95	4.5	2.367	0.164	250	0.123	0.160	1.000
2988.8	94	4.2	2.363	0.168	251	0.128	0.162	1.000
2989.0	96	4.2	2.371	0.164	249	0.130	0.157	1.000
2989.2	98	4.4	2.380	0.161	247	0.142	0.150	1.000
2989.4	95	4.8	2.379	0.155	248	0.118	0.153	1.000
2989.6	93	4.8	2.372	0.160	251	0.119	0.157	1.000
2989.8	89	4.5	2.367	0.166	251	0.128	0.160	1.000
2990.0	92	4.3	2.362	0.170	250	0.133	0.162	1.000
2990.2	96	4.3	2.343	0.172	248	0.098	0.177	1.000
2990.4	97	4.3	2.317	0.169	247	0.028	0.200	1.000
2990.6	96	4.6	2.296	0.167	248	0.000	0.213	1.000
2990.8	98	4.9	2.288	0.167	248	0.000	0.215	1.000
2991.0	96	5.0	2.290	0.166	248	0.000	0.214	1.000
2991.2	93	4.8	2.294	0.170	248	0.000	0.215	1.000
2991.4	96	4.5	2.292	0.164	250	0.000	0.213	1.000
2991.6	97	4.2	2.280	0.155	251	0.000	0.214	1.000
2991.8	92	3.9	2.252	0.154	251	0.000	0.224	1.000
2992.0	90	3.9	2.243	0.152	248	0.000	0.227	1.000
2992.2	92	4.1	2.232	0.138	246	0.000	0.225	1.000
2992.4	91	4.3	2.234	0.141	245	0.000	0.225	1.000

## ROUNDHEAD\_1 (page 57 of data listing)

DEPTH (mRKB)	GR api	RT ohmm	RHOB g/cc	NPHI frac	DT us/m	VSH frac	PHIE frac	SWE frac
2992.6	93	5.0	2.276	0.159	246	0.000	0.217	1.000
2992.8	95	5.2	2.296	0.172	249	0.000	0.214	1.000
2993.0	91	4.9	2.259	0.161	246	0.000	0.224	1.000
2993.2	89	4.7	2.249	0.163	247	0.000	0.228	1.000
2993.4	87	4.4	2.287	0.172	247	0.000	0.218	1.000
2993.6	85	4.4	2.327	0.159	248	0.012	0.195	1.000
2993.8	91	4.7	2.366	0.154	249	0.082	0.165	1.000
2994.0	91	4.7	2.374	0.164	253	0.137	0.155	1.000
2994.2	90	4.5	2.353	0.178	254	0.145	0.166	1.000
2994.4	94	4.2	2.342	0.172	253	0.097	0.178	1.000
2994.6	102	4.2	2.352	0.167	253	0.099	0.172	1.000
2994.8	102	4.4	2.368	0.173	253	0.160	0.156	1.000
2995.0	103	4.6	2.363	0.176	252	0.160	0.158	1.000
2995.2	108	4.7	2.364	0.174	252	0.152	0.159	1.000
2995.4	109	4.7	2.374	0.168	253	0.156	0.152	1.000
2995.6	105	5.0	2.386	0.172	251	0.198	0.141	1.000
2995.8	103	5.0	2.397	0.177	250	0.240	0.130	1.000
2996.0	104	5.2	2.401	0.167	251	0.213	0.130	1.000
2996.2	108	5.3	2.400	0.157	250	0.171	0.135	1.000
2996.4	111	5.4	2.404	0.159	249	0.188	0.131	1.000
2996.6	108	5.5	2.410	0.164	248	0.222	0.124	1.000
2996.8	104	5.7	2.420	0.161	248	0.234	0.117	1.000
2997.0	101	5.9	2.426	0.144	248	0.185	0.118	1.000
2997.2	97	6.1	2.428	0.134	248	0.148	0.121	1.000
2997.4	95	6.0	2.423	0.145	248	0.178	0.121	1.000
2997.6	93	5.4	2.410	0.160	248	0.206	0.125	1.000
2997.8	95	4.8	2.386	0.162	248	0.160	0.145	1.000
2998.0	99	4.5	2.371	0.160	248	0.115	0.158	1.000
2998.2	97	4.6	2.384	0.157	248	0.135	0.148	1.000
2998.4	96	4.9	2.404	0.181	248	0.273	0.123	1.000
2998.6	98	5.2	2.419	0.178	248	0.293	0.112	1.000
2998.8	102	5.2	2.418	0.170	248	0.263	0.115	1.000
2999.0	98	5.2	2.418	0.174	248	0.279	0.114	1.000
2999.2	98	5.2	2.424	0.168	248	0.269	0.111	1.000
2999.4	99	5.3	2.421	0.162	248	0.239	0.116	1.000
2999.6	107	5.1	2.404	0.173	248	0.241	0.126	1.000
2999.8	110	5.0	2.393	0.176	247	0.227	0.134	1.000
3000.0	108	5.0	2.390	0.171	247	0.201	0.138	1.000



PE601012

This is an enclosure indicator page.  
The enclosure PE601012 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE601012 has the following characteristics:

- ITEM\_BARCODE = PE601012
- CONTAINER\_BARCODE = PE902172
- NAME = Quantitative log
- BASIN = GIPPSLAND
- PERMIT =
- TYPE = WELL
- SUBTYPE = WELL\_LOG
- DESCRIPTION = Quantitative log
- REMARKS =
- DATE\_CREATED = 12/07/89
- DATE\_RECEIVED = 15/02/90
- W\_NO = W984
- WELL\_NAME = Roundhead-1
- CONTRACTOR = ESSO
- CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 3

**GEOCHEMICAL REPORT**  
**ON**  
**ROUNDHEAD 1**

**BY**

**B. J. BURNS**

**MAY 1989**

GEOCHEMICAL REPORT

ON

ROUNDHEAD 1

BY

B. J. BURNS

MAY 1989

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- Table 4 Kerogen Particulate Organic Matter Type (POMT) compositions
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- Figure 4 Atomic H/C vs O/C Plot, Roundhead 1 kerogens (Van Krevelen)

## INTRODUCTION

Sidewall core locations for source rock geochemistry were selected based on electric log characteristics of the Roundhead 1 well. Twelve sidewall core samples from the Latrobe Group sediments were selected over the interval from 2484-2952m for Total Organic Carbon (TOC), Rockeval Pyrolysis and Kerogen Type/Fluorescence analysis, while five of the more carbonaceous samples were sent to Keiraville Konsultants for Vitrinite Reflectance determination.

Elemental analysis of the kerogen fractions was also determined on fifteen sidewall cores, including nine of the samples mentioned above.

## RESULTS

The TOC and Rockeval results are presented in Tables 1 & 2 and Figure 1. Three samples from the Paleocene L.balmei section had TOC's less than 0.5% and were not analysed further. The other two L.balmei samples had TOC's of 0.90 - 1.28% respectively, which would rate them as only fair to good potential sources. However the seven Upper Cretaceous (Upper T.longus) samples have consistently higher TOC's from 1.27-13.37% and would be rated as rich to very rich source rocks.

This good rating for the Upper Cretaceous samples is confirmed by the Rockeval Pyrolysis results (Table 2) which indicate S<sub>2</sub> yields above 5.5 mg/kg for all of the samples below 2879.5m (S<sub>2</sub> levels above 6 mg/kg are rated as "good"). The expected hydrocarbon product, as defined by the Hydrogen Index (Table 2, Fig 2), is mostly gas with minor liquids. Only the two very carbonaceous SWC,s at 2900m and 2936m m have HI's greater than 200 mg/kg and hence are rated as good oil sources.

The low Tmax values for all samples ( <435 ) indicates that the whole section penetrated in the well is immature and this is confirmed by the Vitrinite Reflectance measurements (Table 3) which are all less than Rv=0.60%

Kerogen organic matter descriptions are set out in Table 4 and Figure 3. The Lower L.balmei section is dominated by Cellular and Semi-opaque material (> 75%) which is considered as poor source material for liquid hydrocarbons. There is a marked increase in the amount of Biodegraded Terrestrial within the Upper Cretaceous T.longus section where it accounts for 30 - 60% of the kerogen, and this, combined with 10 - 20% Amorphous material, is interpreted as indicating a good potential oil-prone source interval below 2879.5m.

The corresponding kerogen Fluorescence data (Tables 4 & 5) provides a more pessimistic assessment of the oil potential of all the samples, except the one from 2484m. If one assumes (and at this stage it must still be considered an assumption) that the amount of fluorescing material is related to the oil-proneness of a sample, then all of the samples (except 2484m) would be considered as gas-prone since the amount of fluorescing material never exceeds 20% of the kerogen. This low oil-prone rating is supported by the H/C atomic ratios of the kerogens, as shown in the Van Krevelen Plot (Fig 4, Table 6), which are all less than 1.0 and hence indicate a predominance of Type III terrestrial organic matter over most of the Latrobe Group interval.

The Rockeval pyrolysis data indicates that only the two carbonaceous samples at 2900.5m and 2936.5m (TOC's 10.86 and 13.37% respectively) have, Hydrogen Indices which would rate them as oil-prone. While these two samples have the highest content of Biodegraded Terrestrial kerogen (ie oil-prone) their H/C atomic ratios are only intermediate and the percent fluorescing material is low. Given all this, these two samples are best interpreted as being both gas and oil prone.

#### ENVIRONMENT OF DEPOSITION

The coastal plain facies of the Upper T. longus section displays a marked increase in the TOC content (Table 1) and the presence of significant Biodegraded Terrestrial kerogen (Table 4). Both of these features would be expected due to the formation of reducing coal/swamp environments in a coastal plain setting. In contrast, during the Highstand and Condensed Sequence periods, the water column has been more oxidising with the resulting loss of organic carbon and a relative increase in the amount of oxidised semi-opaque kerogen. There is insufficient data to see any trends in the Hydrogen Index values (Table 2) since all except one of the samples analysed are from the Coastal Plain environment. It is a little surprising that the H/C Atomic Ratios (Table 6) do not seem to show any relationship to the depositional environment.

#### SUMMARY

The Upper Cretaceous section below 2879.5m has the best source potential but is rated as mostly gas-prone with minor oil. There appears to be some correlation between the Coastal Plain depositional environment and an increase in both TOC and the amount of Biodegraded Terrestrial material in the kerogen. The whole section down to Total Depth is believed to be immature for hydrocarbon generation ( $R_v < 0.6\%$ ).

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Table 1

**ROUNDHEAD 1**  
**TOTAL ORGANIC CARBON REPORT**

SAMPLE NO.	DEPTH (m)	AGE	FORMATION	DEPOSITIONAL ENVIRONMENT	TOC %	DESCRIPTION
78203 Z	2484.0	Paleocene	Lower L.balmei	Coastal Plain	0.80	Sltstn dk gy
78203 S	2546.8	"	" "	Condensed Seq	0.38	Sltstn dk gy, v calc
78203 Q	2612.0	"	" "	Highstand	0.14	Sltstn lt-m gy, sl calc
78203 O	2618.5	"	" "	Highstand	0.41	Sltstn m-dk gy, v calc
78203 K	2678.0	"	" "	Condensed Seq	1.28	Sltstn dk gy, v calc
78202 M	2855.5	Upper Cret	Upper T.longus	Coastal Plain	1.43	Sltstn m gy-brn, v calc
78202 L	2862.5	"	" "	Coastal Plain	1.27	Sst lt gy
78202 J	2879.5	"	" "	Coastal Plain	3.60	Sltstn m-dk gy, carb flakes
78202 H	2900.5	"	" "	Coastal Plain	10.86	Sltstn v dk brn, coal lam
78202 E	2929.0	"	" "	Coastal Plain	2.98	Sltstn dk gy
78202 D	2936.5	"	" "	Coastal Plain	13.37	Sltstn v dk brn-blk, coal
78202 C	2952.0	"	" "	Coastal Plain	3.71	Sltstn dk gy, carb



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TABLE 2A

ROCK EVAL ANALYSES

BASIN - GIPPSLAND  
WELL - ROUNDHEAD 1

REPORT A - SULPHUR & PYROLYZABLE CARBON

SAMPLE NO.	DEPTH	SAMPLE TYPE	AGE	TMAX	S1	S2	S3	PI	S2/S3	PC	COMMENTS
78203 Z	2484.0	CRSW		414.	.33	.65	.34	.34	1.91	.08	
78203 K	2678.0	CRSW		418.	.16	1.09	.39	.13	2.80	.10	
78202 M	2855.5	CRSW		418.	.16	1.89	.25	.08	7.58	.17	
78202 L	2862.5	CRSW		423.	.08	.57	.19	.12	3.00	.05	
78202 J	2879.5	CRSW		422.	.45	6.31	.32	.07	19.47	.56	
78202 H	2900.5	CRSW		419.	2.42	49.07	1.44	.05	34.14	4.27	
78202 E	2929.0	CRSW		423.	.29	5.50	.24	.05	22.72	.48	
78202 D	2936.5	CRSW		420.	2.69	60.01	1.17	.04	51.46	5.20	
78202 C	2952.0	CRSW		423.	.58	6.18	.30	.09	20.60	.56	

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TABLE 2B

ROCK EVAL ANALYSES

BASIN - GIPPSLAND  
WELL - ROUNDHEAD 1

REPORT B - TOTAL CARBON, H/O INDICES

SAMPLE NO.	DEPTH	SAMPLE TYPE	FORMATION	TC	HI	OI	HI/OI	COMMENTS
78203 Z	2484.0	CRSW		.90	72.	38.	1.91	
78203 K	2678.0	CRSW		1.28	85.	30.	2.80	
78202 M	2855.5	CRSW		1.43	132.	17.	7.58	
78202 L	2862.5	CRSW		1.27	45.	15.	3.00	
78202 J	2879.5	CRSW		3.60	175.	9.	19.47	
78202 H	2900.5	CRSW		10.86	452.	13.	34.14	
78202 E	2929.0	CRSW		2.90	185.	8.	22.72	
78202 D	2936.5	CRSW		13.37	449.	9.	51.46	
78202 C	2952.0	CRSW		3.71	167.	8.	20.60	

PI=PRODUCTIVITY INDEX    PC=PYROLYZABLE CARBON    TC=TOTAL CARBON    HI=HYDROGEN INDEX    OI=OXYGEN INDEX

TABLE 3 VITRINITE REFLECTANCE  
ROUNDHEAD NO. 1

K.K. No.	ESSO No.	Depth (m)	$\bar{R}_v$ max	Range	N	Description Including Exinite Fluorescence	A1/1
v83	78203 Z	2482 SWC 52	0.53	0.41-0.62	27	Sparse sporinite, yellow to orange, rare cutinite, orange, rare resinite, yellow. (Sandstone>claystone>siltstone>coal. Coal sparse, V>I. Vitrite>inertite. Dom common, V>I>E. Vitrinite common, inertinite and exinite sparse. Diffuse humic organic matter sparse. Rare dull orange fluorescing bitumen. Iron oxide rare. Pyrite common to abundant.)	
v84	78203 S	2546.8 SWC 45	0.51	0.41-0.56	6	Rare sporinite and liptodetrinite, yellow to orange. (Sandstone>siltstone>claystone. Dom sparse, V>I>E. All three maceral groups sparse. Iron oxide sparse. Pyrite common.)	
v85	78203 K	2678 SWC 37	0.58	0.42-0.69	28	Sparse sporinite, orange to dull orange, sparse suberinite, weak brown, rare resinite, yellow, rare cutinite, dull orange. (Sandstone>siltstone>coal. Coal rare, V>I>E. Vitrite=clarite=inertite. Dom abundant, I>V>E. Inertinite and vitrinite common, exinite sparse. Micrinite abundant in some vitrinite. Some vitrinite resinous. Weak brown fluorescence from desmocollinite. Iron oxide sparse. Pyrite abundant.)	
v86	78202 M	2855.5 SWC 13	0.55	0.46-0.72	28	Sparse sporinite, orange to dull orange, rare cutinite, orange. (Sandstone>siltstone>coal. Coal rare V>>I. Vitrite. Dom abundant, I>V>E. Inertinite and vitrinite common, exinite sparse. Weak brown fluorescence from desmocollinite. Sparse dull orange fluorescing bitumen. Iron oxide rare. Pyrite sparse.)	
v87	78202 D	2936.5 SWC 4	0.55	0.48-0.64	28	Abundant sporinite, yellow to orange, common cutinite, orange, common suberinite, weak brown, sparse resinite, yellow, sparse fragmented ?telalginate of <u>Botryococcus</u> origin, greenish yellow. (Claystone>shaly coal>coal. Coal common, V>E. Vitrite>clarite. Shaly coal major, V>E>I. Clarite>vitrite. Dom abundant, V>E>I. Vitrinite and exinite abundant, inertinite sparse. Diffuse humic organic matter abundant. Sparse possible oil drops yellow fluorescing. Coalified leaf tissues present. Iron oxide rare. Pyrite sparse.)	

EXPLORATION BIOSTRATIGRAPHY/GEOCHEMISTRY

TABLE 4

KEROGEN P.O.M.T. REPORT

BASIN - GIPPSLAND  
WELL - ROUNDHEAD 1

SAMPLE NO	DEPTH (M)	YIELD	*	PARTICULATE ORGANIC MATTER TYPES											*	IF	*	TAI	% OIL	
				1.1	1.2	2.1	2.2	3.0	4.0	5.1	5.2	5.3	6.1	6.2					PRONE	% FLUOR
78203 Z	2484.00	L	*	5.0	-	-	-	10.0	5.0	-	55.0	20.0	5.0	-	*	5.0	*	-	20.0	50
78203 S	2546.00	L	*	-	-	-	-	-	-	-	50.0	40.0	10.0	-	*	5.0	*	-	-	10
78203 Q	2612.00	L	*	10.0	-	-	-	-	-	-	25.0	50.0	15.0	-	*	5.0	*	-	10.0	10
78203 O	2618.50	L	*	10.0	-	-	-	-	-	-	30.0	50.0	10.0	-	*	5.0	*	-	10.0	5
78203 K	2678.00	M	*	10.0	-	-	-	-	5.0	-	30.0	40.0	15.0	-	*	-	*	-	15.0	15
78202 M	2855.50	M	*	10.0	-	-	-	20.0	-	-	40.0	25.0	5.0	-	*	-	*	-	30.0	20
78202 L	2862.50	M	*	5.0	-	-	-	10.0	-	-	55.0	25.0	5.0	-	*	10.0	*	-	15.0	20
78202 J	2879.50	M	*	5.0	-	-	-	30.0	-	-	30.0	25.0	10.0	-	*	10.0	*	-	35.0	5
78202 H	2900.50	H	*	20.0	-	-	-	40.0	-	-	20.0	15.0	5.0	-	*	10.0	*	-	60.0	10
78202 E	2929.00	M	*	20.0	-	-	-	35.0	-	-	15.0	20.0	10.0	-	*	-	*	-	55.0	10
78202 D	2936.00	M	*	15.0	-	-	-	60.0	-	-	10.0	15.0	-	-	*	10.0	*	-	75.0	20
78202 C	2952.00	M	*	10.0	-	-	-	35.0	5.0	-	15.0	25.0	10.0	-	*	20.0	*	-	50.0	15

YIELD = (L)OW (M)EDIUM (H)IGH  
 AMORPHOUS = 1.1 - UNDIFFERENTIATED + 1.2 - AMORPHOUS/GREY  
 STRUCT. AQUEOUS = 2.1 - ALGAE + 2.2 - DINOFLAGELLETES/ACRITARCHS  
 BIODEG. TERR. = 3.0 - BIODEGRADED TERRESTRIAL  
 SPORE/POLLEN = 4.0 - SPORE/POLLEN  
 STRUCT. TERR. = 5.1 - LAMINAR + 5.2 - CELLULAR + 5.3 - SEMI-OPAQUE  
 INERT = 6.1 - OPAQUE + 6.2 - META-OPAQUE  
 INDET. FINES = IF - INDETERMINATE FINES (EXPRESSED AS A PERCENTAGE OF TOM, BUT EXCLUDED FROM POMT PERCENT COUNT)  
 TAI = THERMAL ALTERATION INDEX  
 OIL PRONE = SUM OF 1.1 THRU 4.0  
 FLUOR = PERCENT FLUORESCENT MATERIAL

EXPLORATION BIOSTRATIGRAPHY/GEOCHEMISTRY

TABLE 5

KEROGEN FLUORESCENCE

BASIN - GIPPSLAND  
WELL - ROUNDHEAD 1

SAMP NO.	DEPTH (M)	TYPE	AN	COLOUR	%	DESCRIPTOR	COMMENTS
78203 Z	2484.00	CRSW	29	WHITE YELLOW TOTAL	50 50	DOM CELLULAR-SOME SEMI OPAQUE	IMMATURE. TRACE OF AMORPHOUS MATERIAL- TO DISPERSED TO SHOW ANY FLUORESCENCE
78203 S	2546.00	CRSW	29	BRIGHT YELLOW TOTAL	10 10	SOME HIGH BIREFRINGENT CELLULAR MATERIAL	IMMATURE.
78203 Q	2612.00	CRSW	29	BRIGHT YELLOW TOTAL	10 10	SOME HIGH BIREFRINGENT CELLULAR MATERIAL	IMMATURE.
78203 O	2618.50	CRSW	29	BRIGHT YELLOW TOTAL	5 5	CELLULAR MATERIAL	IMMATURE.
78203 K	2678.00	CRSW	29	WHITE YELLOW BRIGHT YELLOW TOTAL	5 10 15	RARE DINOFLAGELLATES CELLULAR MATERIAL	IMMATURE-EARLY MATURE
78202 M	2855.50	CRSW	29	WHITE YELLOW GOLD TOTAL	5 15 20	?CONTAMINATION -MINERAL MATTER CELLULAR MATERIAL SOME BIODEG. TERREST.	EARLY MATURE
78202 L	2862.50	CRSW	29	WHITE YELLOW GOLD TOTAL	5 15 20	?CONTAMINATION -MINERAL MATTER CELLULAR MATERIAL	EARLY MATURE
78202 J	2879.50	CRSW	29	BRIGHT YELLOW GOLD TOTAL	TR 5 5	SEMI OPAQUES DULL-HIGH BIREF. CELLULAR MATERIAL	EARLY MATURE- DULL FLUORESCENCE ONLY
78202 H	2900.50	CRSW	29	GOLD TOTAL	10 10	DULL-DOM. SEMI OPAQUE CELLULAR	EARLY MATURE
78202 E	2929.00	CRSW	29	GOLD TOTAL	10 10	DULL-SEMI OPAQUE,CELLULAR & LAMELLAE	EARLY MATURE
78202 D	2936.00	CRSW	29	GOLD TOTAL	20 20	DULL-SEMI OPAQUE,CELLULAR	EARLY MATURE. ONLY THE LARGE FRAG- MENTS OF CELLULAR AND SEMI OPAQUE MATERIAL FLUORESCES
78202 C	2952.00	CRSW	29	GOLD TOTAL	15 15	DULL-CELLULAR, LAMELLAE	EARLY MATURE.

TABLE 6A

## KEROGEN ELEMENTAL ANALYSIS REPORT

BASIN - GIPPSLAND  
WELL - ROUNDHEAD 1

SAMPLE NO.	DEPTH	SAMPLE TYPE	--- ELEMENTAL % (ASH FREE) ---					COMMENTS	
			N%	C%	H%	S%	O%		ASHZ
78203 Z	2484.00	KEROGEN	.88	69.39	4.71	.00	25.01	9.40	
78203 Y	2487.10	KEROGEN	.78	69.95	4.69	.00	24.58	12.88	HIGH ASH
78203 L	2657.50	KEROGEN	1.11	73.49	4.67	.00	20.73	9.86	
78203 K	2678.00	KEROGEN	.91	73.53	4.32	.00	21.24	8.09	
78203 J	2679.10	KEROGEN	.36	28.37	2.14	.00	69.13	6.48	
78202 V	2789.00	KEROGEN	.75	70.61	4.56	.00	24.08	10.34	HIGH ASH
78202 M	2855.50	KEROGEN	.87	76.58	4.58	.00	17.98	7.57	
78202 L	2862.50	KEROGEN	.81	75.92	4.07	.00	19.21	5.83	
78202 K	2871.50	KEROGEN	.77	67.26	3.34	.00	28.63	4.41	
78202 J	2879.50	KEROGEN	.80	76.64	4.58	.00	17.98	3.86	
78202 I	2891.00	KEROGEN	.76	73.38	4.14	.00	21.71	9.77	
78202 H	2900.50	KEROGEN	.48	59.11	4.46	.00	35.95	3.98	
78202 F	2929.00	KEROGEN	.29	42.40	3.02	.00	54.29	3.42	
78202 D	2936.50	KEROGEN	.50	74.68	5.92	.00	18.91	3.13	
78202 C	2952.00	KEROGEN	.68	76.44	4.43	.00	18.45	6.45	

TABLE 6B

## KEROGEN ELEMENTAL ANALYSIS REPORT

BASIN - GIPPSLAND  
WELL - ROUNDHEAD 1

SAMPLE NO.	DEPTH	SAMPLE TYPE	AGE	FORMATION	ATOMIC RATIOS		
					H/C	O/C	N/C
78203 Z	2484.00	KEROGEN			.82	.27	.01
78203 Y	2487.10	KEROGEN			.81	.26	.01
78203 L	2657.50	KEROGEN			.76	.21	.01
78203 K	2678.00	KEROGEN			.70	.22	.01
78203 J	2679.10	KEROGEN			.90	1.83	.01
78202 V	2789.00	KEROGEN			.78	.26	.01
78202 M	2855.50	KEROGEN			.72	.18	.01
78202 L	2862.50	KEROGEN			.64	.19	.01
78202 K	2871.50	KEROGEN			.60	.32	.01
78202 J	2879.50	KEROGEN			.72	.18	.01
78202 I	2891.00	KEROGEN			.68	.22	.01
78202 H	2900.50	KEROGEN			.90	.46	.01
78202 F	2929.00	KEROGEN			.86	.96	.01
78202 D	2936.50	KEROGEN			.95	.19	.01
78202 C	2952.00	KEROGEN			.69	.18	.01

FIGURE 1

# Roundhead 1

## Depth Profile

### Total Organic Carbon & Rockeval

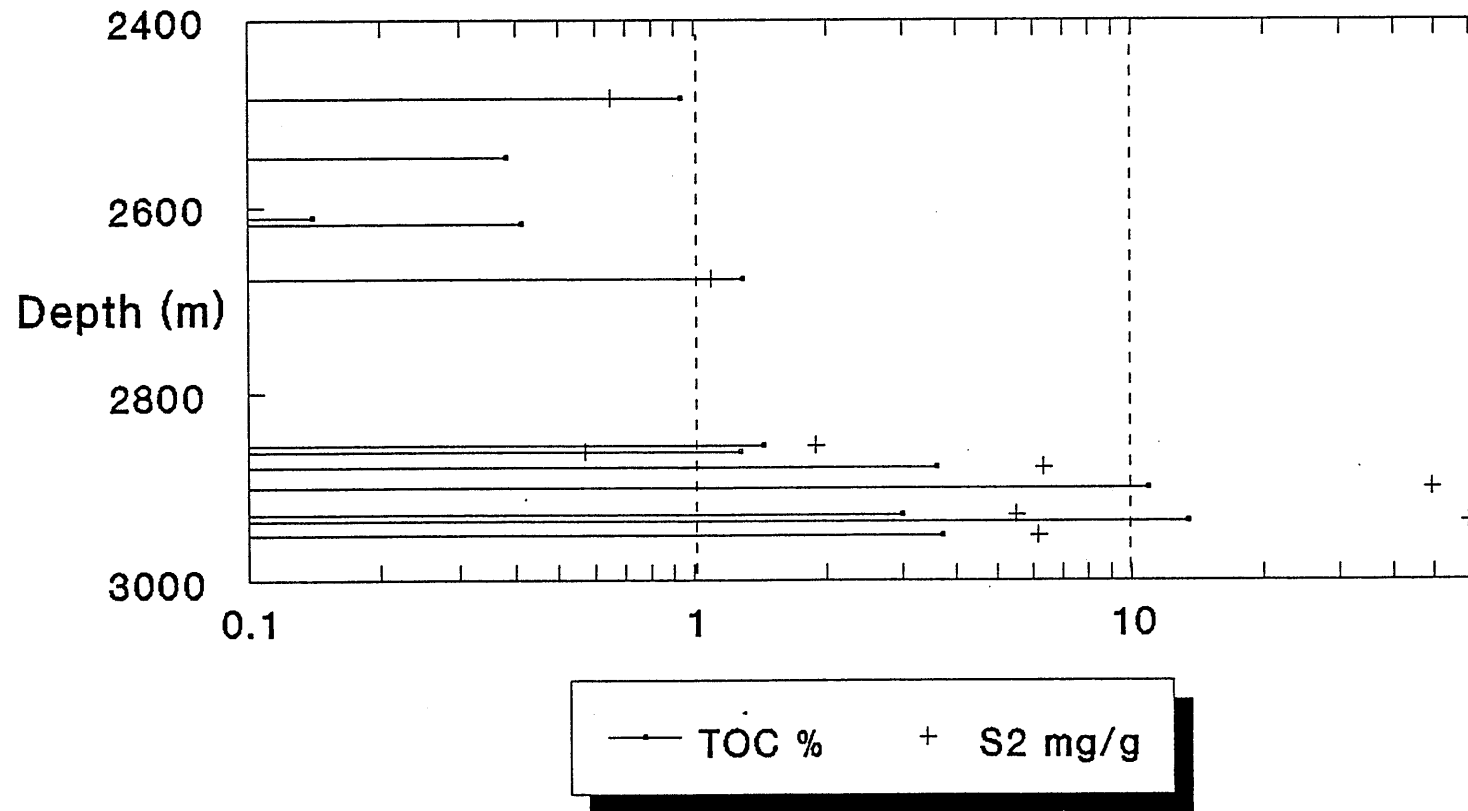
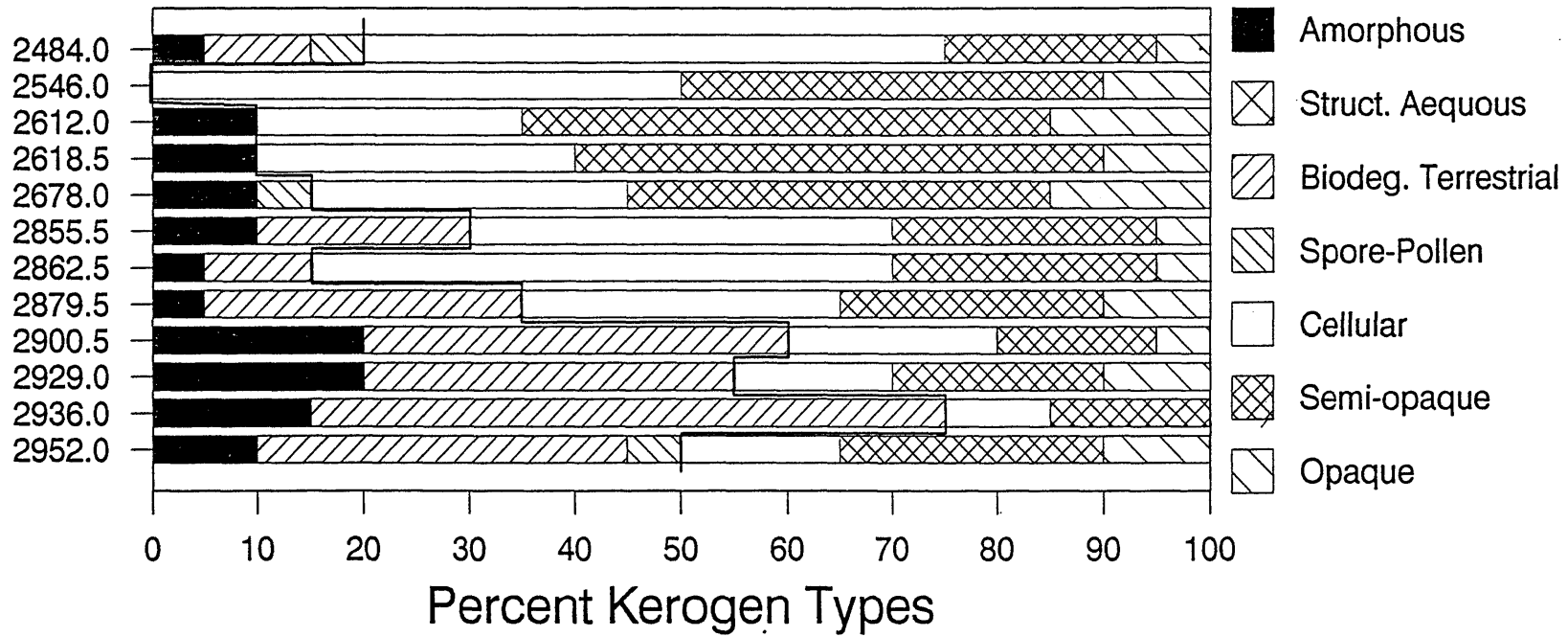




FIGURE 3

# Roundhead 1 Kerogen Types

Sample Depths

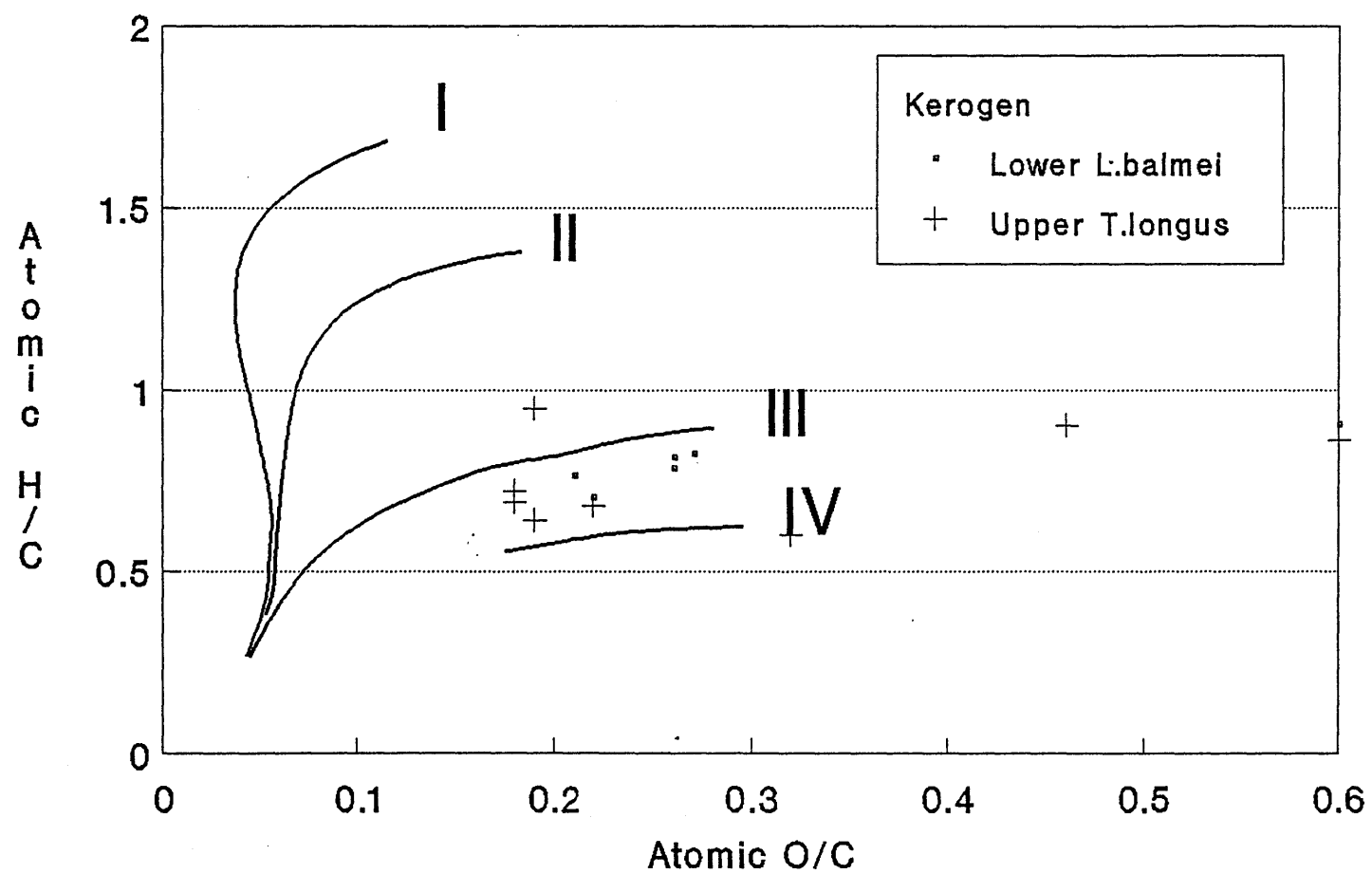


*Oil prone catagories are shown to the left of  
the heavy line  
Data by M.J. Hannah.*



Figure 4

# Roundhead 1



Van Krevelen Plot

APPENDIX 4

ROUNDHEAD-1

RFT REPORT

30th December, 1988

January 3, 1989  
VICTORIA BINNS

A:ROUND

## ANALYSIS OF ROUNDHEAD-1 RFT DATA

### SUMMARY

Roundhead-1 was drilled from December 6, 1988 to T.D. on December 29, 1988. The main objective of the well was to confirm and define any hydrocarbon accumulations at the top of the lowstand wedge of the 60.0 million year (m.y) sequence. The secondary objective of the well was to test the oil potential in a smaller closure on the top of the lowstand wedge of the 58.5 m.y sequence. An RFT program was run in Roundhead-1 on December 30, 1988. As a result of the RFT survey, the following conclusions have been drawn:

1. All sands penetrated by Roundhead-1 are water bearing.
2. A shale seal exists between RFT points 2-6 and 2-5 (see Graph 1) over the interval 2782-2814 mKB.
3. An additional seal is provided by the 65m shaley zone from 2845 to 2910 mKB. This is illustrated on Graph 1 by the 25 psi shift from RFT point 2-5 to RFT point 2-4.
4. The shale that is evident on the logs between 2917 mKB and 2959 mKB could provide a seal between the sand in which RFT point 2-4 lies in, and the sand that RFT points 2-2 and 2-1 are in. Alternatively the pressure recorded at point 2-4 could be supercharged due to excessively tight formation.
5. There appears to be no pressure seal from 2380 to 2786 mKB. This is reflected in Graph 1 where the 1.43 psi/m water gradient passes neatly through all tested pressure points.

### PROGRAM

A total of 13 seats were attempted during the RFT survey of Roundhead-1 and 11 were successfully completed. All seats were pretests. One seat was unsuccessful due to excessively tight formation where the pressure would not build up much higher than the minimum flowing pressure. The other invalid seat gave anomalously high pressures, probably due a result of supercharging in tight formation.

Further details of the RFT pretest surveys are available in the attached sheets (Attachment 1).

UPPER WATER ZONE: 2380-2786 mKB.

Seven valid pressures were taken in this upper water sand and all the pressures fell on a straight line of gradient 1.43 psi/m. This is comparable to the Original Gippsland Aquifer Gradient of 1.421 psi/m and indicates a high vertical permeability. As illustrated in Graph 1, the higher water sand has been drawn-down by 140 psi from the original aquifer line. This is a result of continuing high production from the M sands in the Kingfish field which is drawing down the sands at Roundhead. When comparing the Roundhead-1 upper water sand gradient line with the Kingfish M water gradient (see Graph 1) it is shown that the Roundhead sands have a 30 psi higher pressure, which was anticipated considering the greater distance away from the M sands currently being produced.

An effective pressure seal is indicated by the RFT data over the interval 2786-2814 mKB. The pressure at RFT point 2-5 is 12 psi greater than the corresponding pressure expected at that depth if the seal did not exist (see Graph 1). This is in agreement with the logs which show a substantial shale break at this depth which could prevent vertical communication in this area.

MIDDLE and LOWER WATER ZONES: 2910 mKB TO T.D.

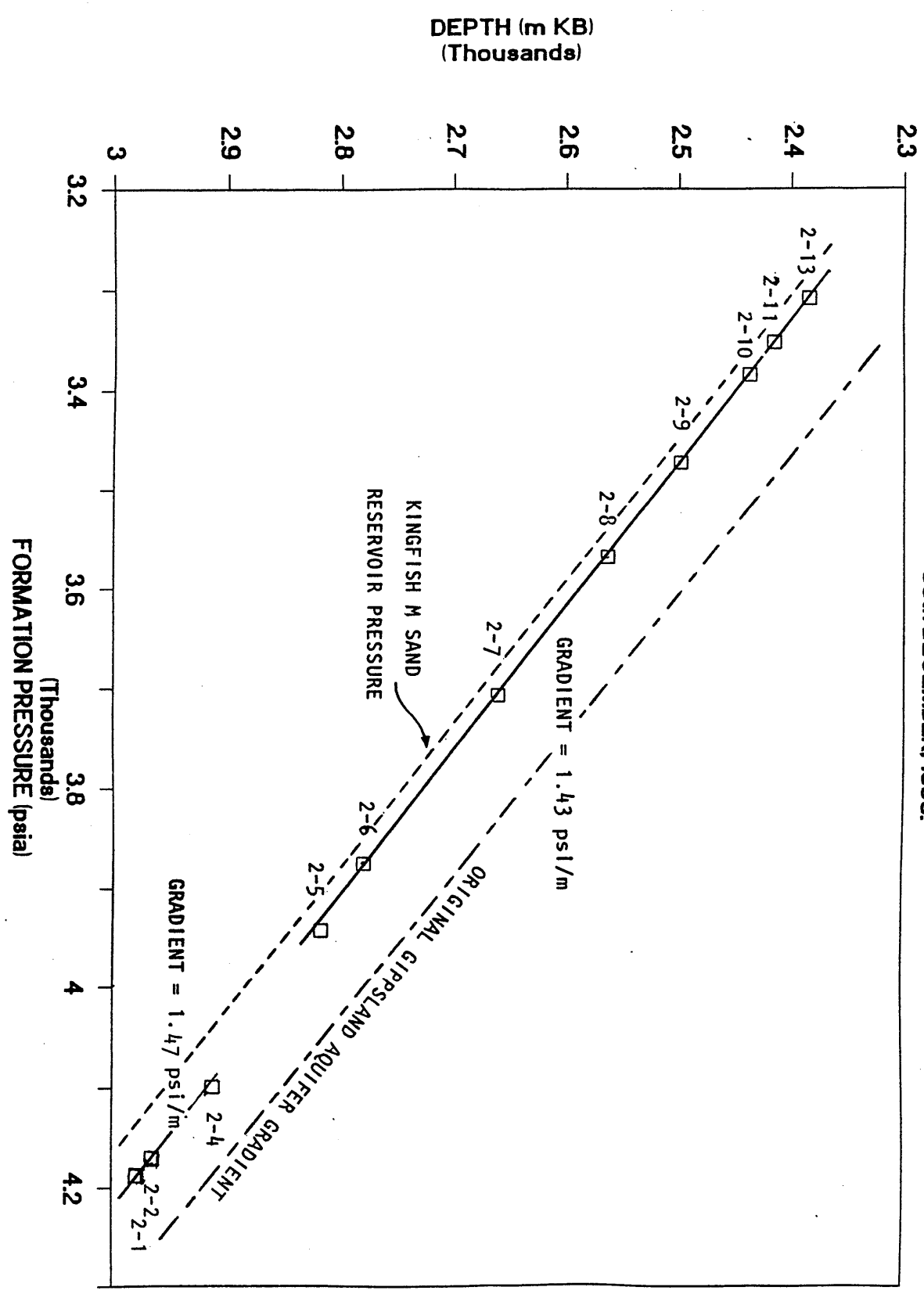
One valid pressure was taken at 2911.8 mKB in the middle water zone (point 2-4) however the sand was quite tight and it took considerably longer than the other tests to build up. Two valid pressures were taken in the lower water sand (points 2-1 & 2-2) and they fell on a water gradient of 1.47 psi/m. The 42m intervening shale between RFT point 2-4 and points 2-1 and 2-2 could be interpreted as sealing as the pressure gradient changes substantially from point to point. Assuming that the sand was continuous between the three points, the water gradient would be 1.35 psi/m. This is substantially lower than the original Gippsland Aquifer Gradient and can only be explained by assuming that since point 2-4 is in a tight shaley section, the sand could be isolated from production drawdown effects or that the registered pressure was supercharged. By assuming that point 2-4 is in a different, non-communicating sand to points 2-1 and 2-2, the water gradient for the lower section is 1.47 psi/m. This is closer to the aquifer water gradient and the higher water gradient than that seen in the shallower sands indicates that this sand has less vertical permeability than the upper sands.

The pressure points in both the middle (2910-2917 mKB) and the lower water sand (2959 mKB - T.D.) are not as drawdown from the Gippsland aquifer as the shallower sands. This is consistent with the current thinking that drawdown due to basin production declines with depth.

In conclusion, the RFT program indicated the existence of two effective pressure seals within the Roundhead-1 sands and one other probable seal towards the base of the sands. The shallowest seal occurs from 2786-2814 mKB, whilst the next seal extends from 2845 mKB to 2910 mKB. There is some evidence of a pressure anomaly over the interval 2914 mKB to 2977 mKB and it is probable that the shale extending from 2917 mKB to 2959 mKB acts as an effective seal. No hydrocarbons were present in any sand intersected by the well.

# ROUNDHEAD - 1 RFT

30th DECEMBER, 1988.



RFT NO. RUN-SEAT	DEPTH		INITIAL HYDROSTATIC HP/RFT GAUGE		TIME SET	MINIMUM FLOWING PRESSURE psi (PRETEST)	FORMATION PRESSURE HP/RFT GAUGE		TEMP °C	TIME RETRACT	FINAL HYDROSTATIC HP/RFT GAUGE		COMMENTS (INCLUDE PROBE TYPES) LONG NOSE PROBE
	RFT TYPE	m MDKB	m TVD ss KB=	psia psig			PPg	psia psig			PPg	psia psig	
2 - 1 P	2977	2956	5016.54 / 5002		07:57	4029.46	4187.63 / 4175		98	08:04	5017.65 / 5010		GOOD TEST
2 - 2 P	2964.5	2943.5	4997.62 / 4980		08:18	4006	4169.25 / 4154		99.2	08:23	4997.75 / 4980		GOOD TEST
2 - 3 P	2913.6	2892.6	4914.24 / 4894		08:44	-	-		-	-	-		TOO TIGHT
2 - 4 P	2911.8	2890.8	4911.73 / 4892		08:58	8	4099.10 / 4085		97.6	09:10	4914.63 / 4900		TIGHT. FAIR TEST
2 - 5 P	2816.5	2795.5	4757.88 / 4743		09:28	2930	3941.08 / 3928		95.2	09:35	4759.67 / 4745		GOOD TEST
2 - 6 P	2779.0	2758	4694.56 / 4680		09:51	3824	3874.06 / 3860		93.6	10:00	4694.48 / 4680		GOOD TEST
2 - 7 P	2659.0	2638	4491.15 / 4477		10:18	3663	3706.20 / 3692		91.1	10:27	4492.62 / 4478		GOOD TEST
2 - 8 P	2562.0	2541	4328.34 / 4314		10:44	3532	3566.89 / 3552		89.1	10:50	4328.28 / 4314		GOOD TEST
2 - 9 P	2497.0	2476	4214.13 / 4200		11:09	3439	3471.35 / 3457		87.6	11:14	4217.81 / 4213		GOOD TEST
2 - 10 P	2436.0	2415	4113.91 / 4105		11:25	3169	3383.47 / 3375		85.4	11:32	4113.0 / 4099		GOOD TEST

PT=PRETEST  
SPT=SAMPLE

RFT 2.85

1107.OP.344

L=LONG NOSE PROBE  
M=MARTINEAU PROBE

RFT NO. RUN-SEAT	DEPTH		INITIAL HYDROSTATIC HP/RFT GAUGE		TIME SET	MINIMUM FLOWING PRESSURE psi (PRETEST)	FORMATION PRESSURE HP/RFT GAUGE		TEMP °C	TIME RETRACT	FINAL HYDROSTATIC HP/RFT GAUGE		COMMENTS (INCLUDE PROBE TYPES)
	RFT TYPE	m MDKB	m TVD ss KB=	psia			psig	psia			psig	psia	
2 - 11	P	2414.5	2393.5	4075.82	4061	11:47	3316	3350.96	3337	84.3	11:52	4075.53 / 4060	GOOD TEST
2 - 12	P	2388.0	2367	4030.88	4016	12:01	3271	-	-	82.8	-	4030.43 / 4014	INVALID TEST. ANOMALOUSLY HIGH PRESSURE
2 - 13	P	2383.5	2362.5	4022.73	4005	12:18	3147	3308.39	3292	82.5	12:27	4022.70 / 4004	GOOD TEST

PT=PRETEST  
SPT=SAMPLE

RFT 2.85

1107.OP.344

L=LONG NOSE PROBE  
M=MARTINEAU PROBE



ENCLOSURES

PE902173

This is an enclosure indicator page.  
The enclosure PE902173 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE902173 has the following characteristics:

ITEM\_BARCODE = PE902173  
CONTAINER\_BARCODE = PE902172  
NAME = Structural Cross Section A-A'  
BASIN = GIPPSLAND  
PERMIT =  
TYPE = WELL  
SUBTYPE = CROSS\_SECTION  
DESCRIPTION = Structural Cross Section A-A'  
REMARKS =  
DATE\_CREATED = 1/08/89  
DATE\_RECEIVED = 15/02/90  
W\_NO = W984  
WELL\_NAME = Roundhead-1  
CONTRACTOR = ESSO  
CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902174

This is an enclosure indicator page.  
The enclosure PE902174 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE902174 has the following characteristics:

- ITEM\_BARCODE = PE902174
- CONTAINER\_BARCODE = PE902172
- NAME = Post Drill Average Velocity Map Top of  
Latrobe Grp
- BASIN = GIPPSLAND
- PERMIT =
- TYPE = SEISMIC
- SUBTYPE = HRZN\_CONTR\_MAP
- DESCRIPTION = Post Drill Average Velocity Map Top of  
Latrobe Grp
- REMARKS =
- DATE\_CREATED = 1/07/89
- DATE\_RECEIVED = 15/02/90
- W\_NO = W984
- WELL\_NAME = Roundhead-1
- CONTRACTOR = ESSO
- CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902175

This is an enclosure indicator page.  
The enclosure PE902175 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE902175 has the following characteristics:

ITEM\_BARCODE = PE902175  
CONTAINER\_BARCODE = PE902172  
    NAME = Post Drill Structure Map top of Latrobe  
          Group  
    BASIN = GIPPSLAND  
    PERMIT =  
    TYPE = SEISMIC  
    SUBTYPE = HRZN\_CONTR\_MAP  
    DESCRIPTION = Post Drill Structure Map top of Latrobe  
                  Group  
    REMARKS =  
    DATE\_CREATED = 1/07/89  
    DATE\_RECEIVED = 15/02/90  
    W\_NO = W984  
    WELL\_NAME = Roundhead-1  
    CONTRACTOR = ESSO  
    CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902176

This is an enclosure indicator page.  
The enclosure PE902176 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE902176 has the following characteristics:

- ITEM\_BARCODE = PE902176
- CONTAINER\_BARCODE = PE902172
- NAME = Post-Drill Structure Map Top 60 Ma LSW
- BASIN = GIPPSLAND
- PERMIT =
- TYPE = SEISMIC
- SUBTYPE = HRZN\_CONTR\_MAP
- DESCRIPTION = Post-Drill Structure Map Top 60 Ma LSW
- REMARKS =
- DATE\_CREATED = 1/07/89
- DATE\_RECEIVED = 15/02/90
- W\_NO = W984
- WELL\_NAME = Roundhead-1
- CONTRACTOR = ESSO
- CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE902177

This is an enclosure indicator page.  
The enclosure PE902177 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE902177 has the following characteristics:

ITEM\_BARCODE = PE902177  
CONTAINER\_BARCODE = PE902172  
NAME = Post Drill Structure Map 60 Ma Sequence  
Boundary  
BASIN = GIPPSLAND  
PERMIT =  
TYPE = SEISMIC  
SUBTYPE = HRZN\_CONTR\_MAP  
DESCRIPTION = Post Drill Structure Map 60 Ma Sequence  
Boundary  
REMARKS =  
DATE\_CREATED = 1/07/89  
DATE\_RECEIVED = 15/02/90  
W\_NO = W984  
WELL\_NAME = Roundhead-1  
CONTRACTOR = ESSO  
CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE601013

This is an enclosure indicator page.  
The enclosure PE601013 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE601013 has the following characteristics:

ITEM\_BARCODE = PE601013  
CONTAINER\_BARCODE = PE902172  
NAME = Well Completion log  
BASIN = GIPPSLAND  
PERMIT =  
TYPE = WELL  
SUBTYPE = COMPLETION\_LOG  
DESCRIPTION = Well Completion log  
REMARKS =  
DATE\_CREATED = 4/01/89  
DATE\_RECEIVED = 15/02/90  
W\_NO = W984  
WELL\_NAME = Roundhead-1  
CONTRACTOR = ESSO  
CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)

PE601015

This is an enclosure indicator page.  
The enclosure PE601015 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE601015 has the following characteristics:

ITEM\_BARCODE = PE601015  
CONTAINER\_BARCODE = PE902172  
NAME = Exlog/Formation Evaluation Log  
BASIN = GIPPSLAND  
PERMIT =  
TYPE = WELL  
SUBTYPE = MUD\_LOG  
DESCRIPTION = Exlog/Formation Evaluation Log  
(enclosure from WCR) for Roundhead-1  
REMARKS =  
DATE\_CREATED = 29/12/88  
DATE\_RECEIVED = 15/02/90  
W\_NO = W984  
WELL\_NAME = Roundhead-1  
CONTRACTOR = EXLOG  
CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)



PE601014

This is an enclosure indicator page.  
The enclosure PE601014 is enclosed within the  
container PE902172 at this location in this  
document.

The enclosure PE601014 has the following characteristics:

ITEM\_BARCODE = PE601014  
CONTAINER\_BARCODE = PE902172  
NAME = Synthetic Seismic Trace  
BASIN = GIPPSLAND  
PERMIT =  
TYPE = WELL  
SUBTYPE = SYNTH\_SEISMOGRAM  
DESCRIPTION = Synthetic Seismic Trace  
REMARKS =  
DATE\_CREATED = 17/09/89  
DATE\_RECEIVED = 15/02/90  
W\_NO = W984  
WELL\_NAME = Roundhead-1  
CONTRACTOR = ESSO  
CLIENT\_OP\_CO = ESSO

(Inserted by DNRE - Vic Govt Mines Dept)